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Eastern Nile Technical Regional Office

WATERSHED MANAGEMENT FAST TRACK PROJECT, SUDAN

PROJECT IMPLEMENTATION PLAN

Final Report

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Abbreviations

ABS	Agricultural Bank of Sudan
ADS	Area Development Scheme
ARB	Animal Resources Bank
AWPB	Annual Work Plan and Budget
CBO	Community Based Organisation
CDF	Community Development Fund
CIFA	Country Integrated Fiduciary Assessment
CLMP	Community Land use Management Plan
CPA	Comprehensive Peace Agreement
CRA	Cooperative Regional Assessment
DNP	Dinder National Park
DNPP	Dinder National Park Project
EIA	Environmental Impact Assessment
ENCOM	Eastern Nile Council of Ministers of Water Affairs
ENSAP	Eastern Nile Subsidiary Action Programme
ENTRO	Eastern Nile Technical Regional Office
ESMF	Environmental and Social Management Framework
FAO	Food and Agriculture Organization
Finnida	Finnish Development Agency
FNC	Forest National Corporation
FTP	Fast Track Project
FTWMP	Fast Track Watershed Management Project
GEF	Global Environment Facility
GIS	Geographic Information System
GMP	Global Mercury Project
GOS	Government of Sudan
HQ	head Quarters
IDEN	Integrated Development of the Eastern Nile
IDP	Internally Displaced People
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
IWM&D	Integrated Watershed Management and development
IWRM	Integrated Water Resources Management
LADC	Lower Atbara Development Company
LFA	Logical Framework Analysis
LIU	Local Implementation Unit
LSC	Local Steering Committee
M&E	Monitoring & Evaluation
MDG	Millennium Development Goals
MDTF	Multi Donor Trust Fund
MFEP	Ministries of Finance and Economic Planning
MIS	Monitoring Information System
MOFNE	Ministry of Finance and National Economy
MOIWR	Ministry of Irrigation and Water Resources
MPPPU	Ministry of Physical Planning and Public Utilities and State Water Corporation
MTR	Mid Term Review

NAPA	National Adaptation Programme of Action
NBI	Nile Basin Initiative
NC	National Coordinator
NCWR	National Council for Water Resources
NELSAP	Nile Equatorial Subsidiary Action Programme
NFC	National Forestry Corporation
NFP	National Focal Point
NGO	Non-governmental Organisations
Nile-COM	Nile Council of Ministers of Water Affairs of the Nile Basin
Nile-SEC	Nile Secretariat
Nile-TAC	Nile Technical Advisory Committee
NPES	National Poverty Eradication Strategy
NRM	Natural Resource Management
NSDC	National Social Development Coordinators
NTEAP	Nile Transboundary Environmental Assessment Project
O&M	Operation & Maintenance
OM	Operational Manual
PCR	Project Completion Report
PCU	Project Coordination Unit
PFM	Public Financial Management
PID	Project Identification Document
PIP	Project Implementation Plan
PSC	Project Steering Committee
RIMS	Result and Impact Management System
SCENR	State Council for Environment and Natural Resources
SIA	Social Impact assessment
SOS WFP	SOS SAHEL Women's Forestry Programme
SPLM	Sudan Peoples' Liberation Movement
SSF	State Support Fund
SSSD	Sudanese Savings and Social Development Bank
SWC	State and Rural Water Corporations
TA	technical Assistance
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
WB	World Bank
VDC	Village Development Committee
VPC	Village People's Committee

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1 Executive Summary

The Fast Track Watershed Management Project in Sudan and its Project Implementation Plan has been prepared in several steps including preparation and detailed preparation missions. The detailed project preparation of land and water management initiatives and project governance framework has been undertaken during 2007 and entailed an iterative consensus building process among the stakeholders namely at federal, state and community levels.

The long-term project development goal of the FTWMP in Sudan is the same as the goal stated in the Project Identification Document (PID) for ENSAP regional cooperation on watershed management and approved by the Eastern Nile Council of Ministers in March 2001, namely:

"Ensure efficient water management and optimal use of the resources through the equitable utilization and no significant harm; ensure cooperation and joint action between the Eastern Nile Countries seeking win-win goals; target poverty eradication and promote economic development; and to ensure that ENSAP results in a move from planning to action"[1]

The specific objective of the Watershed FTP in Sudan is to:

Stimulate, support and demonstrate alternative livelihood practises and local governance systems that contribute to poverty reduction and environmental sustainability

The watershed management fast track project sites selected are located in the Atbara Basin and Blue Nile Basin and include (i) Lower Atbara, (ii) Dinder National Park and surroundings and (iii) the Bau Locality. These were selected based on a variety of criteria including community interest and prior experience, impact on poverty, chances for demonstrating early results of improved land and water management, and government support. The three areas have different characteristics and needs and are located within different ecological zones.

Based on a participatory assessment of the local root causes, core problems and potential response interventions, three area specific project objectives have been identified. The assessment included the evaluation of linkages between: population – livelihood practices- environmental degradation- potential driving forces for change.

The additional area specific project objectives are as follows:

Lower Atbara Area – To combat desertification, improve environmental resilience and reduce people's vulnerability by promoting more reliable and environmentally sound livelihoods to the people dependent on the meager natural resources in the Lower Atbara.

Bau Area - To reduce the pressure on and conflicts over the natural resources, to capture the long-term development potential of the area, and to build a foundation for sustained peace by promoting alternative, more reliable and environmentally friendly livelihood practices.

Dinder National Park (DNP) Area – To safeguard the natural resources and the biodiversity of the Dinder National Park by improving the Park management and enhance participatory planning and offering alternative livelihoods to target groups who at present depend on the park's natural resources

The key framework project components are divided into three general output areas (each with a number of sub-components):

Component 1: Institutional Strengthening in order to strengthen the capacity of relevant local institutions, supporting stakeholders and communities to efficiently, effectively and sustainably fulfil their defined roles and responsibilities within the field of economic development and environmental management.

Component 2: Project Management to ensure that the FTWMP activities are implemented smoothly and with technical and financial efficiency.

Component 3: Integrated Watershed Management and Development (IWM&D) Interventions with the objective to support local IWRM&D initiatives at local and community level with a strong poverty reduction and environmental focus that will simultaneously deepen local participatory IWRM processes.

2 The Overall Project

The Watershed Management Fast Track Project (FTP) in Sudan has emerged from the Nile Basin Initiative and the linked Eastern Nile Subsidary Action Program (ENSAP). ENSAP is a regional cooperative initiative between Egypt, Ethiopia and Sudan.

The Project Implementation Plan has been prepared in several steps including preparation and detailed preparation missions. The detailed project preparation of land and water management initiatives and project governance framework has been undertaken during 2007 and entailed an iterative consensus building process among the stakeholders namely at federal, state and community levels. The detailed preparation study furthermore entailed multi-disciplinary assessments i.e. technical, institutional, economic and social and environmental assessments. The Project partners and other stakeholders have met several times (start-up-, inception-, interim-, draft final- and final workshops) to discuss the proposed Project and exchange advice on its preparation progress.

2.1 Key Development Issues and Project Rationale

2.1.1 Nile River Basin and Evolving Cooperation

The Nile River, the longest river in the world, traverses more than 6,700 km from its farthest point at the headwaters of the Kagera River in Rwanda to its delta in Egypt on the Mediterranean Sea. Ten countries share the Nile River Basin, explicitly: Burundi, Democratic Republic of Congo (DRC), Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda. The basin covers 3 million sq.km – one-tenth of Africa's total land mass. It serves as home to world-class environmental assets, such as Lake Victoria and the vast wetlands of the Sudan. It also serves as home to an estimated 160 million people within the boundaries of the basin, while nearly twice that number – roughly 300 million – live within the ten countries that share the basin.

Despite the extraordinary natural endowments and rich cultural history of the Nile Basin, its people face considerable challenges. The regional population is expected to double within the next 25 years, placing an additional strain on already scarce water, land and other natural resources. Yet the Nile holds significant opportunities for win-win development that could enhance energy availability, food production, transportation, industrial development, environmental conservation, and other related development activities in the region.

The Nile Basin Initiative (NBI), launched in February 1999, is a regional initiative of the riparian states of the Nile and provides a framework to fight poverty and promote sustainable development through improved integrated water resources management at the basin level. The Eastern Nile Subsidiary Action Program (ENSAP), which includes Egypt, Ethiopia, and Sudan, is an investment oriented sub-basin level program.

To achieve regional objectives the ENSAP countries -among other efforts - have jointly launched two parallel programmes under the umbrella of ENTRO/ENSAP and

NBI, explicitly i) the Cooperative Regional Assessment (CRA) for Watershed Management; and ii) the Fast Track Watershed Management Projects (FTWMPs). While the CRA is an effort for identifying long term opportunities for cooperative actions, the FTPs aim at demonstrating early results of locally improved watershed management. The reason for the FTPs is the recognition that - while regional benefits will come primarily from improved water management and protection of the Nile water - this cannot be achieved without the support and action of the people who occupy the land of watershed and draw their livelihoods from its ecosystems.

Therefore, the primary focus of the FTWMP in Sudan is improved rural livelihoods based on integrated and participatory planning as a mean to achieve efficient land and water management.

2.1.2 Poverty and Watershed Management Challenges in Sudan

The Sudan is one of the poorest countries in Sub-Saharan Africa despite its rich endowment with natural resources. However, based on the published economic data, economic growth has been sustained at 6.6% during the 2000-2004 period, particularly in response to an IMF monitored economic stabilization programme and to the growth of the oil sector. With the steady increase in oil production and significant increase in oil prices, it is estimated that growth in GDP and per capita income will reach its highest levels and could be sustained for another decade or so.

Despite that Sudan has turned around a struggling economy with sound economic policies and infrastructure investments, its people still face considerable challenges. Today, Sudan is among the world's 20 poorest countries and is characterized by poverty, political instability, rapid population growth, and environmental degradation. Estimates on poverty range between 70% in Northern Sudan and up to 90% in Southern Sudan and other conflict affected areas. Poverty in Sudan is a rural phenomenon. It is estimated that between 17 million and 21 million persons out of an estimated 35 million people in Sudan[1] live in the rural areas on less than a dollar a day. This paradox of sustained high rates of economic growth and pervasive poverty can be explained by economic mismanagement and the enclave growth theory. According to this theory, the oil sector and related investments and services, benefit a small segment of the population. These investments are linked to the fast growing sectors and global markets. The allocation of resources to the war effort, while maintaining tight monetary policy, has undermined investments in the pro-poor sectors such as health, education and rainfed agriculture. Under the current reconstruction and peace building efforts, the budgetary framework of the Government of National Unity and the government of southern Sudan will be closely monitored for their pro-poor spending.

With regard to water resources, Sudan is highly dependent on the Nile Basin as its main source of water and ecosystem services. Consequently, land and water resources management in Sudan is impacted by, and impacts upon, the other Eastern Nile countries. Additionally, current land and water practices in Sudan impact negatively on peoples' livelihoods along the rivers, by causing decreased water quality and quantity, increased susceptibility to recurrent flooding and seasonal water shortage, siltation of water infrastructure, reduced soil fertility and loss of agricultural land.

[1] A national population census is due in 2007.

Watershed degradation has mainly resulted from the clearance of vast areas of forested lands for cultivation, fuel wood, brick making, and over grazing. Silt deposition in the Blue Nile and Atbara rivers has interfered with their flow regimes. Bank erosion along the rivers has contributed to increased sedimentation elsewhere. Excessive siltation in the irrigation canals reduced water flows and thus decreased water availability and favoured aquatic weed growth which in turn reduces the velocity of water flow and increased sedimentation creating a vicious circle. The recurrent costs involved in cleaning silt deposits from the reservoirs and irrigation canals are enormous, unfortunately there are very few empirical or quantitative studies that assess their magnitude.

Moreover, overstocking of livestock has led to destruction of biomass and inappropriate rain-fed schemes site-preparation techniques have led to the development of compaction layers on most sites and thus increased water run-off.

Key interlinked environmental and social issues in Sudan are:

- Inadequate supplies of water for household and productive uses
- Loss of biodiversity/carrying capacity
- Degradation of local watershed ecosystems
- Poor governance of land allocation and environmental management
- Conflict over natural resources
- Vulnerability to natural shocks
- Poor agricultural and rangeland productivity

2.1.3 Regional and Country Strategy goals supported by the program

The Watershed FTP is firmly grounded within the international, regional and national sustainable development efforts and it is committed to moving as quickly and as responsibly as possible towards implementing concrete developments in the project areas that will contribute to the following, among others, regional and national development goals.

2.1.3.1 Meeting the Millennium Development Goals

Poverty alleviation and sustainable development are the main objectives of the Millennium Development Goals (MDG), which were agreed upon at the United Nations Millennium Summit in September 2000 to provide a benchmark of indicators to measure development progress. The ENSAP as a whole and the FTWMP in particular will contribute to acheiving the MDGs of poverty alleviation and sustainable development, and in addition will promote regional peace and security. Specifically, Millennium Development Goal 1, eradicate extreme poverty; Goal 7, ensure environmental sustainability and particular the target to halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation; and Goal 8, develop a global partnership for development, will be addressed directly by the FTWMP in Sudan ..

2.1.3.2 International rivers and the benefits of cooperation

International cooperation within the Nile Basin generates a wide range of benefits for the riparian states. In this context, the ENSAP FTWMPs in Sudan as well as in Egypt and Ethiopia aim at building commitment for national interventions to achieve regional objectives and to generate and share the benefits of cooperation.

2.1.3.3 Accordance with overall national goals

After the Comprehensive Peace Agreement (CPA), the Government of Sudan (GOS) and the Sudan Peoples' Liberation Movement (SPLM) reached an agreement in 2004 on a joint concept note detailing the vision and key objectives of the policy framework for a **National Poverty Eradication Strategy** (NPES). The PES has two overarching goals: (i) achieving peace and reducing the risk of future conflicts; (ii) making a lasting impact on poverty and progress on other MDGs. The concept of "widely shared growth" underpins the strategy. The PES addresses rural development from a number of aspects that are relevant to the structural causes of rural poverty: building a multi-layered governance structure that is characterized by transparency, accountability and adequate resource allocation; implementing comprehensive capacity building and institutional strengthening programs; creating an enabling environment for private sector promotion with special emphasis on rural development; empowering local communities, vulnerable groups, youth, women's and civil society organizations; managing natural resources in an environmentally friendly and sound way.

The recently finalised **Integrated Water Policy** of 2007 has been developed based on the Transitional Constitution of Sudan, water policies of 1977, 1992 and 2000, macroeconomic and social policies and development strategies. The formulation of the Water Policy of 2007 is also based on sound water assessments, established effective regulatory framework and capacity for enforcement of approved legislations and to promote the role of women, moves toward market-oriented solutions and creates incentives for the sustainable use of water resources. The Goal of the Water Resources Policy is “to lay the foundation for a rational and efficient framework to sustain the water needs of national economic development, poverty alleviation, peace, environmental protection and social well-being of the people through sustainable water resources management”.

With regard to the Climate Change, the Higher Council for Environment and Natural Resources has formulated a **National Adaptation Programme of Action** (NAPA) dated July 2007. The three highest priority sectors where urgent and immediate action is needed were identified through the NAPA consultation process to be agriculture, water, and public health. The proposed project deals with several of the key adaptation needs which have been identified for both in the agricultural and water sector. Moreover, it addresses mitigation issues by supporting major reforestation interventions and investment in alternative energy sources, such as solar energy.

With regard to **land use governance**, the present land and water governance structure is inadequate to provide i) security of access to land and water resources, ii) conservation of natural resources and iii) equitable and economic use of these resources. At stake are the discretionary powers of the federal and state governments to allocate land without due consideration to customary use and environmental impact. The Comprehensive Peace Agreement has instituted a mechanism in the form of the State Land Commissions, for arbitrating land claims. These Commissions are currently implemented in the conflict areas and their replication will be considered in the non conflict affected areas.

The long distances from production areas to markets, the multiple taxation of marketed products, the reliance of the state on foreign earning from export of key commodities, and the limited financing available to intermediaries and traders have

led to the establishment of monopolies, either in the form of parastatals (like the Gum Arabic Corporation) or of private companies (for livestock trade). In view of the **liberalization of the economy**, plans are underway to look at alternatives to the existing monopolies. In the area of livestock trade, efforts are also on-going to introduce auction systems to replace the current secretive and non transparent system of livestock purchase and sale.

The FTWMP in Sudan has been designed to contribute to national goals and reform processes by providing local tools to lead the major management transition in the area of pro-poor and environmental governance.

2.1.4 Innovative Features

The purpose of the FTWMP in Sudan is to deliver rapid local benefits that can demonstrate the value of local watershed management in the context of regional cooperation and yield lessons for strengthening similar interventions within Sudan and across the Eastern Nile Basin.

The innovative features of the project are summarised below:
Regional objectives, national implementation: The project has emerged from regional cooperation and is focused on national implementation to achieve regional objectives.

Identification of root causes: The proposed FTWMP in Sudan has evolved form a process of participatory assessment of the root causes, core problems and appropriate response interventions. It is based on a common understanding, among the key stakeholders, of the linkages between “population – livelihood practices-environmental degradation- potential driving forces for change”. The project is multi-disciplinary in scope as a way to capture the main root causes.

Fast track approach in parallel with long term cooperation: The fast track approach of the proposed Project will deliver tangible investment projects that will demonstrate the early benefits of cooperation. Early results from specific and non-controversial watershed projects will bring direct benefits to poor people and will build confidence and commitment – most importantly among stakeholders within the country, who must believe that cooperation is the right path, but also among potential investors, who must believe that cooperation is worthy of their investment. The proposed FTWMP in Sudan is based on the concept of building on ‘low-hanging fruits’ that are ready for implementation and will not stretch the growing trust and capacity of the Eastern Nile.

National driven project preparation: The Watershed FTP in Sudan has evolved through a process of extensive consultation and feedback amongst the main project partners and stakeholders in the three project areas and at Federal level with limited involvement from potential external financiers. It naturally builds on lessons learned from previous projects in Sudan and complements on-going projects and government efforts.

2.2 Project Development Objectives

2.2.1 Project Development Goal

The long-term project development goal of the FTWMP in Sudan is the same as the goal stated in the Project Identification Document (PID) for ENSAP regional cooperation on watershed management and approved by the Eastern Nile Council of Ministers in March 2001, namely:

"Ensure efficient water management and optimal use of the resources through the equitable utilization and no significant harm; ensure cooperation and joint action between the Eastern Nile Countries seeking win-win goals; target poverty eradication and promote economic development; and to ensure that ENSAP results in a move from planning to action"[1]

2.2.2 Specific Project Objectives

The specific objective of the Watershed FTP in Sudan is to:

Stimulate, support and demonstrate alternative livelihood practises and local governance systems that contribute to poverty reduction and environmental sustainability

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Based on a participatory assessment of the local root causes, core problems and potential response interventions, three area specific project objectives have been identified. The assessment included the evaluation of linkages between: population – livelihood practices- environmental degradation- potential driving forces for change.

2.2.3 Area Specific Project Objectives

The additional area specific project objectives are as follows:

Lower Atbara Area – To combat desertification, improve environmental resilience and reduce people's vulnerability by promoting more reliable and environmentally sound livelihoods to the people dependent on the meager natural resources in the Lower Atbara.

Bau Area - To reduce the pressure on and conflicts over the natural resources, to capture the long-term development potential of the area, and to build a foundation for

sustained peace by promoting alternative, more reliable and environmentally friendly livelihood practices.

Dinder National Park (DNP) Area – To safeguard the natural resources and the biodiversity of the Dinder National Park by improving the Park management and enhance participatory planning and offering alternative livelihoods to target groups who at present depend on the park's natural resources

2.2.4 Performance indicators

Progress towards the above outcomes would be measured and monitored based on the following key performance indicators:

a. No of local interventions, elaborated and implemented on the basis of integrated and participatory plans for watershed management and local development.
b. No. of environmental and livelihood improvement projects managed fully or partially by CBOs
c. Area of improved land use management in the participating Localities.

2.3 Key Framework Project Components

The key framework project components are divided into three general output areas (each with a number of sub-components):

Component 1: Institutional Strengthening in order to strengthen the capacity of relevant local institutions, supporting stakeholders and communities to efficiently, effectively and sustainably fulfil their defined roles and responsibilities within the field of economic development and environmental management.

Component 2: Project Management to ensure that the FTWMP activities are implemented smoothly and with technical and financial efficiency.

Component 3: Integrated Watershed Management and Development (IWM&D) Interventions with the objective to support local IWRM&D initiatives at local and community level with a strong poverty reduction and environmental focus that will simultaneously deepen local participatory IWRM processes.

2.4 Project Coverage

Fast track project sites selected are located in the Atbara Basin and Blue Nile Basin and include (i) Lower Atbara, (ii) Dinder National Park and surroundings and (iii) the Bau Locality. These were selected based on a variety of criteria including community interest and prior experience, impact on poverty, chances for demonstrating early results of improved land and water management, and government support.

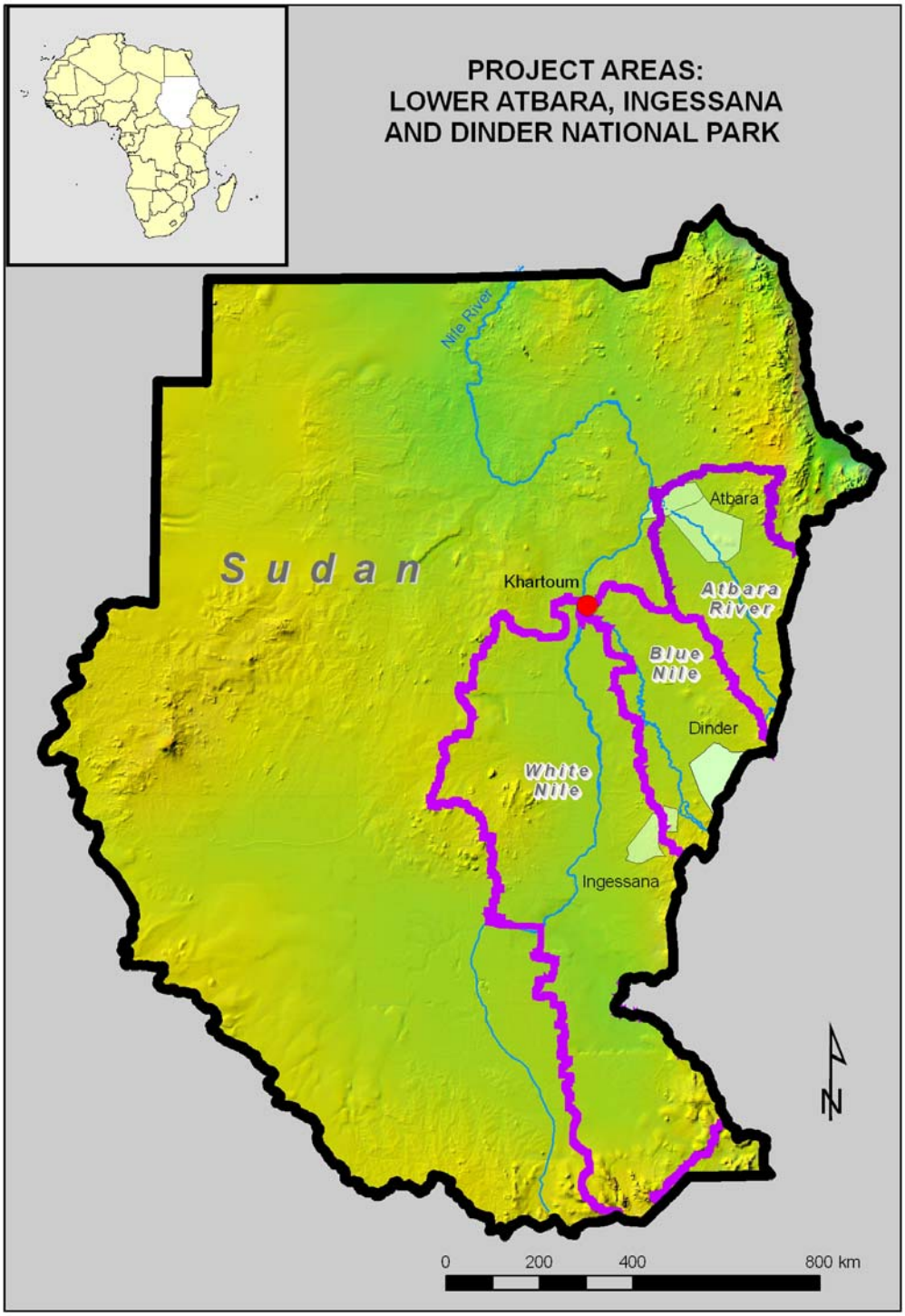

Figure 2.1 Project Area Map

2.4.1 Selected sites and justification

The selection methodology entailed an iterative consensus building process among the stakeholders namely at federal, state and community levels. The specific general selection criteria for project sites have been:

- Extent of linkage between watershed degradation and prevailing livelihood practices.
- Extent of vulnerability/ resource dependency
- Importance/Influence
- Extent of willingness of the target groups to participate (i.e. those with present unsustainable livelihood practices should be committed to the called upon process of change).
- Extent of institutional capacity to support and implement projects at State and Locality levels.
- Extent of previous exposure to development support
- Extent of development potential for alternative livelihoods
- Extent and probability of external risks

The three areas have different characteristics and needs and are located within different ecological zones. Summary key characteristics are as follows:

Lower Atbara Area:

Key characteristics: Desert area with low rainfall and scare natural resources. Urban-Rural interaction pronounced. Limited Mechanised farming. Limited population pressure due limited livelihoods. Environmental carrying capacity low. Substantial previous experience with community participatory planning and development (Nomadic and semi-nomadic pastoralists excepted). Project area located within one Locality.

Key target groups: Sedentary communities and small scale farmers along the Atbara river. Semi-nomadic and nomadic pastoralists. Women. Land less.

Bau Locality:

Key characteristics: Remote and poorly connected area. War stricken area. One of three disputed areas. Influx of IDPs and land tenure distribution/management still on-going. Recent institutional restructuring and institution building still on-going. Precipitation and natural resources favourable. Area prone to drought and flooding. Very limited experience with community participatory planning. Project area within one Locality.

Key target groups: *Sedentary c*ommunities and small scale farmers. Semi-nomadic and nomadic pastoralists migrating through the area. Women. Landless. Mechanised farmers. Gold panners. Charcoal makers.

Dinder National Park and Surroundings:

Key characteristics: Remote and poorly connected area. Poor access to and degraded natural resources around the Park resulting in encroachment on the Park for livelihoods. Area prone to drought and flooding. Pronounce conflicts between Park management and communities. Cases of conflicts between various populations groups over natural resources. Previous experience with community participatory

planning and development. Some IDPs. Project area cover three states and five Localities (Rosaries Locality in the Blue Nile State; three localities in Gedaref State; and Dinder Locality in Sennar State)

Key target groups: Sedentary communities bordering the Dinder National Park. Communities within the National Park boundary (Magano and Kadalu). Semi-nomadic and nomadic pastoralists migrating through the area. Women. Landless. Mechanised farmers.

3 Project Areas and Target groups

3.1 Atbara Project Area and Target Groups

The Lower Atbara project area is administratively located within the Nile State, Ed Damer locality and is defined to include the two administrative units of Atbarawi and Sidon. A map of the project area is provided in Figure 3.1.

3.1.1 Atbara Environmental Key Issues and Root Causes

The Atbara district is arid receiving approximately 75mm of rain per year. Away from the river there is little vegetation cover and the region has the appearance of being totally arid.

The upstream dam at the rapids of Khashm el Girba was built in 1964 for water storage, which changed the hydrological pattern of the lower Atbara. A narrow riparian zone along Atbara river is flooded annually when the Khashm el Girba Dam is opened from August to October.

The main concern among the stakeholders is the poor access to water for household and agricultural purposes since there is limited structure in place to capture and store from the short flooding period. Other key environmental concerns are desertification and sand dune encroachment which is aggravated by some of the current land use practices as described below.

3.1.1.1Changes in river flow regime and water availability

Before the building of the upstream Khasm al Girba Dam, the flow of the lower Atbara was less predictable and much more variable than is the case now. Specifically the river used to flood annually to a much higher level than is currently the case with the controlled release of water from the Dam. Extreme floods were generally of shorter duration but of greater water levels.. These changes in the flood regime have significant effects on agriculture and on natural vegetation. In particular the area that is capable of supporting flood recession farming is much reduced. The water balance of trees is affected since flood water no longer enters the soil and ephemeral vegetation such as grasses for grazing will no longer germinate and grow in areas which are not wetted by the flood. Ground water recharge has been reduced due to the change in river flow and due to climate change impacts in the area (decreased rainfall and increased evaporation)

Access to clean water for household and livestock is poor. There is limited infrastructure in place to capture and store water from the short flooding period. Water availability to sustain biodiversity and agricultural production is a problem since the river is no longer flowing all year around. Efficient usage of available water is another concern and there is scope for large improvements in irrigation efficiency.

Minimisation of evaporation losses is important not only due to the currently high temperatures but also the anticipated increase due to the impacts of climate change.

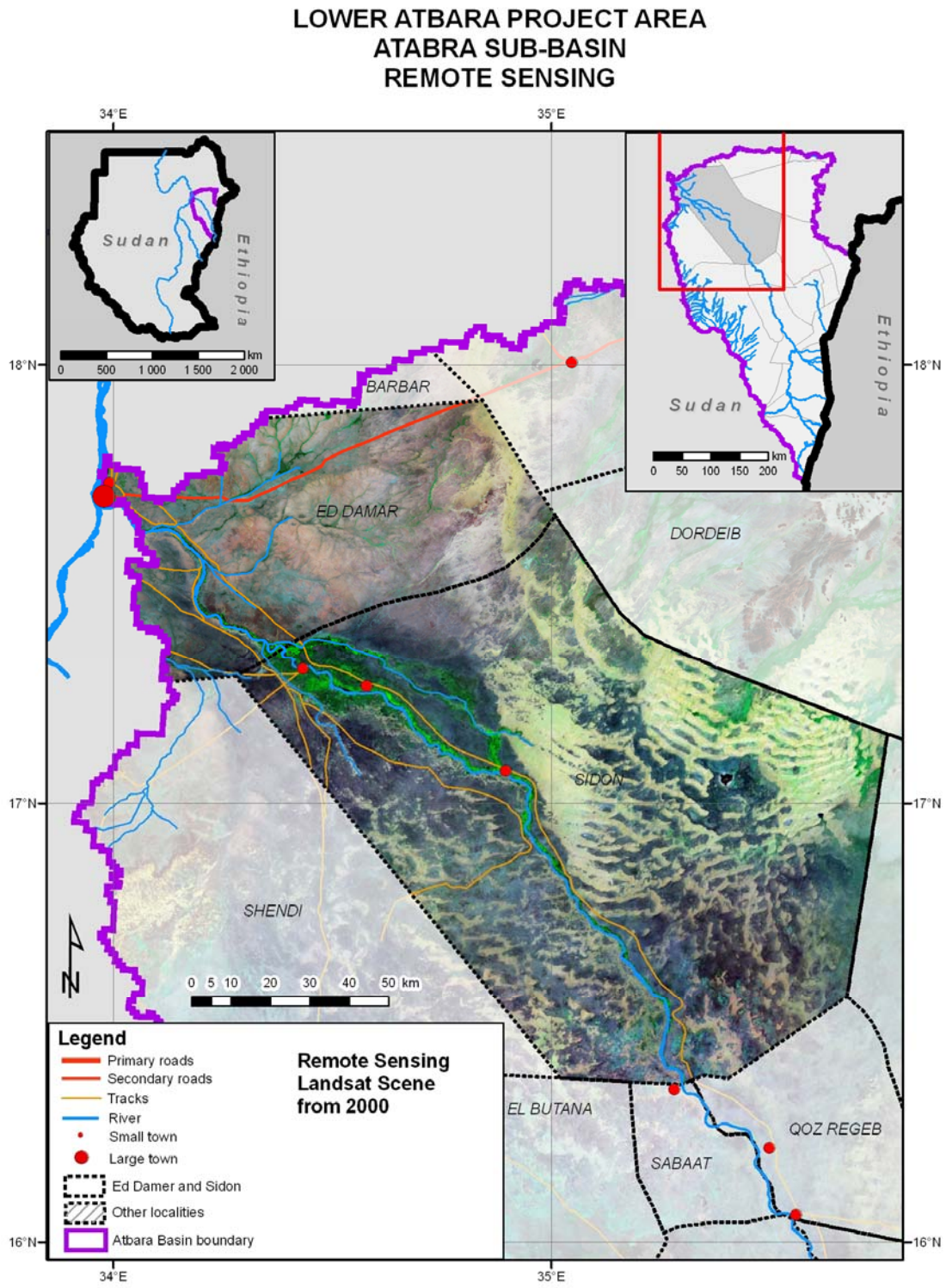

Figure 3.1 Atbara Map

3.1.1.2 Desertification and Biodiversity

In the past flood recession agriculture was practiced over almost the entire area flooded by the river at its peak. As a result of the loss of this agricultural land people turned to other ways of making a living including cutting trees for the sale of firewood. This has resulted in almost the entire tree cover of the much more extensive forests on both sides of the river being lost. Forests are currently restricted to small areas of natural and planted forests on both sides of the river and these forests fall within forest reserves which are the responsibility of the Forest National Corporation. There is little or no tree growing culture in the area. The concentration of large numbers of people practicing agriculture in a very narrow riparian zone means that almost all of the native biodiversity has been eliminated with the exception perhaps of that occurring in the forest reserves. The bird fauna of the riverine agricultural zone while divers is certainly not natural for the area since it consists of a large number of species which are strongly associated with farmlands elsewhere, often as agricultural pests. The area close to the river has become invaded by a number weed species both indigenous and exotic as a result of past disturbance. Where these weeds have become established at high density the native biodiversity has been largely eliminated.

Previously when the area was flooded to higher levels, the flood plain would have produced far more palatable vegetation than is now the case. As a result of this reduction in area as well as a result of the increase in the size of the herds the area is now subject to grazing pressure far in excess of its sustainable capacity. This very high density of livestock has had a great impact on the vegetation with the result that there is at present almost no cover of perennial grassy species in the flooded zone.

3.1.1.3Sand dune encroachments/Windborne erosion

The topography is generally flat and rainfall is low, therefore erosion due to flowing water is of limited impact over most of the area, in addition the surface soils are mainly silty sand/sandy silt with some gravel, which although easy to move is unlikely to be carried over long distances by slowly flowing water which will in most cases infiltrate the surface relatively quickly. There is evidence of bank erosion but not within the project area.

On the other hand there is strong evidence of windborne erosion which is aggravated by deforestation and overgrazing. Sand dune encroachment is threatening village houses, infrastructure and fertile land.

3.1.2 Target groups and Socio-economic context Atbara

Lower Atbara is one of the least developed areas in the Nile State. The population is estimated at 65,000 sedentary people and 15,000 people involved in pastoralism. 45% of the former population have left the area in response to the degraded livelihoods (reduced cropping seasons, reduced arable area, drift wood etc.) resulting from the Kashm el Girba dam. There is a distorted age pyramid as those who have left or leave the area are those in the productive age.

As in other parts of Sudan, Lower Atbara is the home of different ethnic groups. Due to its arid climate and harsh living conditions, especially after the building of the dam, it has to a lesser degree than the other project areas attracted immigration of

population groups and IDPs from other parts of Sudan. On the other hand, it has had a certain grazing potential and therefore attracted different nomadic groups.

Atbara town is an important commercial and agricultural centre. Ed Damer and Atbara towns are accessible throughout the year via tarmac roads which are in good condition. There is intense urban-rural interaction, contact and communication within the Atabarawi Administrative Unit, in contrary to the southeasstern parts of the Sidon Administrative Unit. Although few roads exist, with majority of travel being off-road, transportation within Ed Damer Locality is relatively easy. Access to markets is good.

The expansion of large scale mechanised farming has been limited in Lower Atbara and is confined to the areas around Atbara and Ed Damer. Competition for land between the different land user groups is less pronounced. Land fragmentation along the river, however, is a concern as the land is insufficient to provide secure livelihoods.

Both agricultural and rangeland productivity is low. Existing coping strategies are not always sustainable, neither from socio-economic nor environmental perspective. The intention of the project is to improve existing and also support alternative coping strategies.

Despite of its unfavourable natural conditions, Lower Atbara stands as a promising area due to the absence of the social conflict and because of it has lately attracted a number of investments e.g. drinking water supply schemes and electrification schemes, that could trigger economic development.

For the FTP project purpose the Lower Atbara comprises three distinct zones with specific socio-economic characteristics:

Zone 1: Between Atbara Town and Sidon Town
In this area, most of the people (about 90%) are sedentary small scale farmers. They produce at least two crops per year using both flood water and pump irrigation. Due to more favourable production conditions and the vicinity to towns, markets and services (including government planned water supply and electrification), the population is relatively better off.

Zone 2: Between Sidon Town and Shababit
In Area 2, the population comprises about 50% semi-nomadic and nomadic pastoralists and 50% sedentary small scale farmers practising mainly flood recession farming whereas irrigated systems are rare. The area is more arid and degraded than area 1 and only one crop a year is produced using during the high flow season. Some mechanised farmers are leasing land from villages. Production conditions and accessibility are less favourable which is reflected in higher poverty levels.

Zone 3: Between Shababit and Kassala border
In Area 3 problems of degradation are most severe and poverty is rampant. Due to its remoteness, it is overlooked by the local administration and development projects. Area 3 is characterised by poor infrastructure and lack basic social and economic services. Using polygamy as poverty indicator, it can be noted that it is rare that a man has more than one wife. The nomadic and semi-nomadic populations make more than 90% of the population. Although farming is not a traditional livelihood practice, a substantial number of formerly nomadic pastoralists are engaged in occasional small scale farming as they find it increasingly difficult to maintain and live

of their herds. They have given up seasonal migration to Butana or only do it in favourable years (enough water and pasture on the route to Butana).

Key target groups in Lower Atbara are settled communities mainly practising agriculture and semi-nomadic and nomadic pastoralists. Women are a specific sub-group targeted.

3.1.2.1 Settled agriculturalists

Flood recession farming is practiced in this area and there are some attempts to hold back floodwater in order to improve the growing season as well as some areas where irrigation water is pumped directly from the river or from wells in the channel aquifer. Land fragmentation is partly compensated by traditional family and neighbourhood support systems or increased out-migration of the younger population and seasonal work migration. Farmers along the Atbara River are increasingly investing in livestock as a coping strategy against uncertainties in agricultural production. Livestock is integrated in irrigated agriculture and makes a significant proportion of farmers' incomes in the area. The keeping of animals, mostly sheep and goats, is primarily done by women. This change may, however, in the future, become a source of conflict between farmers and nomadic herders due to accelerated competition for crop residues, pastures and water points. The Watershed FTP proposes to address this issue by more effective utilisation of the land and water through intensification and diversification of crop production, water saving technologies and productive tree planting.

3.1.2.2 Semi-nomadic and nomadic pastoralists

The major sedentary tribe is the Jaaliyn. The Rashayda, Bushariyeen and Kamalab are the main nomadic tribes in Lower Atbara area. The first group raises camels and sheep, the second have more sheep and fewer camels, and the third group has sheep and goats. The sedentary population has strong family and neighbourhood support systems and overall Lower Atbara appears more homogenous than in the other project areas and has a lower potential for conflict over natural resources.

Nomads and pastoralists have access to routes, grazing areas and water points - they are not blocked as in the other parts of Sudan - and they have access to fields after harvest for animal grazing on crop residues. The issue in Atbara is rather that communal land due to desertification and sand encroachment cannot support pastoral livelihoods anymore. Animal density in the area appears to be above the level that could be sustainably supported by the environment. They are the most deprived population group in Lower Atbara and the environmental problems are the most severe (desertification, excessive tree cutting, sand dune encroachment). Baluuk and the surrounding villages are inhabited by Bushariyeen nomads. They practice a mixture of herding and agricultural production. The latter they resort to as it is increasingly difficult to make a living from herding alone. Interventions specifically address nomads' livelihoods by integrating livestock in agriculture, diversification by increased settling coupled with investment and extension services.

It is recommended that the watershed project supports the Lablaba small scale irrigation scheme in the area for which the government has conducted a number of studies but not yet provided funds. Lablaba scheme would benefit approximately six villages. The advantage of the schemes would be that an already ongoing voluntary

re-orientation among the Bushariyeen nomads towards a more sedentary lifestyle and agricultural production could be strengthened, that women - who have expressed a wish for this and who are currently completely dependent on their husbands - could make an income from vegetable production, and that water could be made available for environmental activities such as establishment of shelterbelts to halt sand dune encroachment and tree planting in and around homesteads.

The physical establishment of the scheme should go hand in hand with the promotion of improved and appropriate agricultural production methods.

3.1.2.3 Women

Women's role and status in Lower Atbara is primarily determined by strict social norms and customs. Their access to economic life and income opportunities is therefore limited. Their formal education is poor and their access to external information limited. Women have limited involvement in agricultural production. Moreover, women have limited involvement in community and public decision making. They are responsible for the domestic sphere and they keep goats and sheep and can have their own money from this production. Despite of this, previous interventions in the area have been successful to organise women in most of the villages. Specific development options for women under this project include:

- Revitalisation of SOS formed women groups which exist in almost all village;
- Tree planting in and around homesteads and tree nurseries for re-forestation and shelterbelts
- Small scale animal rearing based on zero grazing and fodder production;
- Promote involvement in some agricultural activities
- Reduce work burden - firewood, drinking water, and intermediate means of transport.
- Improved sanitary facilities for women in villages and at market places

3.2 Bau Project Area and Target Groups

The project area is located in the Blue Nile State and is defined by the boundaries of Bau Locality, see Figure 3.2 overleaf.

INGESSANA PROJECT AREA
WHITE NILE and BLUE NILE SUB-BASINS
REMOTE SENSING

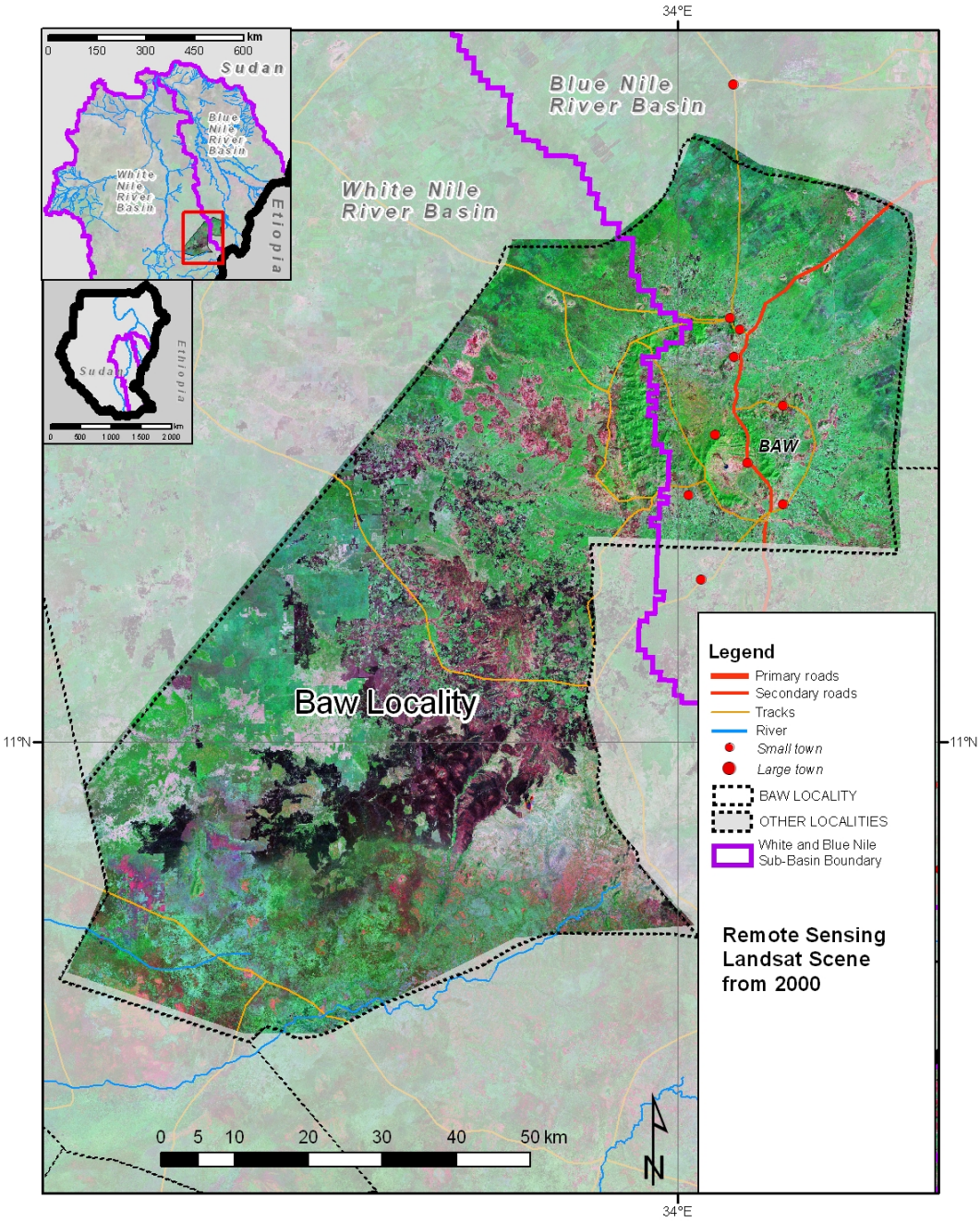

Figure 3.2 Bau Locality Map

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3.2.1 Bau Environmental Key Issues and Root Causes

The district lies within the Savannah Zone with annual precipitation ranges between 600 and 800mm with a long-term mean of 710 mm per annum in Ed Damazin town. Bau locality depends on rain as its major water source and 70% of Bau Locality experience water scarcity in summer.

Ingessana Hills rise 800 to 1000 feet above sea level. The area, otherwise, is monotonously flat at an altitude of about 465 m. a. s. l. The prominent seasonal tributaries (Wadi/ Khor) that emerge from the Ingassana massif in a radial pattern are Wadis Timsah, Maganza, Ferri, and El Dom. Among these, Wadi Maganza virtually drains all northeastern parts of the Ingessana Hills. Its seasonal waters end up into the western banks of Roseries Dam reservoir at a point located some 20 km south of Ed Damazin town. Another first order seasonal stream, Wadi Uffut, partially drains the southeastern hill slopes into Roseries Dam reservoir; some 12km to the southeast of Wadi Maganza confluence with the Blue Nile.

Bau locality is endowed with rich forest resources with more than 55 tree species. It is one of the major producers of Gum Arabic.

3.2.1.1 Deforestation and soil erosion

Deforestation on the Ingessana hills causes considerable erosion which contributes to the downstream siltation problem in the Blue Nile and Roseries dam. It also destroys the fertile land at the foothills of Ingessana Hills. Intense rainfall during rainy season results in pulses of floods and the high flow and speed extensively in the khors network, which results in erosion. Further away from the Ingessana Hills, the Bau locality is dominated by flat clayey soils and is therefore not prone to erosion.

Charcoal making constitutes a critical issue and challenge to the government of Sudan. One of the major sources of income to large number of local people in Bau Locality is charcoal, fully absorbed by the nearby market of Ed Damazin. As a result, the forests of Bau locality have been over-exploited and disappearing. A family needs to cut about 3.3 m^3 of wood per year, which is three times the annual allowable cut. Unless strict law enforcement is applied, the forests of Bau locality can disappear in a few years.

The farmers are ignoring the national policy of maintaining 10% tree cover on rainfed farmland and 5% tree cover on irrigated land.

The main root causes are lack of alternative incomes that can substitute the relatively high incomes from mining and charcoal, lack of alternative energy sources both locally and nationally and lack of regulation and enforcement.

3.2.1.2 Mining

Mining is a major source of livelihood for a large number of community members in Ingessana Hills. Current chromate and gold mining practices have severe impacts on the forest resources of Ingessana Hills and are furthermore creating scares in the environment in terms of large and deep excavating pits sometimes as deep as 15 m. There is also a large quantity of mine waste that has been deposited on site, all of which have caused visible damage to the environment in general and the forestry and water resources in particular. Gold panning is furthermore causing significant environmental health damages and water pollution from mercury etc.

According to the Law of mining in Sudan, miners have no obligation to rehabilitate the site after their operations have finished. The Law only recommends forest restoration on abandoned sites. In the absence of any obligations, the future prospect of forestry, soil and water resources in an ever expanding mining environment is grim.

3.2.1.3 Biodiversity, agriculture and rangeland productivity

The locality is distinguished as being the zone of both livestock and rain-fed agriculture. However, the carrying capacity of the land is in decline. Both the traditional farms and most of the mechanized farms report declining soil fertility and portions these farms go out of production every year. Yields of various crops are declining with time currently far below their genetic potential. Losses in biodiversity and land degradation are continuing unabated (Ayoub, 1999).

During the period 1984 and 2003, areas of forests and rangelands have been reduced to one-third of their areas in 1984. The expansion of mechanized rain-fed agricultural farms is the most important factor for the deterioration of the natural resource base, adversely affecting grazing and traditional farming lands and increasing pressure on the remaining natural resources. The mechanised farming are not practicing long-term land husbandry but are instead mining the soil from its nutrients and quality and then abandoning the land.

Large scale extraction of timber and mineral resources is also practised in the area. Vast areas of savannah woodland formerly used by the Ingessana people for shifting cultivation, is now used for intensive and mechanised farming and cleared of tree cover. Population pressure also increased, since the new schemes need manpower, and migrant labourers has been drawn to the area in search of work. In the 1980's the area became directly affected by the civil war and continued until the recent peace agreement and is now affected by returning refugees. Much of the wild life disappeared during the war.

3.2.1.4 Water availability

Varying from season to season, this region receives dependable rainfall which extends over the period May to September. Still, one of the limitations for local population is the lack of all year round access to water.

There is very little water infrastructure in place and the existing ones are of poor quality even so the most recent ones (2 years old) . Where there is access to water in constructed haffirs and dams, the quality of water is often poor due to lack of fencing and purification. Both people and cattle are using the same water sources. However, there are also a few good examples in the area of water source protection.

Lack of water infrastructure to capture the water during the rainy season is definitely the most critical root problem in the Bau locality. The recent war has prevented infrastructure development. There are, however, many topographically well suited locations for dams and structures along the foothills of the Ingessana Hills.

3.2.2 Bau Target groups and Socio-economic context

Bau locality has a population of 100,000 people who are concentrated in and around Ingessana Hills. The majority of the population lives in bigger settlements like Bau,

Dairang, Gam mine camp, Salbal, Maganza, as well as in smaller villages like Gugub, Taga, Gabanit and Soda. There are also isolated Ingessana households scattered along hill slopes. Agricultural production remains the area's most important sector, employing over 80% of the work force.

The Ingessana ethnic group makes 80-85% of the district's total population. The remaining sedentary population comprises a mixture of tribes from Western Sudan and Southern Sudan. In addition to the Ingessana people, the hills are populated by Dawala and Ragarig tribes who are involved in gold mining. Arab and Fulani nomadic groups are transient communities roaming southern Blue Nile with their cattle the year round. They settle in the Ingessana Hill temporarily during rainy season (June-October).

Bau Locality and the other Localities in the State witness very high rates of population growth and mobility as compared to other regions due to in-migration of people from all over Sudan as IDPs (drought, famine, and war) and people in search of labour and other income generating activities, e.g. mining. At the same time, the civil war made many of the original inhabitants to leave temporarily. IDP villages are scattered all over the Blue Nile area. After the peace agreement some people have started to return to their original home villages but experience shows that most likely others will stay and settle permanently.

The living conditions of the local population have been hampered by the long-lasting civil war. The latest estimation indicates that 50% (2004) of the population live below the poverty line. For then same reason, access to social and economic services is very poor. During the rainy season the Locality is cut off as the connecting road becomes impassable as well as the internal road network. Heath and educational facilities are lacking or in deplorable states, and most villages lack safe water supply.

At present there is little infrastructure in place and land ownership and land use licenses are still not clear in many areas.

Bau locality can be divided into three socio-economic and agro-ecological zones: (1) Ingessana Hills, (2) the foothills of Ingessana Hills, and (3) the low-lying farmlands outside Ingessana Hills, which are described below.

Zone 1: Ingessana Hills
Ingessana Hills used to be densely covered by forest until very recently. The major forest flora. The Hills are also endowed with rich deposit of minerals as described above. However, most of the hills have lost their forest cover as a result of intensive charcoal making and illicit cutting for other purposes. Most of the population on the Hills are miners or employed by mining industries. Thus, mining is also causing a lot of damages to the forest and the environment.

Zone 2: Foothills of Ingessana Hills
The foothills of Ingessana Hills are areas where majority of small scale traditional farmers are settled. They practice rain-fed hoe-agriculture. Since the forest cover on adjacent Hills are degraded, runoff from these Hills is causing significant soil erosion on these foothills. As a result, agricultural crop productivity has declined. Thus, farmers reply on forest resources found both on the foothills and adjacent Hills for their livelihood. Most of the farmers are involved in Boswellia incense tapping, charcoal making and harvesting and selling of fruits of *Adansonia digitata* and *Tamarindus indica*. The transient nomadic communities also temporary settle here during the rainy season.

Zone 3: Low-lying areas
Low-lying farmlands are occupied by large scale mechanised and semi-mechanised farms. There are also few scattered small scale traditional farmers. All the farms are rain-fed. The soils are mainly black cotton soil (vertisols) and forest vegetation is extremely scanty with few patches of *Acacia senegal*, *A. seyal*, *A. polyacantha*, *A. mellifera*, *A. nilotica*, *Anogeissus leiocarpus, Balanites aegyptiaca*, *Combretium hartimanimum*, *Hyphane thepaca* and *Tamarindus indica*. This is one of the areas where transient nomads temporarily settle during the rainy season when they travel between Kurmuk and White Nile in search of pasture and water. Most of the trees have been cut down for expansion of mechanised agriculture. The remaining trees are being cut down for charcoal making by the small scale traditional farmers who inhabit this area. Charcoal making contributes significantly to their household income.

The key project target groups are: settled communities as in general and the following sub-groups in particular i.e. mainly small-scale farmers, gold panners and charcoal and gum Arabic producers. Women. Semi-nomadic and nomadic pastoralists. Mechanised farmers.

3.2.2.1 Settled communities and charcoal makers

The homogenous Ingessana communities around the mountains practice a mixture of agricultural production and animal husbandry. Most farms remain rain-fed, subsistence and susceptible to drought. They graze their cattle within their settlements where they also practice some crop production growing mostly sorghum, sesame, peanuts, and some vegetables.

The new IDP villages are mainly concentrated west of the hills. Some of these villages are ethnically homogeneous while others comprise a multitude of ethnic groups from various places in Sudan. They practice limited mixed agriculture and work as seasonal labourers on large scale mechanised farms.

Charcoal making is a major income generating activity and as a result the existing forests have been overexploited. Other income generating activities are Gum Arabic collection and collection of fruits from trees. Gold mining has lately also become an important income earning source (see below).

Pressure on both pastoralists and small farmers increased with the expansion of commercial mechanized farming which started in the 1970's. Traditionally, small scale farmers combined crop cultivation and livestock rearing with minimum negative pressure on the natural environment. Over time however, population growth and expansion of semi-mechanized and large scale mechanised farms have disrupted this traditional shifting cultivation resulting in shortening or lack of fallow periods and thereby decline in crop yields. The farmers reported that this constant expansion of semi-mechanized farms has put too much pressure on the land through removal of vegetation normally used as grazing resources.

These target groups will benefit from awareness building and skills training and investments (water infrastructure) in order to diversify and intensify their livelihoods in a sustainable manner.

3.2.2.2 Gold miners

Artisanal gold miners in the Ingessana Hills are concentrating in Gugub, Taga, and Salbal villages. Gugub village has the largest population of about 1000 of which Dawala ethnic group make about 80% of the population. The rest of the community is represented by the Ingessana. In contrast, about 70% of the 300 artisanal gold miners in Taga village located 5 km east of Gugub are from the Ingessana ethnic group.

The gold miners use traditional methods which cause substantial damage to the environment (digging of holes, tree felling, water pollution) and to human health (mercury for amalgamation). A number of social problems also arise with the rapid and unpredictable growth of gold panning, including land-use conflicts between migrant gold panners and local resident communities, the use of child labour, poor health and sanitation conditions, the migration of men in particular for long periods thus placing mining in competition for labour with food production, with increased risks of the spread of HIV/AIDS.

On the other hand, it is important to recognise that if undertaken in an appropriately controlled and responsible way, alluvial gold panning (as well as other small- and larger-scale mining) can make an important contribution to economic and social development. To this end, controlled mining practices will be supported in combination with skills training and livelihood diversification.

Gugub will be the target group since they have been sensitised already by the UNIDO project.

3.2.2.3 Nomadic pastoralists

Rangelands are few and livestock mostly graze on crops residues. About 1.5 million heads of cattle, 3 million sheep and 266 thousand heads of goats from the Blue Nile State graze in Bau locality at one time of the year. In addition, many nomads with their cattle from the White Nile and Sennar States cross Bau locality in their seasonal migration between the too dry winters in the north and the too muddy and biting flies infested summers in the south. Four migration routes cross-cut Bau locality, three west of Ingessana Hills and one east of it. Cattle on these migration routes may encroach on croplands causing conflicts between herders and farmers. Improvement of rangelands and regulation of animal routes for the benefits of these groups will be supported by the FTWMP.

3.2.2.4 Mechanised farmers

The area around the hills is characterised by medium size semi-mechanised farming and the lowlands are characterised by the expansion of mechanized rain-fed agricultural farms. Both types are usually associated with absentee landownership.

The Hills are surrounded by 1 million feddans cropland of which only 1/5 is small scale agriculture whereas the rest is mechanised agriculture.

Through the Mechanised Farmers union, promotion of land husbandry, tree planting and livestock integration in agriculture will be promoted and facilitated by the FTWMP.

3.3 Dinder Project Area and Target Groups

The project area for the Dinder National Park will include the park itself and surrounding localities outside the park. The focus will however be on those areas/localities outside the park that have a major influence on and/or stakeholder interest in the park. In reality this means the villages that surround the park up to a distance of approximately 10km from the park boundary as well as the transhumant pastoralists that seasonally make use of grazing resources both in and around the park. The Dinder project site falls into three different states and five localities i.e. three localities in Gedaref state, one in Sennar state and one in Blue Nile state. The national park falls under the direct control of the central government and the Ministry of the interior. The executing agency is the General Administration for National Parks and Wildlife Conservation.

It is expected that most of the physical project interventions will take place outside the park in order to alleviate the pressure on the park caused by lack of resources outside the park.

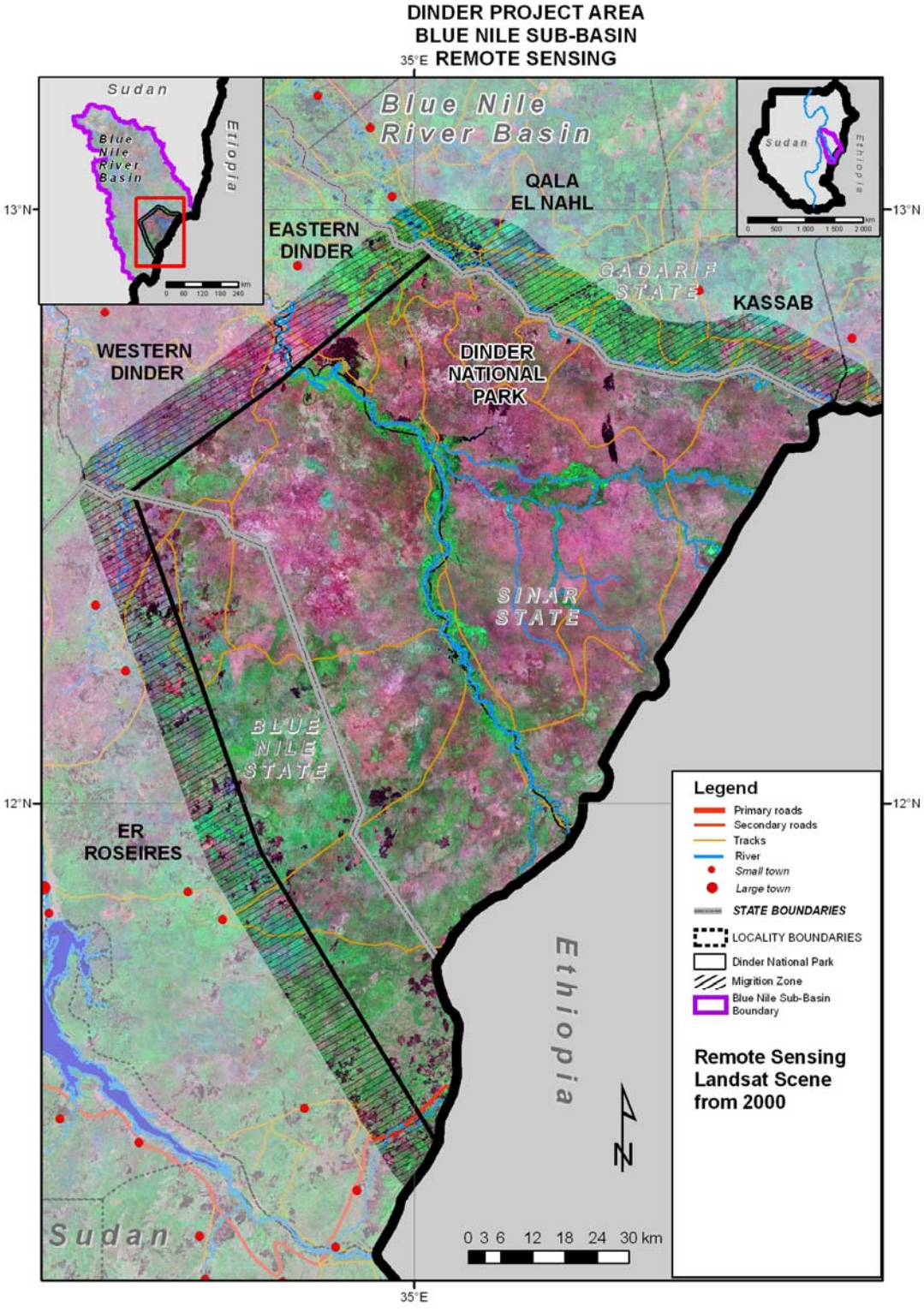

Figure 3.3 Dinder Area Map

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3.3.1 Dinder Environmental Key Issues and Root Causes

Dinder National Park falls within the flat plains of the Southern Blue Nile. On the south eastern portion of the Park, towards the Ethiopian Plateau, isolated highlands occur. The two seasonal rivers, Rahad and Dinder, water the Park during the rainy season. They descend from the Ethiopian highlands and flow in a north westerly direction across the flat plain to empty their waters into the Blue Nile River.

The Dinder River flows through the middle of the Park. It starts to flow around the middle of June. It ceases running in November. The sandy riverbed is left with only a few pools, which may hold water up to the next rainy season. The major tributaries of Dinder River are khor Galegu and khor Masaweek. Other smaller streams are Kennana, Suneit, Heneifa, Abu Khamira, El Qisar and many others. The runoff from the Ethiopian highlands usually leads to seasonal accumulations of streams that either joins Dinder or Rahad rivers.

The climate of the Park is characterized by two seasons: the hot and humid rainy season (May-November) and cool and dry season (December-March).The north eastern part of the Park has the least rainfall (600-800mm), which gradually increases with distance towards the southeast of the park (800-1000mm).

The degradation of the Park is caused by both external and internal factors. The external factors include park encroachment for livelihoods, vulnerability to up-stream activities in Ethiopia and siltation of mayas etc. The internal factors include lack of efficient park management systems for instance there are lack of park managers with knowledge in wildlife and flora management.

3.3.1.1 Cattle invasion

As a result of the loss of land to settled agriculture and the increase in the size of the regional herd the effective density of livestock far exceeds the carrying capacity of the environment and this has led to a severe fall in the condition of the rangeland. To the north and west of the park in areas of lower rainfall settled livestock farming is essentially impossible so that transhumance is the only system able to support significant herds in areas where the permanent water supply is limited. This overstocking has led to a strong dependence on the grazing resources of the park for the support of the nomadic pastoralists

The entire park is subject to the incursions of cattle. Estimates of cattle invading the park at various times are variable but it seems possible that up to a million may be present at peak times when alternative grazing is not available elsewhere due to restrictions placed on the movement of cattle by rain fed agriculture. In addition to the grazing cattle are also brought into the park to seek shade since shade trees are almost absent outside of the park.

It is estimated that the number of livestock trespassing Dinder national Park annually during the period January to June could amount to 900.000 cattle, 2.000.000 sheep and 500.000 camels[2]. According to meetings with the Pastoralists' Union in Gadarif,

[2] DNP Terminal Evaluation 2004.

the livestock population in the Park surroundings could be between 5 and 10 million animals, mainly cattle and sheep.

Cattle entering the park are accompanied by herders and originate both from settled villages along the borders of the park and also from more distant areas when accompanied by nomadic and semi nomadic pastoralists such as Fulani and Mbororo.

The impact of these cattle on the park is likely to be enormous, they will compete with the wild ungulates for food, are likely to transmit diseases to wild animals and cause large scale changes to the grass sward. In particular grasses of poor nutritive value will replace highly palatable species and cause a progressive reduction in the quality of the habitat for grazing ungulates. In addition these poor nutrient content grasses are usually dense and tall and act to hide the few remaining palatable species from the more selective grazers such as Oribi and Red Fronted Gazelle.

3.3.1.2 Fire

The impact of fire on the vegetation is likely to be as significant as the impact of cattle. Fire is a normal part of the ecology of these savannah systems, world wide. And it should be noted therefore that the Savannah systems of the park are well adapted to fire and that many of the trees and plants are resistant to fire while others will be adapted to regenerate either by resprouting from the base or by regenerating from seed. However increases in the frequency of fire and also changes in the seasonal timing of fire will have large effects on the vegetation. In the case of Dinder the high frequency of fires appears to have led to a serious reduction in the perennial grasses. This high frequency of fires is attributed to human influences including fire setting on purpose as well as accidental fires caused by honey hunters.

3.3.1.3 Poaching

Poaching seems to be an important factor in the wildlife population dynamics. Several informants admitted to bush meat being an important part of the diet at certain times of year.

3.3.1.4 Drying out of the Mayas

The mayas are undoubtedly one of the key biodiversity resources of the park and are important for both birds and mammals. Siltation of the mayas is apparently due to silt being brought down from the Ethiopian highlands.

The impact of this siltation is principally to reduce the depth of water which is collected in the mayas to the extent that it no longer remains in the maya for the full length of the dry season. Potential evapotranspiration in the area is approximately three meters during the dry season so that only pools deeper than this would retain water to the end of the dry season.

3.3.1.5 Water availability

All year around water availability in the region is generally poor. Even areas close to the river become dependent on shallow wells dug in the river bed by the end of the dry season. This lack of water availability has significant effects on people's livelihoods and living conditions. In particular in the case of the pastoralists the

limited distribution of water points for cattle severely restricts the areas that they are able to use for dry season grazing and this has important impacts both on the range condition and the livestock. Livestock become effectively starved while the range condition close to watering points deteriorates as a result of overgrazing.

The limited distribution of drinking water is also a major factor restricting the distribution of settlements to areas close to the river where water is most likely to last the dry season, this also means that the human impacts on the environment are concentrated along the river. Since the Rahad river forms the northern boundary of the park the settlement of people and their livestock in this area has an impact on the biodiversity resources of the park.

Inside the park itself the limited water storage capacity at the Magano village site means that the village is abandoned during the late dry season and that the villagers move to Tabia in the core region of the park with their livestock.

The poor availability of surface water during the dry season and the restricted availability of ground water has resulted in the population becoming restricted to areas having some form of water security. This largely means areas along the rivers where the channel aquifer may be tapped by digging shallow wells and around mayas (water bearing depressions) fed seasonally either by rivers or by rainfall. As a result of sedimentation from upstream (Ethiopia) the mayas have become less able to carry water through the dry season. This has a strong impact on farmers, pastoralists and wildlife. Villages are concentrated around water bearing structures or artificial impoundments (hafirs). The movement of cattle is restricted by the availability of water which means that rangeland potentially available to them is limited. Wildlife populations in the park are also restricted during the dry season to the areas of permanent water.

Wildlife populations in the park are strongly affected by the availability of water and as a result of this become strongly concentrated along the rivers and around mayas during the dry season. Cattle entering the park for grazing during the late dry season are also dependent on these water resources and as such compete with the wildlife for grazing in the core area of the park and probably along the Rahad river.

3.3.1.6 Biodiversity Issues

The biodiversity of the park is high and of Global significance. The park forms the northern limit of the range of a number of species in the Sudan Savanna zone and is home to some species that only occur in the park within Sudan. Some of these species are globally rare such as the roan antelope and tiang.

The bird fauna of the park is also particularly diverse and the mayas in the centre of the park are an important resource for migratory birds. These mayas are in the process of being registered as a protected site under the RAMSAR Convention of Wetlands. The flora of the park is poorly described but it seems likely that the plant diversity is high and it is expected that a number of rangeland species that have been eliminated from areas outside the park due to the conversion to mechanised farming will occur only inside the park.

Wildlife does not appear as widespread in the park as originally assumed and that large ungulate distribution is largely limited to areas close to the park headquarters at Galegu which are clearly better protected than other areas. As a result of this limited distribution it seems likely that the populations of ungulates given in the park management plan are overstimates and that actual populations are much lower than this. However little seems to be known about the situation in the northeast quadrant of the park since it is rarely accessed by parks staff although it is also likely to be the part most frequently accessed by pastoralists from the Gedaref state and Ethiopia.

The high demand for firewood both for local consumption and for export to the large cities has resulted in the effective deforestation of almost all of the area surrounding the park as well as large areas of the park itself. This has led to a degradation of the habitat and a loss of important resources for local communities including, firewood, shade for cattle, tree fruit crops and etc.

The park staff are not properly equipped nor trained to carry out the functions which they are now required to do. In particular the staff is too small (similar sized parks elsewhere have staff of five times or more the size) to carry out its multiple roles of wildlife protection, infrastructure maintenance, ecosystem management, community liaison, monitoring and tourism. Furthermore the transport resources hamper effective movement.

3.3.2 Dinder Target Groups and Socio-economic Context

Poverty levels are high in the area as a substantial proportion of the population is landless and/or belong to the group of IDPs that had to leave their home area because of drought, famine and war. This is expressed in selected poverty indicators: Illiteracy levels are very high. According to the 2001 baseline survey conducted by the DNPP, 86.6% of all men and 96.6% of all women are illiterate. The number of female headed households which are usually among the most vulnerable and amounts to 15%. Access to social and economic infrastructure is poor. It appears, however, that the villages along Rahad river are relatively better off due to their better organisation, infrastructure development and intensive support by the DNPP.

The transport infrastructure of the park and surrounding areas is very poor with the result that movement both within and outside the park is difficult or impossible during the rainy season. This leads people to be disconnected from the outside world and its markets for produce and tourism for a significant period of the year. Inside the park the poor road network means that rangers cannot effectively control the park and restrict the access of pastoralists and poachers.

There are five population groups in five different regional locations that are targeted by the FTP with specific socio-economic characteristics and specific relationships with the Dinder National Park and use of its resources:

3.3.2.1 Rahad River Villages

The Rahad River villages in Gedaref state comprise 38 outside the park (in the zone of influence) and 10 villages inside the park, 8 of which were included only after the extension of the park boundary in 1983. Estimated population is 150 000 outside the park and 10 000 inside the park boundaries.

Most parts of the population practice a combination of rain-fed subsistence farming and gerif cultivation or work as agricultural labourers. In the traditional rain-fed agriculture, a variety of crops are grown. Most of the cultivated area is put under sorghum as the main staple crop and sesame as the main cash crop. The productivity of the two crops is quite low.

Gerif land is the land that stretches along the riverbanks and from which floodwater recedes. It is quite productive since soil fertility is annually renewed by floodwater and has a high rate of water retention. Crops produced on this land are mostly high-value vegetables and fruits as well as beans. After harvest the gerif land is usually rented out to nomads. The crop residues are a valuable resource in the dry season for local and nomadic pastoralists.

The permanent residents keep limited numbers of domestic animals like sheep and goats. Animals graze first on the natural pasture around the villages, and then they move into the traditional and mechanized rain-fed farms to feed on crop residues and sometimes they move into the Park.

The ten villages which have been developed inside the park during the last forty years have exerted a considerable influence on the vegetation and wildlife in their zone of influence which extends approximately five kilometres into the park. These villages have developed rain fed agriculture up to two to three kilometres away from the river and beyond this area firewood is collected and livestock grazed to the extend that there is almost no tree cover and the field layer has been severely modified. Immediately along the river irrigated agriculture using water drawn from the channel aquifer has been established up to distances of about 100 metres from the channel. Fruit trees such as citrus and mango have also been established in this zone. The villagers recognise the park boundary and that they are using the resources of the national park and are prepared to negotiate agreements about how they can use these resources.

The villages established along the north bank of the river have a more limited direct impact on the park; however livestock from these villages regularly enter the park for grazing. These villages have converted the former forested rangeland to rain fed agriculture and have deforested these areas in order to supplement their incomes. Wood taken from these areas has not been used primarily for local consumption but has been exported to larger towns and cities. Further away from the river large scale mechanised farms have removed all trees from very large areas. The former grazing areas have completely disappeared. The park boundary is well understood although it appears that this is one of the main areas where pastoralists enter the park to graze cattle.

In the initial phase it is suggested that three communities inside the park on the Rahad boundary are selected as well as three villages on the north bank of the river. These villages should ideally be neighbouring one another. The project will negotiate with these villages to reduce their land for agriculture and instead intensify agriculture through major investments in irrigation and improved farming in-puts and practices supported by the FTWMP. This would free land for rangeland and keep cattles outside the park.

The north bank of the Rahad river appears to hold the key to the problem with pastoralists since most of the pastoralists entering the park are thought to come from the groups who practice transhumance between southern Gedaref State and the Butana region. It is here that the encroachment of mechanised agriculture and rain

fed agriculture has been most complete so that very little land remains for grazing. Present proposals for movement corridors of 150m width are entirely inadequate and are likely to lead to erosion. What is necessary is corridors whose widths are measured in kilometres and which provide a real grazing resource during movement. In order to achieve this it will be necessary to significantly reduce the amount of rain fed agriculture in order to allow for pasture development. The project should therefore support activities which reduce the amount of rain fed agriculture by substituting it with high value irrigated agricultural crops for export to primarily national markets. This can be achieved by providing irrigation water probably stored in off channel storage dams filled from the river. Extension services supported by the project and small capital grants and loans can be used to assist farmers to convert to small scale irrigated systems. As far as possible irrigated agriculture should be concentrated in the first 1km form the river and a small amount of rain fed agriculture should be allowed up to 2km from the river. The area to the north of this for a further five km should be reforested to an open savannah woodland, gum Arabic production and shea butter production could eventually be encouraged. Water points for the watering of cattle could be provided and the rangelands could be improved to provide better grazing to attract the pastoralists out of the park.

3.3.2.2 Sennar State Villages

Outside the park in Sennar State the pressure for arable agriculture is much lower with little rain fed production close to the park.
There are about five villages in Sennar state along Dinder River in the North of the park. Umbakara village is closets to the park, situated about 12 km from the main entrance. People practice limited rain-fed agriculture around the villages and animal husbandry, but most inhabitants do not have access to land and work as seasonal labourers on the large scale mechanised farms. In some parts these farms occur all the way up to the park boundary with some evidence from satellite images that it has at times encroached on the park itself.

One village in Sennar state should also be targeted.
The area outside of the park should be reforested with an appropriate mix of species, mayas should be dug out. This area can be used for cattle grazing and the project could support projects aimed at improving the condition of the rangeland by seeding and management.

Mechanized farmers should also be targeted for private forestry on their land

3.3.2.3 Blue Nile State Villages

Magano village
Since the extension of the park boundary in 1983, Magano village is located inside the park. The community of about 450 people at its Magano site practices subsistence agriculture growing rain fed Sorghum, Sesame and some vegetables close to the village as well as keeping approximately 400 livestock in the form of sheep and goats. As Magano's impact on the park is limited, there is already an agreement that Magano village stays within the park so the villagers have access to the land they need.

In the dry season, the Magano villagers move away from the homesteads to other places in then park with more water availability. They construct temporary huts during

their stay near the main game post in the southeast part of the park. At the onset of the rainy season, they return to their village.

Magano village in its present locality and its present size offers little risk to the integrity of the park and it should therefore be allowed to remain however since its main problems are associated with water supply the project should assist the village by the development of runoff collection systems from the Magano rock and underground covered water storage cisterns in the clay soil to limit evaporation this will stop the need for the population to leave the village and to move into the park during the dry season.

Rosaries Locality

There are about 32 villages in the Blue Nile State which are close the western border of the national park. The villages in the north-west part are located 10 km and more outside the park and their impact is limited. In the south-west there are scattered villages in the Kadalu area including El Gerri village. Estimated population is 10 000. Some of these villages came to be located close to the park and their field within the park when it was extended in 1983. The Kadalu villages do not accept the boundary of 1983 and therefore also do not accept the zoning and related restrictions.

The livelihood of these villages is based on rainfed subsistence agriculture and animal husbandry. This is supplemented by agricultural labour in the mechanized rain fed schemes. Dry season occupation comprises tree felling, firewood production and charcoal production, handicrafts, trading, and gum collection. Many of these activities take place inside the park. The expansion of mechanised farming to the west of the park reduces land available for traditional subsistence farming and pasture which reinforces the tendency to utilise park resources.

These villages are under pressure from two sides: the mechanised farms whose expansion reduce available land for subsistence agricultural production and grazing and thereby threaten their livelihood; and at the same time the national park that has been extended and included some of their traditional land and restricted its use.

3.3.2.4 Nomadic and transhumant pastoralists

Nomadic and semi-nomadic pastoralists are among the most disadvantaged and vulnerable groups because of political biases and misconception and drastic reduction of their grazing areas.
In the Rahad River area, some of the villages are inhabited by semi-sedentary nomads who migrate with their herds in the rainy season but return in the dry season. Due to lack of pasture and water outside the park, they use the park for grazing. The park is also used by nomadic pastoralists from outside who migrate between Butana and the rangelands in Gadaref. They are forced to move further to the south because of expansion of large scale mechanised farming in their traditional grazing areas.

The "the bulk of herds is concentrated on the east side/Gedaref side of the park although trespassing herders are also found in the Blue Nile State part. In the 1950's about 86% of Gadaref State was rangeland and woodland, in 1991 rangeland was reduced to 6% and forests were reduced to 18% of the state area[3].

[3] Director of Pastures and Rangeland, Gadaref State.

There is a certain understanding for the pastoralists' problems by stakeholders involved in the DNPP and Gedaref State has made an effort at rational land use planning to secure pastures and water supply for livestock. However, this has partly been obstructed by the strong and powerful organisation representing the mechanised farmers. Improvement of rangelands and regulation of animal routes for the benefits of these groups will be supported by the FTWMP.

3.3.2.5 Women

Possibly due to the populations' in-migration from other areas, ethnic diversity, and possibly exposure to the DNPP, the women's situation is slightly different from the other two project areas:

- Women are less "passive" as compared to Lower Atbara and all VDCs have female members - however women's participation in public life and decision making is still limited, especially with regard to women belonging to nomadic and pastoralist groups;

- Depending on the village, women may play a more prominent role in agricultural production while others may concentrate on domestic activities alone such as fuel wood collection, fetching water, food production. During DNPP, some women's groups have started joined vegetable production on irrigated land and would be interested in continuing this but would need more technical and managerial training.

3.3.2.6 Mechanised farmers

The area surrounding the park has become settled by farmers using both rain fed and mechanised agriculture to grow mainly staple grain crops such as sorghum, sesame and millet.

Many of these farmers are not resident in the area and use day labour from surrounding villages to grow their crops. The yield of these farms appears to have steadily decreased since the 1960s.

Through the Mechanised Farmers union, promotion of land husbandry, tree planting and livestock integration in agriculture will be promoted and facilitated by the FTWMP.

4 Institutional Context

4.1 Governance system

There are three levels of institutional authority; national (federal) level, state level and locality level. Sudan Federal Government structure is made up of 25 states and each state is divided in localities. Within the jurisdiction of localities, there are administrative units and village councils.

The State government is headed by Walli (Governor), who is appointed by the President. Each State has its own Legislative Assembly with an executive administration, which consists of the following ministries:

- Finance, Economic Planning and Labor Forces
- Agriculture, Animal Resource and Irrigation
- Physical Planning and Public Utilities
- Health
- Education
- Social Affairs

The Localities are governed by a Locality committee headed by a commissioner (Mutamad) who has the status of a State Minister. Decision-making at the Locality level is taken by a Locality Council composed of representatives of the villages within the Locality's boundaries.

Devolution of powers was further enhanced through the Local Government Act 2003. In accordance with the Act, the states should devolve more authorities to the localities.

The administration of the Localities is – with some local variations- composed of the following departments, each headed by a director: Agriculture, Finance and Planning, Education, and Health, Welfare and Works Affair.

Locality – General Institutional Set-up			
		Commissioner	
		Executive Director	
Education	**Chief Finance**	**Chief Technical Inspector - Agriculture**	**Services**
	Financial Management	*Rain fed Agriculture Inspector*	*Health*
	Procurement	*Forestry Inspectors*	*Welfare*
		Horticulture/Irrigation Insp.	*Engineering*
		Animal Wealth Inspector	
		Pasture and Fodder Inspector	

Within the administrative units, there are few rural offices each headed by a Local Government officer and representatives selected by Village People's Committees (VPCs). Down the hierarchy, at the village level, there are also Village People's Committees elected by villagers to administer village affairs and to select members to represent them in Administrative Units and in Locality Councils.

The responsibilities of the Locality are to:

- Provide agricultural extension, health, education and local water supplies, and rural roads maintenance
- Implement rangeland and forestry conservation and development. The latter through FNC staff
- Invest and maintain water points in cooperation with State and Rural Water Corporations
- Plan land use

In addition to the Executive Administration, a Traditional (Native) Administration system (Nazara) presides over local administrative and judicial affairs. The Nazara system consists of three administrative tiers: the Nazars, who are the highest officials within the administrative and judicial structure; the Omdas who are medium level leaders, and who are usually heads of tribal subsections; and the Sheikhs, who are village or camp headman. All of these Native Administrators are granted legal powers to maintain law and order, to monitor development within their respective constituencies, and to collect taxes. Both Sheikh and Omda report to the Locality officials.

The focal point institutions for the FTP watershed management project are described in section 8.

4.2 Key Institutional and Watershed Governance issues

4.2.1 Integrated and sustainable development planning/policy

The State level is responsible for land–use planning. Inter-sectoral planning has traditionally been very weak. However, under the new constitution and decentralization process, there are new directives for inter-sectoral planning. In the concerned States, inter-sectoral cooperation in formulating development strategies and plans has been introduced for the first time 2006.

The present land and water governance structure is also inadequate to provide security of access to land and water resources, conservation of natural resources, equitable and economic use of these resources. At stake are the discretionary powers of the federal and state governments to allocate land without due consideration to customary use and environmental impact. The Comprehensive Peace Agreement has instituted a mechanism in the form of the State Land Commissions, for arbitrating land claims. These Commissions would be implemented in the conflict areas and their replication would be considered in the non conflict affected areas.

Also inter-state cooperation is at present weak which is visualised by for instance the difficulty to secure livestock corridors/pastoralist routes crossing several states.

Locality has the responsibility for land use planning within its jurisdiction based on State directives. However, a recent assessment of Localities' compliance with and Identification of their capacity needs in Northern Sudan[4] concluded that almost all localities show low capacity in the area of development planning in terms of analytical basis, depth of explanation, clarity of objectives, prioritization, link to budgets, and monitoring. The situation is not very different in the Localities targeted by the project. Many different and individual project proposals have been suggested to the project preparation team from the Localities, but few background studies or analytic justifications have been submitted. It is uncertain to what extent the water balance, environmental criteria and other important base-line data of is considered in the local development planning. No integrated land use development strategies or plans have been available.

To sustain biodiversity has previously not been one of the Governments priorities which is visualised by that this area is poorly regulated, enforcement is weak and institutional set-up at state level is developing slowly. Environmental hazardous activities such as gold panning are lacking regulating environmental legislation.

In terms of provision of water infrastructure, water infrastructure construction and rehabilitation is often characterised by poor technical design, planning and supervision. Also the operation and maintenance of water points is poor. There is also distrust vis a vis community capacity of managing water points. These observations are also confirmed by parallel projects. In remote areas, also other types of infrastructure developments show the same weaknesses e.g. roads.

Implementation of the following on-going policy and regulatory efforts at state level that will be supported by the project are: inter-sectoral land-use planning considering

[4] World Bank/LICUS, "Assessment of Localities' compliance with and Identification of their capacity needs in Northern Sudan" Synthesis Report, January 2007

customary use and environmental impact, development of secure livestock corridors, enforcement of environmental regulations and decentralisation of decision-making.

4.2.2 Participatory planning and management

Generally in Sudan, few localities use participatory processes or make any attempt to involve communities in the planning, and interaction with the village Committees is limited in most localities. There are examples of recent interventions where participatory planning and management is evident. These have often been supported by external financiers.

The implementation of participatory planning also requires the permanent presence of Locality staff e.g. agricultural and forest extension staff in the administrative units which is currently not the case. On the other hand, resource people for community mobilisation are available among locally based NGOs in Lower Atbara and Dinder but not in Bau Locality.

Traditional leaders are an important stakeholder group because informally they still play an important role in regulating village life and allocation of customary land.

When dealing with farmers' union and pastoralists' union it is important to recognize that they tend to represent the interests of larger, more affluent groups whereas small scale farmers and small scale pastoralists have little influence and are marginalized in these organizations.

Some stakeholders such as women's groups, women headed households, female pastoralists and youth are extremely weak in raising their voices and demanding their rights. For the FTP is will be important to ensure that they are not overlooked and included in the preparation of the projects and its benefits while at the same time take care not to cause conflicts within families.

4.2.3 Capacity and Extension Services

Extension services are the responsibility of the Localities and are weak in all three project areas with few exceptions. This is to some extent due to lack of educated staff but also it is a result of lack of exposure, resources, transparency and accountability.

A major problem is the absence of permanent locality staff in many administration units due to lack of minimum living and working facilities for civil servants: simple housing, offices, (computer) equipment, transport, electricity (solar panels), water supply and sanitation.

The FTWMP should aim at more visible and more effective local administrations through making provisions for the equipping of local authorities if necessary.

4.2.4 National Park Management

The management of the park has long been ineffective and movement inside the park is so difficult that it seems as if some areas of the park (particularly in the north east quadrant) are poorly known even to the rangers. Although Sudan has produced a good number of graduates through its wildlife management programmes at University level very few of these have been employed in the national parks system. As a result

the level of planning in the national parks system has been between low and non existent. The management plan for Dinder supported by the GEF appears to be only the second such plan in the country.

The very high level of movement within the police force means that officers building up experience move away and take their experience with them. If the park is to remain under the control of the police then a special division of the police should be created with officers who will only be responsible for wildlife management. Such officers should be qualified and trained principally in wildlife management.

Under the GEF project it seems that some officers did receive training in South Africa but this training seems to limited to make a real impact.

In practice the responsible staff seem very ill prepared to manage the resources of world wide importance that Diner represent and a major effort to train and retain capable officers and men will need to be made.

Similarly given the social problems related to the management of the park it is necessary that there are officers and rangers who have been trained in the human dimensions of wildlife management in order to interact effectively with other park stakeholders.

It is therefore necessary to make a major investment in building the capacity of the park management staff.

5 Detailed Description of Project Components

The key framework project components are divided into three general output areas, each with a number of sub-components:

Component 1: Institutional Strengthening
Component 2: Project Management
Component 3: Integrated Watershed Management and Development Interventions

The detailed outputs, activities and monitoring indicators are given in the Project Logframe included in Annex 1.

5.1 Component 1: Institutional Strengthening

Institutional development and capacity building, alongside with stakeholder participation, should be acknowledged from the outset as being critical to the project's success and sustainability.

It is important to strengthen the role and capacity of localities and supporting institutions in the delivery of pro-poor investments and services to promote productive and environmentally sound livelihoods with local community participation. To this end, this component will establish the enabling capacity within the supporting institutions through conducting a training program aimed at building capacity in the areas of technical aspects, project management (e.g. transparency, accountability, financial management, procurement), and community participation and empowerment (e.g. participatory planning process and inclusion of marginalized segments of the population in decision-making).

In order to capacitate communities in managing the local environmental and long term sustainable development, this component moreover aims to develop the capacity of community-based organizations to engage in environmentally sound, socially and gender equitable development initiatives.

Component 1 includes two sub-components as explained below.

5.1.1 Component 1a: Strengthening of Supporting Institutions

5.1.1.1 Objective:

Strengthen relevant local institutions, stakeholders and systems at all appropriate levels for the integrated and participatory management and development of local land and water resources.

5.1.1.2 Expected Outputs

- Local guidelines and procedures for integrated and participatory land use and environmental management and sustainable development established
- Improved competence in integrated and participatory land use planning, development and management

5.1.1.3 Narrative

Strengthening of the supporting institutions includes support to i) improved governance/enabling framework (local guidelines and regulations, inter-sectoral corporation, development of stakeholder forums) for participatory and integrated management and development at local level; and capacity building of state and locality staff and supporting NGOs to the implement new approaches and systems. To this end, this sub-component basically involves the development and "institutionalisation" of integrated and participatory land use planning guidelines and skills training in integrated land use planning; stakeholder participation and joint management; use of interactive maps and basic GIS; small dam design and supervision; financial accounting and management (including micro.finance), conflict resolution and gender sensitisation.

For Dinder National Park, management systems will be strengthened and training will be provided in park administration, stakeholder dialogue, wildlife management, vegetation management, park security and tourism etc.

The government staff, NGOs and project staff involved in implementation of project activities will specifically be trained in formation of community based organisations, community driven needs assessment and community-based project planning, implementation, monitoring and management (including financial management). The training will enable them to mobilise communities, backstop community organisations and ensure that vulnerable groups are equitably partaking and benefiting.

5.1.2 Component 1b: Strengthening of Beneficiary Organisation and Community Participation

5.1.2.1 Objective

Strengthened and expanded community participation (including vulnerable groups) in planning and operation of diversified livelihood projects within a framework that encourages environmental responsibility strengthened.

5.1.2.2 Expected Outputs

1. Communities mobilised and CBOs formed and strengthened
2. Community capacity to managed local environmental management and community livelihood improvement projects strengthened
3. Community Initiative Fund (CIF) established
4. Business centres established

5.1.2.3 Narrative

Strengthening of CBOs

In order to benefit from the IWM&D interventions representative community based organisations with sub-committees must be established and functioning. Strengthening of beneficiary organisations and community participation includes revitalization and/or formation of CBOs/VDCs and training in local land use

management and skills training in agriculture, forestry, livestock and rangeland management as well as project management.

Approximately four to six sub-committees could be organised in any given community i.e. i) water management committee to manage water utilities, ii) farmers' committee, iii) forestry committee, iv) livestock or rangeland committee, and v) women committee. Business development, income generation and environmental management will be overriding objectives.

To this end the project should form new community organisations and revitalize the organizational structures by previous efforts e.g. the "Dinder Park Local Stakeholder Committee". This task would also entail development of a hybrid structure that would accommodate the traditional local administration and pastoralist structures.

The FTWMP will provide intensive re-training and capacity development. The CBOs will be trained in community driven needs assessment and community-based project planning, implementation, monitoring and management (including financial management).

Environmental awareness building, skills training and extension services will be provided to communities and target groups under Project Component 3: IWM&D Interventions.

Community Initiative Fund

In addition to major pro-poor investments in integrated watershed management and development inteventions, the communities will also be able to access micro-finance grants and loans for minor individual investment needs. The objective is to reach the project target population and meeting their needs and requirements in terms of financial services by utilising the network of CBOs/VDCs established under the project as facilitators to reach the target population and promote rural development.

The rationale for such a grant disbursing fund is that economic options for the target groups are limited and hence do not constitute a viable credit market for banks. Yet communities still require capital to improve production and income. For this reason, the project is setting up a Community Initiative Fund (CIF) to provide under matching grant formula and other financing mechanisms to groups to set up small scale productive enterprises. The project will finance on a cost sharing basis (up to 95% of capital costs) a range of productive activities that are particularly targeted towards the poorer households and women.

The range of activities eligible for financing consists of irrigation equipment, small ruminant re-stocking, appropriate technology for milk processing, appropriate technology for gold panning, and non-farm income generating activities. Eligible projects could also be combined with investments in basic services such as improved sanitation facilities and/or health and educational services. The range of eligible activities will be reviewed on an annual basis based on the needs and ideas of productive enterprises emerging from the communities. In order to ensure that the CIF can cover a larger number of beneficiaries, an in-kind fee payment will be instituted. The community organization will be responsible for the collection of the in-kind fee payment and allocation of the proceeds to new groups of beneficiaries.

A credit line will be provided to each LIU to be used for on-lending to target population and testing new delivery mechanisms, new types of clientele such as members of CBOs/VDCs and the financing of rural development activities. Micro-

finance offcer will be trained in implementation of best practices loan appraisal, collection and recovery improvements, outreach and diversification of activities eligible for financing

This sub-component moreover includes the creation and implementation of Business Development Centres. The project would finance training in business and project evaluation, marketing and market studies, accounting, business management, legal environment.

5.2 Component 3: Integrated Watershed Management and Development Interventions

5.2.1 Overview

5.2.1.1 Objective

To stimulate, support and demonstrate fast track appropriate development-oriented investments in the project areas that contribute to poverty reduction and environmental sustainability.

5.2.1.2 Expected Outputs/Outcomes

1. Increased awareness in environmentally sound land use management and development
2. Increase in environmentally sustainable livelihood practices
3. Intensified and diversified livelihood practices and income sources
4. More reliable access to water for domestic use and to allow local communities to shift to more intensive agriculture
5. More efficient use of water
6. Water infrastructure managed by communities/interest groups or jointly with the localities
7. Siting, design, construction and construction supervision of water infrastructure improved
8. Human and livestock water usage separated.
9. Improved farm production and farming systems
10. Increase in tree cover and in trees of economic value in the area in order to meet the forest products demand of the local people and to combat desertification
11. Forest restored and sustainably managed by communities and/or jointly with the FNC
12. Improved access to alternative energy sources
13. Carrying capacity of grazing lands increased and rangeland productivity improved and animal routes established/rehabilitated
14. Pastoralists' livelihood diversified
15. Improved income generating livelihood practices
16. Negative effects on health and the environment of uncontrolled gold panning reduced
17. Improved household and community health awareness

5.2.1.3Narrative

This component would contribute to improved livelihoods of the local target groups as well as improved management of natural resources and resulting in local and regional benefits.

Taking into account local bio-physical conditions, previous experiences, and community priorities and needs voiced during consultations - the FTWMP is proposed to include a number of coordinated land and water interventions. A summary of intervention purposes and expected outputs are given below. Justifications and details on these components are available in Working Paper 1.

Cross-Cutting Interventions, such as i) sustainable environmental management, ii) income generating activities and marketing and iii) technology transfer, are included under each sub-component.

Integrated Watershed Management and Development necessarily requires appropriate legal and institutional frameworks and technical and management capacities amongst a range of national and local-level institutions. However, much of the day-to-day responsibilities for – and various effects of – watershed management occur at local watershed and community levels. That is why- in addition to coordination amongst relevant sector agencies- community and water user participation is such a critical aspect of watershed management. In order to deepen such participation and provide early concrete benefits to communities and water users, attention will be given to supporting and encouraging local, community-based Integrated Watershed Management and Development (IWM&D) initiatives in the three project areas.

The IWM&D Component will support concrete projects which have been prioritised by stakeholders and technically assessed in each project area. They are intended to address urgent needs, and to contribute to concrete improvements both in the area's water and natural resources and in the overall quality of people's lives. While designed with a consideration for appropriate institutional capacity, stakeholder participation, and integration with relevant cross-cutting issues these projects include infrastructural or hardware development on the ground.

The IWM&D Interventions are intended to link local communities more closely to planning processes, provide practical experience and lessons, and contribute to poverty reduction, gender equity, improved health in general and especially in relation to environmental sustainability. This component is an effort that supports community-led development through partnerships among local stakeholders, including: localities, communities, NGOs and community-based organizations or interest groups. The component is based on subprojects developed through a consultative, participatory planning process. The implementation will be subject to the national legal requirements and the procedures set out in the Environmental and Social Management Framework (ESMF).

This component includes support for such activities as shelterbeds and homestead tree growing projects, achieving 10% tree cover on rainfed mechanised farms, development of drinking water supply, development of appropriate livelihood practices such intensification and diversification of agricultural production as well as improved marketing of products, as detailed in the below sections.

Community contribution is proposed to be 5-10% up to a ceiling amount. The contribution can be in cash or in kind depending on the economic strength of the

beneficiary. Each project is implemented through a three partite agreement between the PCU, the Local Government and the CBO or interest group.

5.2.2 Sub-component 3a: Water resources development

There is a clear need to invest in water capturing structures albeit in a sustainable manner. Aspects to consider in the planning of regulation structures are:

- Low maintenance
- Little or no operation
- Community participation/ownership
- Minimisation of evaporation loss

The purpose of the water development interventions is to promote community and/or joint managed water infrastructure development supported by technology and management transfer. The types of infrastructures vary from area to area but comprise the following structures including site investigations and surveys:

- Weirs and river in-take and out lets
- Shallow wells
- Deep boreholes
- Small dams (<15m high) including diversion structures (not canals)
- Micro-dams/pans/'hafirs' construction/rehabilitation
- Ground water dams/sand dams (sub-surface dams)
- Rain water harvesting structures (collection surfaces, storage facilities, pumps) for small village at the foot of rock outcrop
- Rehabilitation of mayas

Favorable locations for the various water projects are defined and presented in working paper 1. The tasks would include formulation of a tri-partite agreement between the locality, the CBO and the FTWMP to demarcate the land, settled contribution, ownership and O&M aspects. It would also include feasibility studies, design and construction and supervision.

Training and guidance of water investments in terms of setting clear criteria for siting, design and construction, adherence to cost recovery of O&M, water pricing and devolution of management of water facilities to communities or interest groups will be part of the component.

Given the limited amount of studies undertaken, the project would also finance detailed water resources assessment and ground water mapping studies i.e geophysical investigations (geo-electric surveys), including equipment.

The target groups are communities, semi-nomadic and nomadic pastoralists and women.

5.2.3 Sub-component 3b: Agricultural intensification and diversification

The project intends to promote community and/or joint managed agricultural development supported by enhanced technology transfer packages for raising crops yields and income. The interventions would contribute to enhance sustainable food production and food security through optimal use of local natural resources, and technology packages, and enhancing the ability of the local people to manage policy,

programming and planning activities of sustainable agriculture. This component is expected to deliver the following outputs:

- Improved farm production and farming systems through diversification and intensification of farm and infrastructure development.
- Technology packages for raising crops yields and income enhanced by availability of inputs and new type of crops, effective system of disseminating technology, favourable land tenure systems and sufficient credit and marketing facilities.
- Reduced unemployment, and human resources appropriately utilized by intensifying and diversifying crop production.
- Area under intensive cultivation extended by increase in irrigation infrastructure and land development
- Irrigation and drinking water availability through water infrastructure development.
- The ability of the local people and their participation to manage policy, programming and planning activities of sustainable agriculture enhanced.
- The optimal use of on-farm inputs and people's participation on farm technology development and transfer, incorporating indigenous agricultural technology and practices promoted

Agriculture Research Station is pioneer in *on-farm research trials* in the Sudan and has established applied research farms in Medani, Lower Atbara and Bau etc.
There are many research results which can be transferred or extended but the community is not benefiting from them because the technology is not being transferred or made available to the beneficiaries and the stakeholders. The authorities lack facilities at the moment to cope with the burden of reaching farmers.
The project would support, extend and improve on-going efforts through building on the existing farmer's schools and establish demonstration plots in each village.

Farmers have to be encouraged to adopt new irrigation techniques. Another requirement for intensification and diversification of agriculture is the use of improved seeds. Improved seed technology is essential for bridging the gap between yields in demonstration trials and farmers' fields. In a move to improve production of good-quality seed and boost the use of improved seed, the Seed Multiplication should be promoted.

The target groups are small scale farmers, semi-nomadic pastoralists and women.

5.2.4 Sub-component 3c: Improvement of rangelands

5.2.4.1 Reseeding of wadis in Lower Atbara

There is a potential to enhance this natural recharge from water harvesting in the low, and often wide, wadis and valleys, if shallow weirs would be constructed in order to hold the rain water runoff. Water harvesting resulting in prolonged periods of higher soil moisture would benefit the groundwater recharge. Grazing and cropping periods would become longer.
The objective of this intervention is to improve crop production and grazing lands in wadis through water harvesting to increase soil moisture, diversify natural vegetation, and replenish ground water. The expected outputs are several:

- Water harvesting structures in place, and drinking water points made.

- Carrying capacity of grazing lands increased and rangeland productivity improved.
- Loss of livestock due to shortage of feed, drinking water, and diseases reduced.
- Awareness of herders on environmental impact of large and concentrated herds, consequences of overgrazing, and focus on the quality of livestock rather than quantity raised.
- Technology packages for raising sorghum and other crops yields and income enhanced by availability of inputs, effective system of disseminating technology, favourable land tenure systems and sufficient credit and marketing facilities.
- Opportunistic sorghum and other crops productions in wadis improved.
- Biodiversity of the wadis enhanced.
- Agriculture information systems and transfer of technology units, and links to the local communities strengthened.

Improvement of livestock conditions by providing easily accessible drinking water points and more nutritive fodder is suggested which could be combined with the project component on water harvesting and reseeding of local legumes and grasses in wadis as described in the above section.

Water harvesting in combination with reseeding of local legumes and grasses in wadis to improve and diversify agricultural production is hence proposed. The Fast Track Watershed Project should be coordinated with the ongoing FAO project and build on lessons learnt from previous activities. However, the extent of cooperation and the size of this project component depend on the outcome of the FAO extension negotiations.

The target group is semi-nomadic and nomadic pastoralists in Lower Atbara.

5.2.4.2 Improvement of rangelands and regulation of animal routes

To improve the carrying capacity of rangelands and rehabilitate animal routes in Gedref, Sennar and Blue Nile States. Expected outcomes are:

- The carrying capacity of rangelands improved by reseeding them with seeds of high nutritive value leguminous fodder plants.
- Disputes over allocation of land for animal routes resolved.
- Animal routes rehabilitated and improved.
- Governmental institutions capabilities and stakeholder participation in managing grazing lands enhanced.
- Veterinary services (vaccines, artificial insemination etc.) provided.
- Loss of livestock due to shortage of feed, drinking water, and diseases reduced.
- Awareness of herders on environmental impact of large and concentrated herds, consequences of overgrazing, and focus on the quality of livestock rather than quantity raised.
- Farmers/herders relationships improved

This component would include the following activities:

- Assist in reviewing and improving the animal migration routes.
- Promote planting trees along animal routes for shade and browse.

- Assist in establishment of drinking water points, and camps for resting and veterinary services (vaccination and artificial insemination).
- Assist authorities in the elaboration of a land-use plan for the Gedref, Sennar and Blue Nile State.
- Strengthen the capacity of relevant local institutions and supporting stakeholders to efficiently, effectively and sustainably utilize improved rangelands.
- Conduct training of pastoralists and their families to adopt technologies to help them process livestock products into value added products.
- Assist in organizing campaigns to eradicate livestock diseases and parasites.
- Assist in improving the carrying capacity of rangelands by reseeding them with high nutritive value leguminous fodder plants and piloting grazing farms to allow perennial grasses.

There will be a need to develop the capacities of extension officers specializing in livestock. This capacity building will also have to be directed towards project field officers. Capacity building and training of pastoralists will be carried out by field officers and agricultural extension officers.

Selection of areas for pasture improvement will be undertaken after the stakeholders have reached an agreement on land use allocation through the involvement of native administration and local authorities.Following reseeding it will be necessary to exclude cattle from this pasture for a period until natural seed production takes place and the perennial grasses have been allowed to establish a sound root system.

This component will be coordinated with water development intervention so that new water-yards will be developed in land provided for grazing. There will furthermore be a requirement for veterinary support for pastoralists following the upgrading of pastures and the preparation of new water-yards in order to ensure that gains from improved livestock resources are not lost.

- The target group is semi-nomadic and nomadic pastoralists in Gedref, Sennar and Blue Nile State.

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5.2.5 Sub-component 3d: Afforestation and Reforestation

For the forestry component of the integrated project, forestry and agroforestry interventions are recommended for all three project areas. In Lower Atbara communities are threatened by sand dune encroachment and there is an urgent need to increase forest cover to meet the forest products demand of the local people and to combat desertification. In Bau, the existing forests are threatened by extensive tree felling for charcoal making and clearing of land for agriculture. Reforestation around the Dinder National Park is required in order to prevent encroachment on the Park forests.

The forest and agroforestry interventions proposed are: (1) shelterbelt plantation in order to prevent sand dune encroachment on villages and croplands in Atbara, (2) Joint Participatory Forest Management with local communities and FNC in order to preserve, restore and sustainably manage the degrading state forest reserves, (3), tree planting in individual farmland and around individual homesteads and institution compounds in order to increase tree cover in the areas, and (4) introduction of alternative energy sources and energy efficient cooking stoves to decrease the pressure on woody biomass and forest reserves.

Details on the recommended choice of indigenous tree species for plantation establishment for the different project areas and the modality of local people's participation in the forestry project are provided in Working Paper 1.

With regard to shelterbeds, the following can be noted.
It is recommended that the tree species to be used in the forestry interventions should be indigenous species of economic value. The primary role of shelterbelts of protecting villages and farmlands from sand dune encroachment should have priority over its productive role. But additional economic benefits that can be derived from the trees and shrubs grown in shelterbelts cannot be ignored. Shelterbelts need continued management and maintenance to ensure maximum efficiency. To this end, the use of native tree species of economic value in the establishment of shelterbelts may be more attractive to local communities than the use of exotics. They will participate actively in the management and maintenance of shelterbelts if they realise that they are deriving additional economic benefits from the trees and shrubs.

With regard to Joint Participatory Forest Management with local communities and FNC the following activities would be undertaken

- Training of Committee members in forest management and maintenance
- Production of legal document on regulations and restrictions
- Support the Committee to establish strong direct links to high-value and export markets for non-timber products of indigenous tree species
- Enrichment planting of degraded patches of the reserve forest by planting seedlings and cuttings of recommended indigenous tree species. Broadcasting will be applied for larger areas in Gedref and Sennar states.
- Control and prevention of illegal cutting, fire and grazing

In order to increase law enforcement on the 10% tree policy, the FTWMP would work through the farmers' and the mechanised farmers' unions for the purpose of disseminate awareness and distribute seedlings as well as control.

Apart from a wide range of community members, specifically women and landless will be targeted to engage in forestry activities.

5.2.6 Sub-component 3e: Promotion of alternative energy

More than 70% of the total Sudanese population lives in rural and isolated communities characterized by extreme poverty. Presently, Sudan uses a significant amount of kerosene, diesel, firewood, and charcoal for cooking in many rural areas. The unavailability and the acute shortages of the conventional energy supply (electricity) to rural people have forced them to use other available energy sources like biomass. This sub-component will provide support to the communities, facilitated by NGOs, to revert from cutting down the local forest resources which ecosystem services could be benefited from in other ways. The following alternative energy sources will be promoted by the project and supported by making available micro-finance for any individual investment cost:

Improved cooking stoves - It has been learnt from previous efforts in Sudan, that women involved in income generating activities are more interested in energy saving stoves as a means of saving time and labour. Efficiencies of at least 20% can be achieved with most improved stoves, implying an energy saving of around 25% compared with open fires. Improve stoves can also reduce smoke in the kitchen and its negative impacts upon health by enabling the fuel to be burned more efficiently.

LPG -This energy term will be of particular interest to both urban and rural households and all the income groups due to the simplicity, convenience, and lower air polluting characteristics. There are some experiences e.g. in Lower Atbara which could be build upon, and it is accepted by the community.

Solar Energy (PV System) - The favourable climatic conditions have brought about a rapid development of solar energy technology in the past three decades (solar water heaters, PV for lighting, solar cookers, etc.). The low income of farmers and high cost of PV devices make the popularization of PV systems for lighting difficult. The presence of the PV system in Sudan and the Sudan energy strategy and policies, and the implementation of the national 1000 villages solar energy supply, and the past long experiences in Sudan still argues for introducing solar energy as one of the project activities.

Biogas - Biogas technology was introduced to Sudan in mid 1970s when GTZ designed a unit as part of a project for water hyacinth control in central Sudan. Anaerobic digesters producing biogas (methane) offer a sustainable alternative fuel for cooking, and lighting that is appropriate and economic in rural areas. In Sudan, there are currently over 200 installed biogas units, covering a wide range of scales appropriate to family, community, or industrial uses. The agricultural residues and animal wastes are the main sources of feedstock for larger scale biogas plants.

5.2.7 Sub-component 3f: Small-holder mining management and mitigation

The objective is to contribute to improved water quality and minimise the negative effects on health, livelihoods and the environment of uncontrolled gold panning in the Ingessana Hills. Furthermore, to support and further expand existing initiatives which address the management and mitigation of gold panning activities in an integrated and sustainable way.

The main outputs of this Project component are:

- Improved water quality down streams of Ingessana Hills.
- A comprehensive strategy and action plan to address the management and mitigation of gold panning activities in the Bau Locality.
- Establish and make functioning inter-sectoral working group on gold panning i.e. Bau Locality, FNC, State Ministry of Health and Federal Ministry of Mines.
- Capacity building and support to formulation of legislative regimes that obligate miners to minimise the damage
- A range of actors at different levels trained in relevant aspects of gold panning management and mitigation.
- Promotion of alternative technologies identified under the GMP.
- Alternative livelihood opportunities identified and supported through facilitating access to either grant funds or micro-financing facilities.
- Support alternative livelihood opportunities within forestry.

5.2.8 Diversified income sources

Poverty alleviation and improved local environmental management and enhancement of biodiversity are the most important objectives of the FTWMP and hence are

incorporated as cross-cutting activities to underpin all the other activities. With regard to poverty alleviation, the project supports alternative and diversified livelihood practices and income sources as listed in the below table 5.1.

Table 5.1 Alternative and diversified income sources

A. Agricultural Crops	Atbara	Dinder/ Bau
Vegetable processing, tomato paste and drying ground okra, mulokhia (solar)	√	√
Fruit processing dehydration of lime mango juice and mango deen	√	√
Karkadi drying and packing		√
Gum Arabic, cleaning, grading and marketing		√
Village small-scale edible oil extraction (nuts and sesame)		√
Fodder harvesting and packing Sudan grass, sorghum stalks	√	√
Spices, cleaning, grading and packing	√	√
Dates, grading and packing	√	
Date palm trees branches utilization for packing material and handicraft	√	
Dates processing on jams and sweets	√	
Household bakeries, bread, case, pasta etc.	√	√
Sorting, packing and marketing of organic products	√	√

B. Livestock	Atbara	Dinder/ Bau
Milk processing, ghee, cheese, cutter		√
Leather tanning		√
Leather manufacturing shoes, handicraft	√	√
Small village poultry unit, eggs grading and packing	√	√
Animal feed production for poultry and milking animals	√	√

C. Fisheries	Atbara	Dinder/ Bau
Fish handling and processing		√
Fish nets making, repairs and marketing		√

D. Forestry	Atbara	Dinder/ Bau
Forest fruits collection and processing: Tamarind, Baobab, Gaddem Ginger bread palm		√
Tanning material, collection and processing of Acacia Nilotica (Garad)		√
Wood handicraft		√
Charcoal from community woodland		√
Honey collection, processing, packing		√
Medicinal and aromatic plants	√	
Mat making from Camel wool	√	

E. Manufacturing	Atbara	Dinder / Bau
Small scale production of agricultural tools ploughs and hand tools	√	√
Small scale metal manufacturing of metal scissors, metal folding, rolling machines, windows, doors etc.	√	√
Wood manufacturing, windows, doors		√
Handicraft, wood	√	√
Transport support implements (animal drawn carts, bicycle trailers)	√	√
Bagasse Briquette making	√	√
Hand spinning and weaving of cotton	√	√
Pottery, clay jars, pots	√	√
Designing, sewing, packing and marketing of traditional clothes	√	√

6 Project Approach for Participatory IWM&D

The approach for IWM&D planning and implementation is based on the principles of beneficiary participation and community based initiative; gender mainstreaming; and support to decentralisation.

Localities are the core institutions of the local government system and are overall responsible for development in their area. The FTP will be a part of this responsibility.

As Localities' managerial capacity and skills and experience in participatory planning are limited, they will be supported by temporary local implementation units as well as suitable NGOs, private sector actors and TA, who will provide professional staff with the required managerial, technical and social facilitation expertise. NGOs would play a critical advocacy and project facilitation role. Additional assistance will be availed from backstopping from subject matter specialists at locality and state levels as well as from educational and research institutions. Hence, the State level will contribute to implementation by providing technical support and allocating the necessary counterpart recurrent budget for the operation and maintenance of assets built under the project (transferred from State budget or direct from MOFNE).

Project sites have been identified in accordance with agreed selection criteria and participatory assessment procedures. The Localities will assume responsibility to inform, mobilise, train and facilitate communities within these project sites to engage in the participatory local land use planning as well as implementation and management of the IWM&D initiatives. To this end they will cooperate closely with the Popular Committees and the native administration.

The Localities will assume responsibility for implementation and supervision, disburse and manage project funds, and contract goods and services from the private sector or NGOs. The Localities will also monitor progress of achievements of set targets (progress monitoring) and of the social targets and compliance with agreed project modalities (process monitoring of the participatory approach and gender mainstreaming). Likewise, they will carry out quality assurance of the implemented IWM&D interventions, e.g. if technical and environmental standards have been observed.

In summary the LIU will undertake the i) final selection and mobilization of communities based on the criteria defined in the Project Operation Manual; ii) assist in the establishment of CBOs or interest groups[5]; iii) assist in assessing community needs and assets; iv) assisting communities in the formulation and monitoring of their development and environmental protection plans and participatory mechanisms for the implementation of selected IWM&D interventions; v) implementation of training and extension services to target groups within the various fields of water supply, agriculture, rangeland and forestry as well as marketing of products.

[5] An interest group could be a smaller group within a community or representing a larger group covering several communities e.g. unions.

In general all the communities within the boundaries of the selected project sites are eligible for the FTWMP. However, the project will not be able to reach all target groups during the project duration and hence there is a need for a phased process whereby the FTWMP will have to work with an initial number of target groups and later extend to new target groups. The selection criteria for the final selection of communities would be:

- Target groups to be spread evenly between the different identified zones within each project area.
- Extent and probability of external risks to implement IWMD interventions (for instance would the locality and the community be able to demarcate land for the IWMD interventions etc)
- Extent of vulnerability/ resource dependency
- Extent of willingness of the target groups to participate (i.e. those with present unsustainable livelihood practices should be committed to the called upon process of change).
- Existence of well working and democratic CBOs and/or extent of willingness of the community to form a CBO with high representation of disadvantaged and women and ensure that the project will benefit the appropriate target group i.e. those who are highly resource dependant and whose livelihood practices are negatively impacting on the environment.
- Extent of development potential for alternative livelihoods

In order to benefit from the IWM&D interventions representative community based organisations with sub-committees must be established and functioning. To this end the locality, through the LIU, would assist the communities in forming CBOs and provide intensive capacity development in community driven land use management and development planning, needs assessment and community-based project planning, implementation, monitoring and management (including financial management).

Community land use management and development plans (CLMP) would be developed jointly between the community and the locality as part of the environmental awareness building and as a base for participatory development. The CLMP would consider the outcomes of the technical, social and environmental assessments undertaken during the detailed preparation and provided in enclosed working papers. The CLMP would include:

1. Review and consensus of livelihood practices causing environmental degradation
2. Definition of community priorities within the framework of environmental sound livelihood improvement and diversification e.i. identification of IWM&D interventions;
3. Participatory problem diagnosis highlighting the underlying issue that the proposed activity would address and enabling conditions for the activity to lead to positive end results and any other solutions that may address the underlying problem identified;
4. Participatory development of a community land use a management and development plan including demarcation and allocation of areas for IWM&D Interventions
5. Potential synergies or partners for the proposed activity; and,
6. Estimated cost and resources the community could contribute.

The role of communities during implementation will be to partake in all stages of planning and implementation and contribute in terms of labour, local materials or funds and participate in supervision and monitoring. The representative grassroots organizations have responsibility for mobilizing communities, develop local land use management and development as well as environmental protection plans, prioritize their extension needs, organization of interest groups and collaborating community members for demonstration activities. They should ensure that participatory and gender sensitive approaches are used and CBO members are representative from a gender and equity perspective and elected democratically. After implementation the communities will be responsible for operation and maintenance of created community assets and mobilise necessary user fees, e.g. water fees, licenses for utilisation of forest products etc.They should undertake monitoring of results and performance.

For minor community and individual needs micro-finance mechanisms will be developed and offered to the communities through the Community Initiative Fund (CIF). The CIF will be managed by the LIU and be under the responsibility of the Micro-finance/business development officer. This position would be a secondment from the State and will be trained under the FTWMP and he/she would be responsible to follow up the lending process and the flow of credits to the community, train the community members on book keeping and supervise the repayment collection and relending.

CIF funds will be made available according to the following modalities:

- Investments will be made in cash or in kind, [ie the project will purchase the goods for the beneficiaries]
- Beneficiaries must be organized in a formal interest group recognized by the community;
- The interest group or community organization recognized has a real existence beyond receiving the investment, ie has joint activities, regular meetings, etc;
- The interest group or community organization recognized must have been operating with no significant change of membership for at least one year
- The interest group or community organization recognized has demonstrated its ability to operate profitably
- The interest group or community organization recognized is composed primarily of poor people in the community; it may include ‘average’ people, but not the richer members of the community.

CIF matching grants will be distributed as follows:

- The group of beneficiaries designated by the community organization or interest group will provide a minimum of 5% of the cost of the investment; in the case of purchased equipment, the group will hand over the amount and participate in the purchase; where appropriate, the group may contribute in kind through labour or materials.
- If a second investment is to be made with the same group of beneficiaries, regardless of its circumstances, a significantly higher contribution will be required;
- Project monitoring will ensure that the poorer members are benefiting proportionately, and that the investment is not captured by the elite within the community. Should this be the case, the group will be required to refund the project for the full cost of the investment.

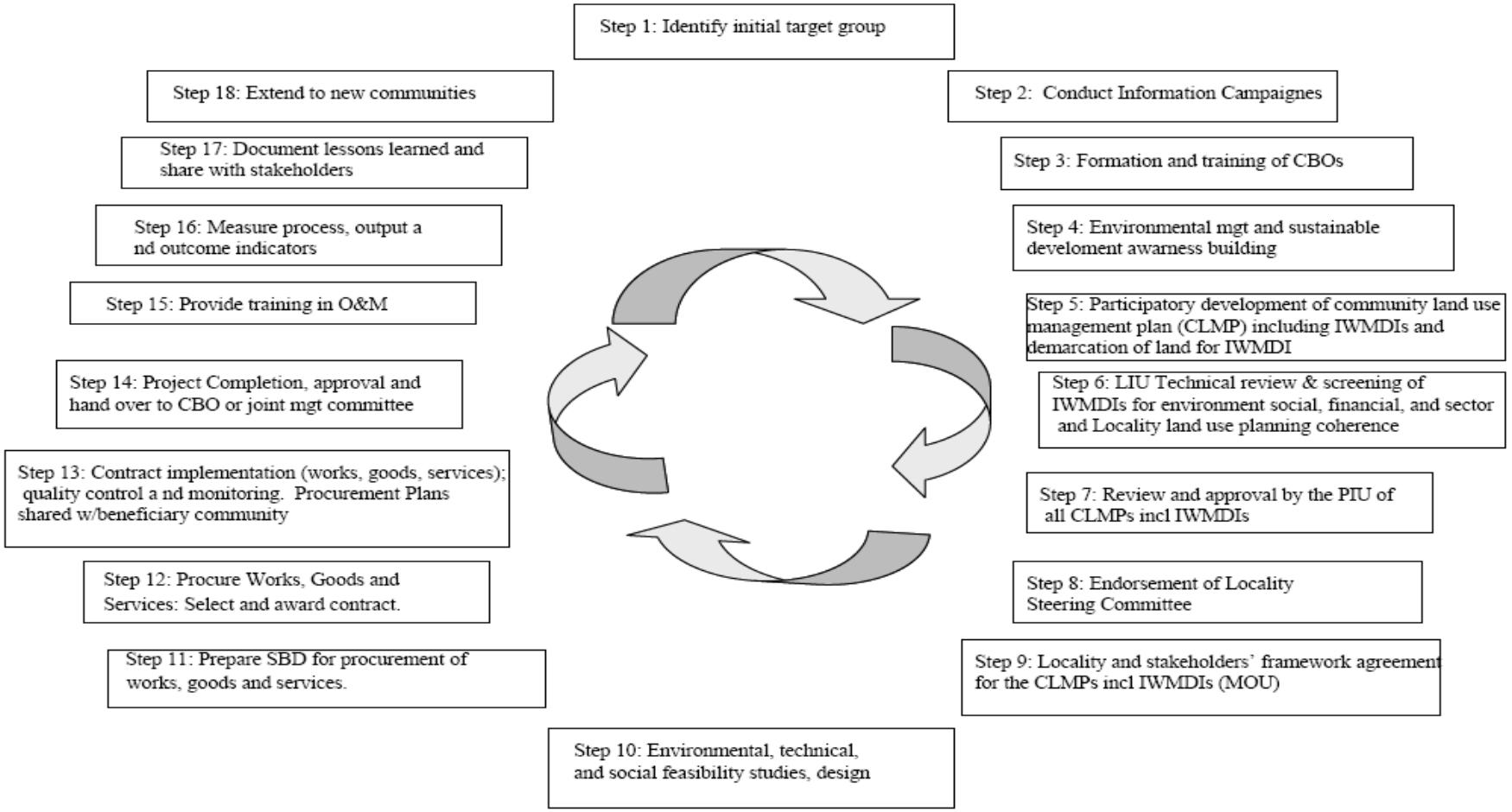
In addition to matching grant mechanisms, other mechanisms may be tested during project implementation such as Joint Liability and Wholesale Funds systems. The proposals to the CIF will be developed by the communities who will also identify the

beneficiaries who respond to the poverty criteria. Women are likely to benefit proportionately higher as the activities eligible for financing are mostly undertaken by women. Proposals for CIF could also be submitted by other interests groups e.g. unions for non-community based activities such as piloting of 10% reforestation on mechanised farms.

The decentralized institutional model proposed relies directly on localities as local government structures to facilitate area planning, disburse and manage funds, contract for the required goods and services from either private or NGO sources, and monitor implementation. This institutional model ensures a simple and streamlined flow of funds that allows for building the capacity of localities, which are critical to long-term local development. Throughout the entire process gender equality will be promoted and mechanisms will be devised to ensure that women and other vulnerable groups participate in decision making processes and share in the benefits of the FTWMP. Such mechanisms include the annual monitoring of CBO membership in order to monitor representation of women and vulnerable groups. Such indicators would be linked to triggering of funds e.g. no women representation, no funds or CBO not democratically elected no funds.

Figure 6.1 aims at visualising the project cycle and the activities to be undertaken for each new targeted area and community. The activities are sometimes undertaken step-wise and sometimes concurrently.

Figure 6.1: Project Cycle



6.1 Social issues with implications on participatory approach

The above explained project approach has developed from the findings on social issues derived from the detailed preparation mission and the experience of other projects such as ADS, DNPP etc., The most important findings which have formed the approach are briefly presented below:

- In the area around Dinder National Park and Bau Locality, there is a considerable potential for social and political conflict due to competition for land and water resources between different land user groups and the political divide caused by the civil war. It is therefore important that FTWMP selection criteria and processes are as transparent as possible and based on local consent. The criteria for the selection of potential project sites and communities proposed in the Working Paper 1, would thus be reconfirmed with local stakeholders and beneficiaries and if possible readjusted during the community mobilisation phase. One of the first activities to be conducted in the initial phase of the FTWMP would be an information campaign to sensitise the target groups on the objectives and modalities of the project and the rationale behind.

- For the same reason, the FTWMP has to be prepared to deal with and mediate conflicts. The social facilitators should therefore have skills in conflict management and conflict resolution and if necessary should be trained in the use of relevant tools. The social facilitator will play an important role in enabling the dialogue and mediate e.g. between the Kadalu People Development Committee and the Dinder National Park management staff.

- In the Blue Nile State, the "Kadalu People Development Society" should be used as entry point. It is however suggested that due to the prevailing disagreement with regard to the park boundary in this area, watershed activities focus on trust making, conflict management, and environmental awareness raising and as a minimum they should have representation in the below mentioned "Local Stakeholder Committee for Dinder National Park".

- The land issues in the Kadalu area are complex. Basically households have some access to customary land for mixed small scale rain-fed agriculture and animal husbandry or rent land from the large scale mechanised farms. They supplement agriculture production with seasonal labour on these farms. They are squeezed between the extending large scale farms and the extended boundary of the park and without land title it is difficult for them to defend their right to use the land. This situation is exacerbated by the fact the Kadalu area has been affected by the civil war and many people had to flee. Upon returning, they realise that their land has disappeared. This call for a political solution. To this end, the project will support dialogue between the various parties.

- Transhumant pastoralists are represented by the VDCs as witnessed in the Rahad River area, but nomadic pastoralists are difficult to reach. They are to a certain degree represented by the "Pastoralist Union" and the Watershed Project should make use of the local representatives and facilitate their membership in the local "Local Stakeholder Committee for Dinder National Park" which will be established as proposed in the Dinder National Park Management Plan. The Committee is envisaged to include the DNP administration, village development committees, farmers' and pastoralists' unions, native administration representatives, representatives of the involved Localities and States.

- To the extent possible, training and meetings should be conducted in the villages and not outside to ensure that women and vulnerable groups can participate. In view of the mobile lifestyle of nomadic pastoralists, participatory approaches would have to be adjusted to this. To this end, the social facilitators would temporarily move with these groups rather than asking them to participate in village meetings - in line with the idea of mobile schools. Nomadic pastoralists have no popular committees and village development committees but are more than others groups linked to and represented through the traditional administrative system which would thus be used as channel for communication for the FTWMP.

- Due to Localities' poor managerial capacity and skills and experience in participatory planning, during the initial phase of the project implementation, substantial time and effort must be reserved for training of Locality officers and extension staff by NGOs and private sector in the following subjects: (i) participatory planning and participatory communication tools such as focus groups discussions and various PRA techniques for participatory problem identification, analysis and prioritisation, and development of sub-projects and action plans, and (ii) the concepts of gender mainstreaming, gender equality and gender analysis during needs assessment, planning and monitoring.

- In view of the fact that in Bau Locality illiteracy is rampant and communities have not yet been exposed to bottom up development planning and gender mainstreaming, in the initial phase considerable time and effort would be invested to establish and train CBOs and sub-committees to develop basic understanding of the project philosophy and the skills necessary to fulfil their role in the FTWMP. Women need separate organisational channels to be able to voice their interests and concerns and the FTWMP would accommodate this.

- In Lower Atbara and Dinder National Park, the FTWMP will most likely build on the already existing organisations of village development committees and women's groups established through ADS, SOS Sahel and the DNPP. As noted the detailed preparation missions, not all of these organisations are operational or adequately represent the different sections of the communities. During the initial phase of the FTWMP an assessment would be conducted of their representativity and performance and if necessary they should be re-elected. Existing as well as new community based organisations would require comprehensive sensitisation and (re-)training in community based development and participatory approaches; gender equality; and managerial skills including financial management, business training, operation and maintenance, how to run an organisation etc.

- The notion of O&M (operation and maintenance) is not well understood and practised. Many water points and pumps in disrepair because they are not properly operated and maintained. Therefore, the FTWMP would from the very beginning promote O&M and train water users associations in the technical and managerial aspects of O&M of community assets constructed or rehabilitated under the FTWMP. In the case of assets that primarily benefit women, female caretakers should be supported.

- In view of women's limited role in agricultural production in two of the project areas, the FTWMP sub-projects would have to go beyond the narrow realm of land and water interventions and for example address women's domestic work burden, for example through drinking water supply, alternative energy sources

and intermediate means of transport (e.g. donkeys and carts). This could be a motivating factor for women to develop an interest in other activities such a tree nurseries, joint forest management, environmental training etc. where benefits are less direct.

- As most of the FTWMP sub-project proposals target "land based" beneficiary groups, there is a risk that the landless people will be excluded. Therefore, the FTWMP also has to offer relevant and suitable activities to improve the livelihood of this group to limit their dependency and use of natural resources (charcoal, wood cutting, park resources). The proposed forestry sub-projects could be a suitable entry point but activities that have a more direct benefit should also be promoted.

- The project planning would be participatory and the scheme organisation and ownership would have to be clear prior to construction. Hence, the project would be phased so that the ownership and organisation of O&M is clear prior to any physical construction.

- For long term sustainable development of the area, institutional strengthening on integrated land and water planning, licensing procedures, mapping and registration and information collection and management of water resources availability and demand in order to ensure the water balance of the area are also required.

- Each project would be implemented through a three partite agreement between the PCU, the Local Government and the CBO or interest group.

- To reduce the human impact on the park, the FTP aims at a restructuring of the current land use and agricultural practices inside and outside the park. The idea is to decrease the areas under rain-fed agriculture to make room for pastures and to extend the irrigated land for production of high value crops through improved (water saving) irrigation systems and new crop varieties. This would require a major reallocation of land. It will be a challenge to convince those with access to gerif land to share and those with rain-fed and to reduce. In addition, it will be difficult to identify the "owners" of the land as most of the land is customary and therefore not registered. So the FTP must make a major effort in designing good and convincing demonstration activities

- The landless men and women are also a vulnerable group as they solely depend on employment on large farms which only provides income for a short period. The landless are among the poorest people who use the park resources as their major coping strategy. They are therefore contributors to the environmental problems in and around the park. As most of the FTP proposals are land based there is a risk that this group is excluded. Therefore, the project also has to offer activities suitable for livelihood improvements of this group in the form of alternative income generation and environmental awareness raising.

7 Distribution of benefits

7.1 Strategy for Financial and Economic Analyses

The detailed approach and estimates of direct and indirect benefits (both financial and economic) that form the core of the detailed financial and economic analysis is enclosed in Annex 6.

The point of the departure for the analysis the demand-driven project features. The proposed project is **demand driven, participatory** (both during preparation as well and implementation phases), and **user-managed**. These features render the application of economic theory rather difficult for lack of a blueprint which stipulates that project interventions are defined in advance with definitive physical targets and implementation schedules. On the contrary, it is expected that the project would adopt detailed planning as of its first year and implement its plans throughout the life of the project. Under these circumstances, as well as for pragmatic purposes, below are the features of the financial and economic analysis approach adopted in this report.

The socio-economic/environmental benefits can be described and measured in various manners, in financial, economic and descriptive terms. Under the FTWMP financial and economic benefits are described from a watershed perspective in the following manner.

Benefits to the watershed:

- Improved resilience to chocks
- Reduced sediment loads
- Cleaner water
- More regulated flow
- Intact river channels
- Less wastage of water
- Improved biodiversity

Benefits from the watershed ecosystem:

- More reliable access to water of improved quality for health and productive uses
- Improved land quality to sustain livelihoods
- Improved biodiversity to sustain ecosystem service demands
- Desertification impacts mitigated

Beyond watershed benefits:

- Improved and diversified livelihoods
- Improved community resilience to chocks
- Improved equity
- Improved community capacity

7.2 Principal Watershed Management Issues in Sudan and Economic Repercussions

The principal issues related to watershed management consist of the following, all of which will be addressed in some capacity (directly and indirectly) by the proposed project:

- **Sedimentation**: Heavy sedimentation is reducing the storage capacity of the Roseires, Sennar and Kashm El Girba Dams and the irrigation and drainage canals of the irrigation schemes. Other impacts include increased costs of water purification, damage to pumps, aggradation of the river bed causing accelerated meandering and river bank erosion.

- **Natural Resource Competition, Conflict and Rangeland Degradation**: Due to increasing population pressure and massive expansion of the large scale mechanized farms there is competition and conflict between natural resource managers: shifting cultivators, pastoralists/agro-pastoralists and mechanized farm owners. The loss of rangelands to mechanized farms has resulted in severe detrimental impacts on pastoralist livelihoods and livelihood strategies.

- **Soil Degradation**: All forms of soil degradation are prevalent. Soil nutrient mining is occurring on the large mechanized farms because of continuous cultivation and the lack of fallowing. Salinization is occurring on a number of the irrigation schemes with poor drainage. Soil erosion occurs on areas with steeper slopes. Gullying is very common along the Atbara and Dinder rivers.

- **Water pollution**: Some 600 agro-chemicals, many of which are hazardous to humans and livestock, are used on irrigated farms and much of the residue is washed into drains and eventually to the Blue Nile.

- **Underlying Poverty**: Available evidence suggests that up to 80 percent of the population in the North is living below the poverty line. The majority of the poor live in the traditional rainfed farming areas. Distribution of benefits from agricultural growth during the last decade has favoured those with access to capital and land. Traditional agriculture generates 56 percent of agricultural GDP and occupies 70 percent of the population. Mechanized farming contributes 7 percent of agricultural GDP but only has 0.7 percent of the population. Irrigated agriculture contributes 22 percent of agricultural GDP and only has 12 percent of the population.

- **Pressures of Protected Areas**: The Dinder National Park is under increasing pressure from surrounding population with the demand for grazing, fuel wood, and timber and more recently from the impacts of oil exploration.

7.3 Economic benefots from a Broader Perspective

The broad benefits of cooperative Nile waters management and development can be seen as falling into four categories[6]:

- Environmental benefits,

[6] World Bank PAD for Shared Vision Program NBI 2003

- Direct economic benefits,
- Regional political benefits, and
- Indirect economic benefits.

7.3.1 Environment and Resource Management Benefits

The benefits of improved cooperative management of the basin's environment and water resources include:

- protecting watersheds,
- preserving soil fertility and reducing contaminant and sediment soil transport;
- conserving wetlands, floodplains and groundwater recharge areas, to maintain their natural capacity to buffer river flow and water quality variations;
- protecting aquatic and riverine terrestrial biodiversity; and
- controlling water abstraction and wastewater discharge, to manage river flows and water quality.

7.3.2 Direct Economic Benefits

River flows and water uses can be optimized to yield greater economic benefits, inter alia, more food, more power, and more navigational opportunities, while sustaining environmental integrity.
Good water management practices can effectively increase the available water resources in a system by, for example, protecting watersheds to minimize erosion, maximize infiltration and extend the period of runoff; providing over-year storage to buffer rainfall variability and reserve water in abundant years that would otherwise be lost; and by locating storage in areas of the basin that minimize evaporation and environmental disruption.
There are also many non-consumptive uses of water, such as hydropower generation, navigation and tourism.

7.3.3 Regional Political Benefits

Support for Nile Basin cooperation, and financing of the cooperative investment opportunities that will arise from this dialogue and institutionalize cooperation, are an important contribution to conflict prevention in the region.

The benefits of easing tensions over shared waters are the savings that can be achieved or the costs of non-cooperation or dispute that can be averted. In addition, the easing of tensions can enable or even catalyze broader integration and cooperation, as discussed below.

7.3.4 Indirect Economic Costs and Benefits

Cooperation in the management and development of international rivers may contribute to, or even result in, political processes and institutional capacities that themselves open the door to other collective actions, enabling cross-border cooperation in apparently unrelated areas.
Improved river basin management can increase the productivity of a river system, which may then generate additional opportunities in other sectors through forward linkages in the economy. The easing of tensions among riparian states may enable cooperative ventures unrelated to water, that would not have been feasible under strained relations.
Therefore, the indirect benefits of cooperation with regard to river systems may manifest in, for example, increased trade, labor flows, and infrastructure connections. Enabling this broader development and integration can make each individual economy more competitive, and more easily integrated into the global economy.

7.4 Focusing upon Project Benefits within the Context of IWM&D

The main objective of the project-specific economic analysis would be premised upon a sound understanding and proper quantification of the costs and benefits from the IWM&D interventions (third project component), which will strive to stimulate, support and demonstrate fast track appropriate development-oriented investments in the project areas that would contribute to poverty reduction and environmental sustainability.

The benefits from the IWM&D interventions will be realised in a step wise manner as illustrated by the below figure.

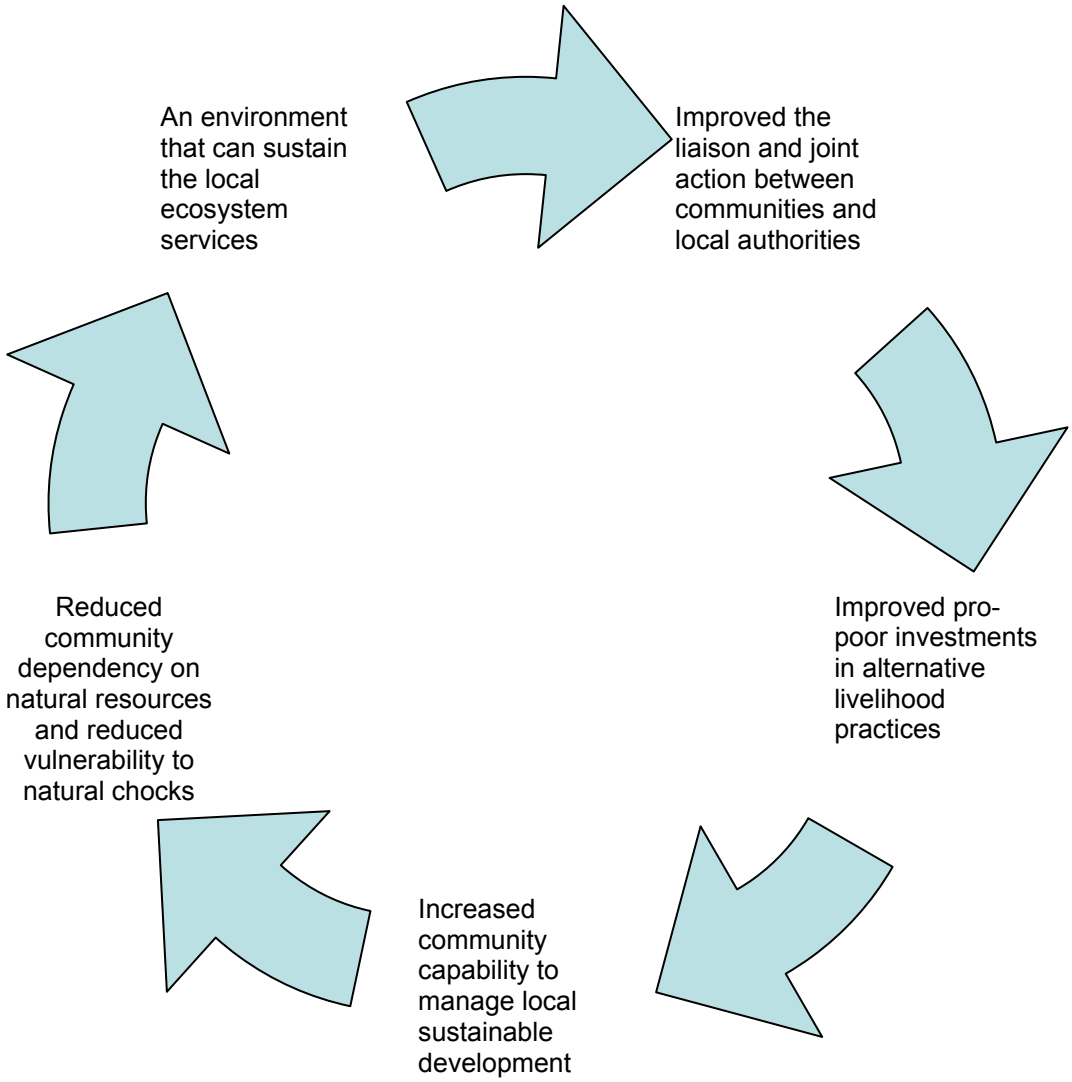


Figure 7.1: Circle of benefits

Given the above described methodological and practical difficulties commonly encountered in quantifying such a vast array of interventions and resulting benefits, a qualitative assessment is being offered in the following table. The major project outputs and their anticipated impact upon the generation of financial and economic benefits are shown in the below table with a qualifier. The qualifiers represent three levels of impact which would influence the process of generation of economic and financial benefits. These are high, medium and low levels of impact. A high level of anticipated impact is designated by an (H), medium level impact is designated by (M) or low level of impact is designated by (L).

Table 7.1: Project Outputs and Impacts on Economic and Financial Benefits

Major Project Outputs Resulting from Planned Interventions	ECONOMIC Benefits: Mainly of Environmental Character	FINANCIAL Benefits: Mainly of Income Generating and Poverty Alleviating Character
Increased awareness in environmentally sound land use management and development	H	L
Increase in environmentally sustainable livelihood practices	M	M
Intensified and diversified livelihood practices and income sources	L	H
More reliable access to water for domestic use and to allow local communities to shift to more intensive agriculture	L	H
More efficient use of water	H	H
Water infrastructure managed by communities/interest groups or jointly with the localities	L	H
Siting, design, construction and construction supervision of water infrastructure improved	M	L
Human and livestock water usage separated.	L	L
Improved farm production and farming systems	M	H
Increase in tree cover and in trees of economic value in the area in order to meet the forest products demand of the local people and to combat desertification	M	M
Forest restored and sustainably managed by communities/interest groups or jointly with the FNC	M	M
Improved access to alternative energy sources	L	L
Carrying capacity of grazing lands increased and rangeland productivity improved and animal routes established/rehabilitated	H	M
Pastoralists' livelihood diversified	M	M
Improved income generating livelihood practices	M	H
Negative effects on health and the environment of uncontrolled gold panning reduced	H	H
Improved household and community health awareness	M	M

8 Implementation Arrangements

8.1 Overview

There are three levels of institutional authority in Sudan; national (federal) level, state level and locality level. Within the jurisdiction of localities, there are administrative units and village councils. All those levels have a stake in the FTWMP, however most of the activities will be carried out at community level. The FTWMP also has national coverage and is multi-sectoral in scope. These project features, have implications for the project management structure as explained below:

1. Apex of the management structure should be under the federal auspices
2. Lead Project Agency at national level would be the MoIWR, but many other ministries are involved, why a strong multi-sectoral national steering committee should be established
3. Key focal point institutions are the localities

The structure for project management, governance and implementation arrangements assumes a light project apex at national level which coordinates the interventions in the Localities as separate but interlinked sub-projects each one with its own specific implementation arrangement and time line etc.

The project will be implemented by strong Local Implementation Units (LIUs) in the field supported by a Project Implementation Unit (PCU) located at the Lead Project Agency in Khartoum.

The figure below illustrates the project implementation structure.

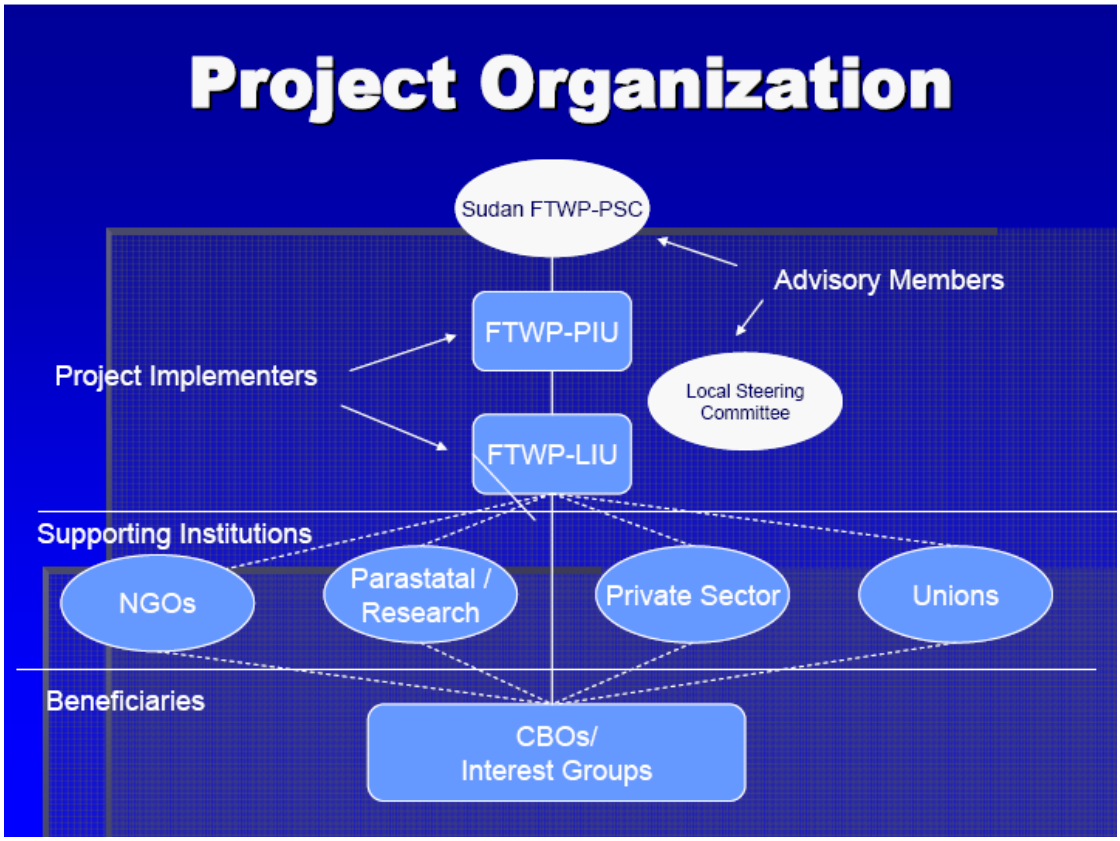


Figure 8.1 Proposed implementation structure

8.1.1 Federal Focal Point Institutions

8.1.1.1 Ministry of Irrigation and Water Resources – Lead Agency

The Ministry of Irrigation and Water Resources (MOIWR) governs the water sector in Sudan. All water affairs have been brought under the umbrella of the Ministry.

It is suggested that the MOIWR, in its capacity as the responsible authority for monitoring and control of the Nile System in Sudan, would be the Lead Project Agency. Another reason is the established linkage between the MOIWR and ENTRO. Under the umbrella of ENTRO, Sudan has appointed an Eastern Nile Watershed Coordinator. This person is located in the Ministry of Irrigation and Water Resources (MOIWR) in Khartoum.

On the other hand, the project has a multi-disciplinary scope and could therefore be managed by another implementing agency. These negotiations will take place during the project appraisal.

In its capacity as the Lead Project Agency, the MOIWR, would be responsible to establish and coordinate the Project Steering Committee overseeing the project. MOIWR would be the host for the PCU.

8.1.1.2 Ministry of Finance and National Economy

Ministry of Finance and National Economy (MOFNE) is the designated representative of the Government of Sudan for the purposes of external loans and provides counterpart funding to externally funded projects. MOFNE also provides funds to the

State Support Fund (SSF) for forward assistance to states and the localities. At times MOFNE provides funds directly to the project management unit as management cost and counterpart funding of project activities. Such mechanisms will also be instituted in the case of this project.

8.2 Project Management

8.2.1 Project Coordination Unit

The Project Coordination Unit to be located at the Lead Project Agency, MOIWR, would be responsible for mobilizing and managing GOS counterpart funds in addition to the donor funding and for the overall monitoring of the Fast Track Watershed Management project in Sudan.

The PCU would be responsible for channeling the project funds and delegate project execution directly to the LIUs, established at the project level as independent units with administrative and financial autonomy.

The PCU would comprise of two staff positions i) the Project Coordinator and ii) the financial controller.

TORs of PCU staff are provided in Annex 7.

8.2.2 Local Implementation Units

In order to support the running of the FTWMPand to assist the participating Localities and the DNP Management Unit, in the case of Dinder, three Local Implementation Units (LIUs) would be established at local level i.e.

1. FTWMP LIU established in Ed Damer Locality in River Nile State responsible for project implementation in Lower Atbara project area
2. FTWMP LIU established in Bau Locality in Blue Nile State with permanent presence in and responsible for project implementation in Bau
3. FTWMP LIU established in DNP Managemnt Unit in Sennar State responsible for the strengthening of the Dinder National Park Management and specific interventions in the Park (e.g. rehabilitation of Mayas) as well as for project implementation outside the Park in close collaboration with Localities in Gedarif, Sennar and Blue Nile State.

The figure below illustrates the project implementation structure at local level.

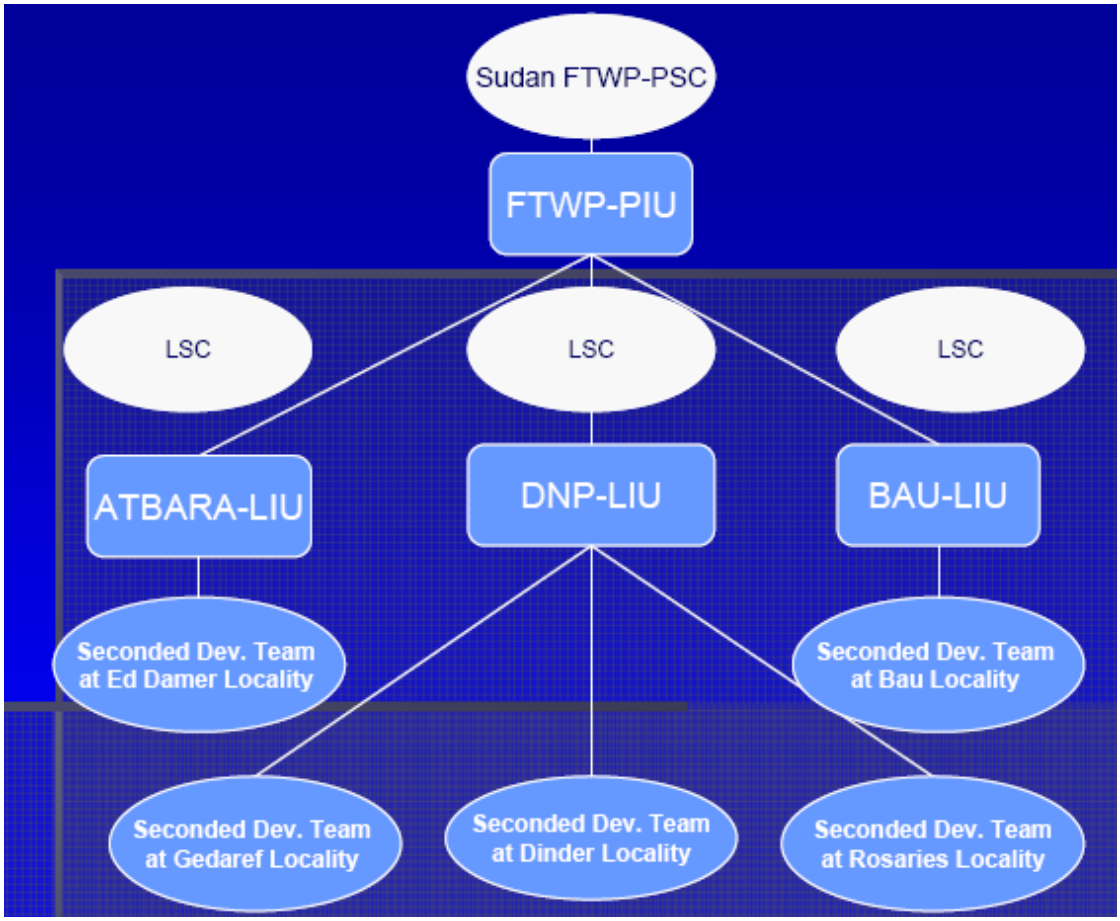


Figure 8.2 Proposed implementation structure at local level

The LIUs would be composed of five full time staff positions divided in two categories of staff, explicitly externally recruited staff and seconded governmental staff. The staff to be externally recruited include:

1. FTP LIU Manager/ Land Use Management Specialist
2. Social Facilitator/M&E Officer
3. Water Resources Engineer

Full time seconded governmental staff to be placed at each LIU include

4. Financial officer
5. Procurement officer

In addition Seconded Development Teams would be located at each participating Locality. The seconded staff will be allocated on 50-100% making a total of two seconded full time positions at five Localities.

Each development team will consist of an average of 2 -4 members depending on the interventions:

(a) an agriculture extension agent,

(b) a forestry extension agent;

(c) a range and/or livestock husbandry extension agent;

(d) a Micro-finance/business development officer.

The FTWMP Local Manger would report to the Locality Executive Manager and the PCU. The selection should be endorsed by the PSC to make sure that the selected candidate fulfills the required qualifications, and requires a "No objection" from the Donor representative.

Additional assistance will be availed from backstopping from subject matter specialists at locality and state levels as well as from educational and research institutions. In this manner the LIU would supplement the locality capacity.

The mandate of the LIU consists of: i) managing funds from the PCU at national level (and state authorities if not directly transferred from MOFNE. Direct transfer of state contribution from MOFNE is preferred); ii) facilitating the execution of the project interventions through the provision of necessary investments, capacity building and resource development; iii) strengthening and assist stakeholders' organizations for the improved utilization of natural resources for livelihood activities; iv) facilitating the process for the development and institutionalization of improved governance framework (i.e. local guidelines, procedures and bi-laws); v) ensuring replication through mobilization of additional resources; and vi) monitoring of project activities, results and impacts and reporting on implementation, and accounting for resources to the Lead Project Agency and National PSC. Project evaluation is recommended to be undertaken by an external body.

Training of LIU staff will be provided by PCU staff and may other take the form of formal training to be financed under the project.

TORs of LIU staff are provided in Annex 7

8.3 Project Steering and Supervision

8.3.1 National Project Steering

The National Steering Committee is proposed to be small but multi-sectoral and composed of the following permanent members:

- Ministry of Irrigation and Water Resources
- Ministry of Finance and National Economy
- Ministry of Agrculture and Forestry
- Ministry of Tourism and Wildlife
- Ministry of Interior, General Administration for National Parks and Wildlife Conservation
- Joint committee for DNP[7]
- Higher Council for Environment and Natural Resources
- Forest National Corporation (FNC)
- Representative of state focal ministry (4 states), i.e. Ministry of Agriculture Animal Resources and Irrigation (MAARI)
- National FTWMP Executive Manager
- Donor/s representative (Probably the World Bank)

[7] Joint committee for DNP is chaired by the minister of federal governance; members of the committee are the three walis (governers) of (Blue Nile, Sennar and Gedaref states) and the ministers of finance from these three states and the federal minister of tourism and wild life.

- ENTRO as an observer with a mandate to ensure regional information exchange and coordination– in particular NBI/ SVP, ENSAP/IDEN

For the purpose of ensuring coordination with parallel national and international efforts, representatives from relevant parallel projects will be invited as needed.

The Project Steering Committee under the MOIWR will:

- Set the overall policy guidelines and directions of the project;
- Oversee implementation and act as the project's central coordinating body;
- Ensure support for the project from all stakeholders and relevant constituencies;
- Facilitate and promote coordination among the various agencies involved in project implementation inside and outside government;
- Approve the project's annual work plans, including operations and budgets;
- Approve amendments to the project's OM in consultation with donors' reprehensive;
- Act as the main liaison between the project and all national and foreign entities;
- Act as the official GOS counterpart to the donors' representative on all matters related to the project: policy and implementation;
- Engage advisors and experts on an ad-hoc basis to address technical and emerging project needs;
- Update the process and performance indicators agreed to during appraisal and arrange for regular independent evaluations of the project's outcome and impact;
- Review progress reports prepared by the PCU and supervise the preparation of the mid-term review report and the implementation completion report;
- Approve all reports submitted by the PCU to the Donors' representatives; and
- Monitor closely the Project's progress without interfering in the daily operation of the PCU

8.3.2 Local Steering Committee (LSC)

The localities assume the main responsibility for project implementation with in-puts from State level institutions, NGOs and interest groups.

The LSC would comprise of the:

- Locality Executive Manager as chairperson,
- FTWMP LIU manager as a secretary,
- Head of each technical department (4) i.e. Agriculture (incl. pasture, livestock and forestry), Finance and Planning, Education and Services (health, welfare and works affairs),
- One representative of State Ministry of Finance
- One representative of State Ministry of Agriculture, Animal sources and Irrigation (MAARI)
- One representative of State Water Corporation, and
- Two representatives from local NGOs and interest groups.

For the Dinder Project Area, the LSC would have a different set up and would be called the Dinder Park Local Stakeholder Committee as was proposed in the 2004 DNP Management Plan. The Committee is envisaged to include the DNP administration, village development committees, farmers' and pastoralists' unions, native administration representatives, representatives of the involved Localities and States as specified below:

- Director of DNP as chairperson,
- FTWMP LIU manger as secretary

-
- One representative from each state MAARI (3),
- One representative from each state Ministry of Finance (3,)
- Executive Directors of the localities bordering the park(5),
- Representatives from beneficiary organizations and local NGO from each participating Locality,

The reason for securing LSC member positions to NGOs/interest group is to ensure that representatives from the beneficiary level are present at every meeting and that their views are considered in project decision making. These positions could be rotating between organizations depending on the subject however one should always be a woman.

The reason for having representatives from education and health departments is to facilitate that the target groups, in parallel with land and water interventions, benefit from improved basic health and educational services which would maximize socio-economic long term benefits. The FTP project will communicate and coordinate with health services at locality level with the objective to include health aspects in the environmental awareness building process. Main focus areas for coordination with the Localities regular health services are sanitation and water supply management. Awareness and action around specific hazardous practices will also be an important feature of the project such as gold panning methods etc.

For the purpose of ensuring coordination with parallel efforts, the LSC will invite representatives from NGOs, unions or other interest groups, academic and research institutes, line ministries, and parallel projects. These will be invited to provide essential advisory services and consultation to the LSC in carrying out its functions and to avoid overlapping and contradictions of implementation approaches. A mapping of supporting institutions and parallel projects and their location, perceptions, assets, importance and influence in relation to the project is provided in the Annex 2: Project Stakeholder Matrix.

The LSC set-up mirrors the CDF institutional arrangements in order to avoid parallel structures which could burden the Locality. The only difference is the permanent presence of beneficiary and women representation which is an additional feature of the FTWMP.

With the above composition both participatory and inter-sectoral project planning and decision making could be promoted. For example, for any infrastructure investment the Locality would submit the design proposal to the Local Steering Committee for discussion and approval. Moreover, the commencement of physical works will be subject to agreement on ownership (including land tenure) and the O&M arrangements.

The LSC main responsibilities are to:

- Approve the list of selected communities;
- Approve the Community Management and Development Plans and prioritized IWMD interventions;
- Mobilize local government in support of the project and oversee implementation by the LIU;

- Ensuring that all IWMD interventions meet environmental, social, financial and technical requirements in terms of consistency with sector policies, standards and general priorities of the project;
- Ensuring coordination with parallel projects
- Facilitate IWMD implementation when blockages in implementation occur;
- Participate in the M&E of subprojects;
- Depending on the nature of the deliverable, take the necessary arrangements with the relevant state line ministry/authority to obtain the necessary permits and authorizations; allocate the staff to the relevant facility established under the project, assume responsibility for the assets delivered under the project; and provide the recurrent budget for Operations & Maintenance (O&M).

8.3.3 The Coordinating Agency

The Watershed Management FTP in Sudan may be supported from several financing sources, it is thus proposed an organisation is appointed as the Coordinating Agency representing the Borrower/s. In its capacity as the Coordinating Agency, it would undertake the following:

- Project procurement of international TA and contract management
- Assessment of the adherence of the Borrower and project management to the fiduciary requirements;
- Provision of implementation support, based on assessment of progress against agreed indicators (project logframe and AWPB);
- Identification of problems and reaching agreement on suitable actions with the Government for improved results on the ground;
- Assessment of project poverty targeting and mainstreaming of gender issues with special attention to poor women.

It would also undertake project evaluation missions. These missions will focus on the following aspects of project implementation:

- Progress in implementation according to the physical and result targets;
- Cost efficiency of project service delivery to the communities;
- Sustainability of project activities by assessing effectiveness of cost recovery mechanisms in place, and alignment of locality revenue and expenditures with the development of the livestock sector and basic social services. This latter part of the assignment will be carried out in collaboration with the state auditors and budget department of the MOFNE.
- Exit strategy of project activities from communities.
- Sharing and discussion of findings with the supervision missions undertaken by the Cooperating Institution.

There are two alternative organisations which could undertake such a task ENTRO and the World Bank.

A coordination unit ENTRO has been established for ENSAP including the FTWMPs in Egypt, Ethiopia and Sudan. ENTRO is a sub-regional organ that is linked to the Nile Basin Initiative (NBI) and its organization. At country level ENSAP has the National Focal Points (NFP), National Coordinators and Working Groups for the

individual investment projects, and National Social Development Coordinators (NSDCs).

ENTRO, as a sub-regional organization, has a distinct role and profile in working for the sustainable integrated development of the Eastern Nile under the umbrella of the NBI. It serves ENCOM and ENSAPT in their pursuit to ensure cooperation and joint action in the Eastern Nile and has been instrumental during the preparation of the Fast Track Watershed Management projects in Egypt, Ethiopia and Sudan. Once the fast track projects have been prepared, the projects will be implemented at national level. Nevertheless, it is important to find mechanisms for exchange of lessons learnt from the national implementation of the fast track projects and to this end ENTRO would still have a stake in the project implementation.

The WB is the coordinating agency for the MDTF in Sudan and also for MDTF support to NBI.

Both these organisations could represent the donor community for the support to the FTWMP in Sudan. The detailed distribution of tasks will be negotiated during the appraisal mission.

8.4 Supporting Insitutions

8.4.1 State Focal Point Institutions

The State government consists of the following ministries:

- Finance, Economic Planning and Labor Forces
- Agriculture, Animal Resource and Irrigation
- Physical Planning and Public Utilities
- Health
- Education

State level institutions will be participating in project decision making and deployment of staff and financial resources.

One important aspect which needs State level involvement is the is the review and drafting of bi-laws with regard to regulated land use management and development and access to and use of natural resources, especially pastoralist and farming practices, tree felling and environmental hazardous activities such as mining.

8.4.1.1 Ministries of Finance and Economic Planning

At the state level the MFEP has four main departments, each headed by a director: finance, economic planning, investment and trade. The finance department is responsible for budgeting and financial resource allocation including salaries of civil servants. The economic planning department is responsible for development planning at state level, supervision of development projects with multi-sector components, and projects implemented by NGOs and UN agencies. The financial base of the MFEP comprises land sales, fees and commodity price differentials. These fall far short of the state's recurrent budget requirement, which needs to be supplemented by the Federal Government's State Support Fund (SSF).

The MFEP would be instrumental to ensure that the target Locality is equipped with appropriate staff resources to support project implementation as well as critical complementary interventions. Secondly, it would be instrumental to ensure coordination with other interventions.

8.4.1.2 Ministry of Agriculture, Animal Resources and Irrigation

At the state level the MAARI has overall responsibility for rural resource development in the fields of agricultural services, extension, horticulture, plant protection, animal resources, range and pastures, and forestry. It functions independently within the state, except for activities related to plant protection, animal epidemic disease control, conservation and forestry, and research where staffs are seconded from the Federal Ministry of Forestry, Ministry of Agriculture, Agriculture Research Center and Forestry National Corporation. The MAARIs are severely constrained by a lack of financial resources, facilities and equipment. Staff is concentrated in the states' capitals.

The MAARI would support the project implementation through the Locality staff and deployment of its own resources with regard to the following components:

- Agricultural intensification and diversification
- Reseeding of wadis
- Improvement of rangelands and regulation of animal routes

Secondly, the MAARI would be instrumental for the review and drafting of bi-laws with regard to regulated land use management and development and access to and use of natural resources, especially pastoralist and farming practices.

8.4.1.3 Ministry of Physical Planning and Public Utilities and State Water Corporation

At the state level the MPPPU has overall responsibility for state civil works including rural roads and rural water supply. Of special interest are the State and Rural Water Corporations (SWC), which is responsible for borehole operation and maintenance, hand pump installations in villages and the construction of hafirs and their operation with the help of the villagers who usually have an ad hoc committee to liaise with authorities and assist with the management of the hafirs. SWC will together with the locality be the main counterpart for the water development projects. Having in mind that SWC only have limited experience with community managed water infrastructure project, SWC will also benefit from training in participatory planning etc.

The consultant team has been informed that the authority of the State Water Corporation on the management of water facilities is currently not clear in view of the on-going decentralization of these responsibilities to locality level. SWC's involvement in project implementation and their representation in the locality steering committee will depend on how the decentralisation process proceeds.

8.4.2 Supporting Instititions per Project Component

ATBARA PROJECT AREA	
COMPONENT/ACTIVITY	**SUPPORTING INSTITUTIONS**
Component 1: Institutional Strengthening	
Sub-component 1a: Strengthening of supporting institutions	PCU; LIU; TA; NILE STATE MINISTRIES AND RESEARCH INSTITUTES; FNC
Sub-component 1b: Strengthening of beneficiary organizations	ED DAMER LOCALITY; NGOS; LIU; TRADITION LEADERS/ADMINISTRATION
Component 2: Project Management	
Sub-Component: Project Management	PCU; LIU; PSC; LSC
Component 3: IWMDIs	
Sub-component-Water:	LOCALITY; NGOs; LIU; MOIWR; SWC; PRIVATE SECTOR
Sub-component-Agriculture:	LOCALITY; NGOs; LIU; STATE MAARI; SWC; HUDEIBA AGRICULTURE RESEARCH STATION; FARMERS UNION; MECHANISED FARMERS UNION; PRIVATE SECTOR
Sub-component-Rangeland:	LOCALITY; NGOs; LIU; STATE MAARI; SWC; PASTROALIST UNION; PRIVATE SECTOR
Sub-component-Forestry:	LOCALITY; NGOs; LIU; FNC; FRC; PRIVATE SECTOR
Sub-component- Alternative Energy:	LOCALITY; NGOs; LIU; ENERGY RESEARCH INSTITUTE; PRIVATE SECTOR
DINDER PROJECT AREA	
COMPONENT/ACTIVITY	**SUPPORTING INSTITUTIONS**
Component 1: Institutional Strengthening	
Sub-component 1a: Strengthening of supporting institutions such as the Dinder National Park Management Administration (DNP MA) and bordering Localities	PCU; LIU; WILDLIFE AUTHORITIES; TA; GEDARIF; SENNAR AND BLUE NILE STATES MINISTRIES AND RESEARCH INSTITUTES; FNC
Sub-component 1b: Strengthening of beneficiary organizations	RAHAD; DINDER AND ROSARIES LOCALITIES; NGOS; LIU; TRADITION LEADERS/ADMINISTRATION
Component 2: Project Management	
Sub-Component: Project Management	PCU; LIU; PSC; LSCs
Component 3: IWMDIs	
Sub-component-Water:	DNP MA; LOCALITIES; NGOs ;LIU; MOIWR; SWCs; PRIVATE SECTOR
Sub-component-Agriculture:	DNP MA; LOCALITIES; NGOs; LIU; STATE MAARIs; SWCs; AGRICULTURE RESEARCH STATIONS; FARMERS UNIONS; MECHANISED FARMERS UNIONS; PRIVATE SECTOR
Sub-component-Rangeland:	DNP MA; LOCALITIES; NGOs ;LIU; STATE MAARIs; SWCs; PASTORALIST UNIONS; PRIVATE SECTOR
Sub-component-Forestry:	DNP MA; LOCALITIES; NGOs LIU; FNC; FRC; PRIVATE SECTOR
Sub-component- Alternative Energy:	DNP MA; LOCALITIES; NGOs; LIU; ENERGY RESEARCH INSTITUTE; PRIVATE SECTOR

BAU PROJECT AREA	
COMPONENT/ACTIVITY	**SUPPORTING INSTITUTIONS**
Component 1: Institutional Strengthening	
Sub-component 1a: Strengthening of supporting institutions	PCU ;LIU; TA; BLUE NILE STATE MINISTRIES AND RESEARCH INSTITUTES; FNC
Sub-component 1b: Strengthening of beneficiary organizations	BAU LOCALITY; NGOs; LIU; TRADITION LEADERS/ADMINISTRATION
Component 2: Project Management	
Sub-Component: Project Management	PCU;LIU;PSC;LSC
Component 3: IWMDIs	
Sub-component-Water:	LOCALITY; NGOs; LIU; MOIWR; SWC ;PRIVATE SECTOR
Sub-component-Agriculture:	LOCALITY; NGOs; LIU; STATE MAARI; SWC; AGRICULTURE RESEARCH STATION; FARMERS UNION; MECHANISED FARMERS UNION; PRIVATE SECTOR
Sub-component-Rangeland:	LOCALITY; NGOs; LIU; STATE MAARI; SWC; PASTORALIST UNION; PRIVATE SECTOR
Sub-component-Forestry:	LOCALITY; NGOs LIU; FNC; FRC; PRIVATE SECTOR
Sub-component-Mining:	LOCALITY; NGOs; LIU; FNC; PRIVATE SECTOR
Sub-component- Alternative Energy:	LOCALITY; NGOs; LIU; ENERGY RESEARCH INSTITUTE; PRIVATE SECTOR

8.4.3 Beneficiary Organizations

The CBOs or interest groups would constitute the link between the project and the communities and would be legal entities which have been formed following democratic and gender and equity principles.
As explained under section 6: Participatory approach representative community based organisations with sub-committees must be established and functioning un order to benefit from the IWM&D interventions. The role of communities during implementation will be to partake in all stages of implementation and contribute in terms of labour, local materials or funds and participate in supervision and monitoring. The representative grassroots organizations have responsibility for mobilizing communities and prioritize their extension needs, development of CLMPs, organization of interest groups and collaborating community members for demonstration activities. They should ensure that participatory and gender sensitive approaches are used and CBO members are representative from a gender and equity perspective and elected democratically. After implementation the communities will be responsible for operation and maintenance of created community assets and mobilise necessary user fees, e.g. water fees, licenses for utilisation of forest products etc.They should undertake monitoring of results and performance.

Approximately five sub-committees could be organised in any given community i.e. i) water points management committee; ii) farmers' committee; iii) forestry committee; iv) livestock and rangeland committee and v) off-farm income generating committee. Women should be represented in each committee and if needed also as a separate committee. Environmentally sustainable livelihood improvement would be the common objective of each sub-committee.

In Lower Atbara and Dinder National Park, the FTWMP would build on the already existing organisations of village development committees and women's groups established through ADS, SOS Sahel and the DNPP. For instance, the "Dinder Park Local Stakeholder Committee" would have to be re-established. The Kadalu People Development Committee is another important beneficiary organisation for the FTWMP. However, new CBO would also have to be formed especially for semi-nomadic and nomadic pastoralists and for Bau localities. A full list of beneficiary groups and CBOs is provided in Annex 2: Project Stakeholder Matrix.

8.4.4 Traditional Administration (Nazara)

Traditional Administration system (Nazara) presides over local administrative and judicial affairs. Their authority has been eroded since the 1970's but with the decentralization process; they have regained some of their former importance and are now recognized under legislation. Their involvement in the FTWMP is very much needed when it comes to issues involving rational natural resources use and management and resolution of conflicts.

8.4.5 Local stakeholder interests groups

The specific local interest groups relevant for each project area are provided in Annex 2: Project Stakeholder Matrix

DNPP cooperated with a number of national NGOs, primarily the Sudanese Environment Conservation Society, and taking into consideration the short time frame for implementation, the watershed project should make use of them as they are already familiar with the area and its communities. As during DNPP, their role should be to provide awareness raising and capacity building among communities and local government and parks staff and the communities and to facilitate conflict resolution, participatory planning and cooperative park management.

For the same reason, the FTWMP will mainly cooperate with LADC, the Sudanese Environment Conservation Society and SOS Sahel in Lower Atbara and the UNESCO office in Bau Locality.

8.5 Regional Coordination with Parallel Interventions

8.5.1 Parallel interventions at regional level

While the Watershed FTP in Sudan deals with building capacity at local level and policy and regulatory reform at State level, it will be undertaken in parallel with national and regional efforts working towards the same overriding goals. Several projects under the NBI and ENSAP umbrella are therefore relevant for information exchange and coordination and in particular those listed below.´

Project Name and Primary Objective of the NBI/ SVP Projects:

1. Nile Transboundary Environmental Action Programme. (NTEAP has its project office in Sudan.)
2. Efficient Water Use for Agricultural Production
3. Water Resources Planning and Management
4. Confidence Building and Stakeholder Involvement.
5. Applied Training
6. Socioeconomic Development and Benefit Sharing:

Project Name and Primary Objective of the ENSAP/IDEN Projects:

1. Baro-Akobo Multi- Purpose Water Resources Sub-Project
2. Irrigation and Drainage Project
3. Flood Preparedness and Early Warning in the Eastern Nile
4. Eastern Nile Watershed Management Project: The Watershed FTP in Sudan is prepared in parallel sub-projects in Egypt and Ethiopia under the same umbrella project with the common objective.

ENTRO's role would be to ensure information exchange between this project and the parallel initiatives in Egypt and Ethiopia. It would also be able to coordinate this project with parallel initiatives under the NBI umbrella in order to promote synergy. For instance to facilitate that focal point institutions benefit from training under the Shared Vision Programme.

ENTRO would also play an important role in the follow up of the programmatic aspects of the project and documentation of the lessons learned and knowledge generated. ENTRO would pay regular visits to the Project with the following scope of work:

- Facilitating self-evaluation by project management on their experiences in the implementation of integrated and participatory IWM&D;
- Documentation of lessons learned from project implementation;
- Dissemination of lessons learned both of a strategic nature and an operational nature through the sharing of mission reports and through the thematic

discussions held during the annual country programme implementation review workshops.

- Sharing and discussion of the findings of the mission with the Coordination Agency and the National Steering Committee as well as other ENSAP projects.

8.5.1 Parallel Projects at national level

In addition to the regional projects a number of large projects in Sudan have many tangible activities and outputs and do to some extent benefit the same target groups. The most important are listed below. , A detailed description of parallel programmes and potential partnership is available in Working Paper 2 and listed in Annex2: Project Stakeholder Matrix.

1. The Butana Integrated Rural Development Project, co-financed by the government and IFAD, has many tangible activities and outputs and do to some extent benefit the same target group, explicitly the nomadic and semi-nomadic population located in the Baluuk Area in the upstream part of Lower Atbara but with seasonal migration to Butana as well as nomadic groups with seasonal ,migration between Butana and the Dinder Project area.
2. The Community Development Fund (CDF) coordinated by the WB. The project is mainly implemented by the Localities with extensive community involvement and addresses pro-poor community development priorities as laid out in the peace protocols, with particular emphasis on access and quality of basic education, health and water services. Since the project are complementary in scope, the projects will be coordinated in order to benefit the same target communities in the Blue Nile State to the maximum extent possible.
3. The Start-Up/Emergency Project for Blue Nile State under Sudan Multi Donor Trust Fund has two key objectives: to contribute on the one hand to the supply of basic services and facilities to the respective conflict-affected populations; and to contribute to capacity building of the state government to enable it to more effectively execute its mandate, especially at the local (decentralized) level. State Ministry of Finance & Economy, Blue Nile State, UNICEF and UNIDO, relevant line ministries are the key implementing institutions.

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The listed parallel projects have on-going activities in and around the project areas and the Watershed FTP will have to establish direct coordination mechanisms with those projects. To this end, representatives from these projects and companies will be invited to Locality Steering Committee meetings on a rotating basis depending on the subject for discussion.

Although, coordination with parallel project would mainly be ensured through the Locality Steering Committee also the National Steering Committee would include representatives from parallel projects, IFAD, CDF, NBI and FAO Projects- as non-permanent members who should be invited on an as and when required basis depending on the subject for discussion.

Blue Nile Coordination

One of the components under the Start-Up/Emergency Project for Blue Nile State aim at more visible and more effective local administrations through the equipping of local authorities with minimum living and working facilities for civil servants: simple

housing, offices, (computer) equipment, transport, electricity (solar panels), water supply and sanitation. Numbers envisaged are 20 offices, 10 living quarters, and requisite office furniture and equipment. It will be assumed that Bau Locality benefits from this component.
Secondly, it assumed that the necessary up-grading of the road network will be undertaken by this project.
Thirdly, it is assumed that the Start-Up/Emergency Project for Blue Nile State and CDF together will undertake the necessary complementary interventions in health and education including the highlighted the specific needs of the semi-nomadic and nomadic pastoralists to benefit from mobile educational services. To this end, the FTWMP coordinate with these projects through the LSCs.

8.6 Project Start-up Arrangements

8.6.1 Project Start-up

In order to ensure a smooth take off of the project it is important that the key management staff of the team fully understand the project objectives and the strategic thinking behind them. They will also need to rapidly develop an understanding of all aspects of the project design and the interactions between project components. It is recommended that a capacity building phase is included in the project in which the project originators transfer the necessary understanding to the LIU teams.

The PCU staff will be appointed on the basis of a competitive recruitment. An initial staff orientation and training on project management and implementation procedures will take place. The training will be held in the project headquarters. It will be attended by the following: the Project Coordinator and LIU managers, the representatives of the Federal MOFNE, MOIWR, and resource persons who know the area well. The Coordinating Agency will also participate in the training and will be responsible for the delivery of specific sessions and presentations such as procurement, the WB safeguards policies and procedures and the scope of work of supervision and audit missions. The training will be led by an experienced project management advisor.

At the end of the training, the PCU in collaboration with the LIUs will organize sensitization meetings of 2 days in each project area. The agenda of these meetings will consist of the presentation of the project objectives, approach and components, the AWPB for the first year, and the progress reporting and supervision requirements.

8.6.2 Project Implementation Agreement

The Lead Agency, together with PCU, will develop a Project Implementation Agreement with each of the participating States. The Project Implementation Agreement will establish:

- The roles of the states' agencies in line with the provisions of the Watershed FTP PIP document;

- The deployment of the required human and financial resources by the State and Locality governments to match project investments;

- The main provisions required to harmonize the state legislation with regards the governance of land use and natural resources;

- The safeguards for the operation and maintenance of the investments managed by the localities

- The main principles required for the operation and maintenance of the investments managed jointly by locality and communities/interest groups or jointly by FNC and communities, by communities themselves etc ;

- Monitoring, evaluation and audit responsibilities.

The Project Implementation Agreement will be established between the Lead Project Agency or MOFNE and the State MAARIs. The draft of the Project Implementation Agreement will be submitted for review to the Coordinating Agency (Donor Representative) at the same time as the up-dated Project Operational Manual within 4 months of loan effectiveness. The Project Implementation Agreement will be adopted in the form approved by Coordinating Agency and in line with the laws of the Government of Sudan.

8.6.3 Project Operation Manual and ESMF

The project will require an operational management and financial control system to be established which has the authority and capacity to make decisions on all aspects of project implementation. The PCU will review the existing draft Project Operation Manual e.g. this PIP and will prepare a final draft Project Operation Manual. The Project Operation Manual will review and build on the procedures presented in this document and annexes and establish or refine as needed the following:

- The management, coordination and implementation roles of concerned agencies. This will entail the description of the roles, terms of reference, lines of communication/authority of the various agencies and their personnel;

- A model programme implementation agreement that clarifies the respective roles and obligations of the PCU and the State governments (through the Localities) in the implementation, monitoring, supervision and financing of the project activities.

- Procedures for targeting project activities to the poorer communities, groups and individuals e.g. link the monitoring of indicators to leverage of funds;

- Procedures for the management of the community initiative fund;

- Procedures for participatory and gender sensitive planning and implementation;

- Procedures for financing project expenditure;

- Procedures for procurement of project goods and services;
- Procedures for the compilation, approval and dissemination of the AWPB;
- Procedures for project M&E;
- The AWPB of the first year of project implementation.

The PCU will ensure that the State MAARI, Locality and LIU are properly consulted and briefed on the content of the Project Operation Manual.

The draft final Project Operation Manual will be submitted to the national Steering Committee for its approval. When this is done, it will be forwarded to Coordinating Agency for its comments and approval within four months of Loan effectiveness. The Manual may be amended from time to time with prior approval of the Fund and based on justifications emanating from lessons learned in improving project performance and impact.

8.6.4 Annual Work Plan and Budget

The AWPB for the first year of Project operations will be prepared as part of the project start-up activities and will be part of the Project Operation Manual that will be submitted within four months of Loan effectiveness. From there-on, the preparation of the AWPB would be undertaken by the LIUs together with the communities as part of their annual participatory planning. The plans will be discussed and consolidated at locality level. The locality will then submit the locality AWPBs to the PCU. The PCU will consolidate the locality AWPBs and submit to the PSC not later than 150 days before the beginning of each implementation year for discussion and approval. The PSC would then discuss with MOFNE the budget and counterpart funding and, on agreement, submit the AWPB to Coordinating agency for their preview and approval not later than 60 days before the beginning of the implementation year. This schedule will be included in the Project Implementation Manual.

9 Monitoring and Evaluation

9.1 Monitoring & Evaluation requirements

The M&E framework will mirror the CDF M&E framework in order not to burden the implementing agencies. This implies that he National FTWMP Executive Manager is required to submit to the Lead Agency (MOIWR) and to the Coordinating Agency (ENTRO) progress reports on Project implementation, as required in the World Bank Guidelines. In addition to the matters specified in the guidelines, each progress report shall include a summary of the meetings held during the period by Project Steering Committee, and Localities Steering Committees.

Monitoring and Evaluation under the Project are complementary but distinct functions, and consist of the following parts.

- Monitoring through a management information system (MIS) comprising:
- Annual work plan and budgets (AWPBs), where the establishment of performance benchmarks relies on AWPB targets.
- Six-monthly physical progress reporting, against output targets, by the Project Implementation Unit (PCU), Localities Implementation Units (LIUs) and other parties, as the case may be, such as NGOs, unions and National Research Organisations.
- Annual financial reporting against expenditure forecasts to the financiers, and regular quarterly financial statements by the PCU, LIUs and other parties.
- Recurrent supervision missions fielded by the Coordinating Agency.

Evaluation of the FTWMP Project's impact comprising:

- Baseline data and village profiles.
- Annual implementation review workshops with active participation of beneficiaries and community representatives in selection, monitoring and evaluation of indicators.
- Annual participatory impact assessments targeting communities and households that have benefited from the Project.
- Mid-term Review.
- Project (Phase 1 of 4 years) Completion Report.

9.2 Organization of Monitoring & Evaluation

The organization of M&E has been designed to keep the need for specific staff resources to a minimum. M&E within the PCU will be based at the headquarters in Khartoum with the function of coordination, systems and procedures and training, and analysis of physical progress and impact data. The Project M&E unit will consist of an M&E Officer within the PCU with the prerequisite facilities. In the initial stages of Project implementation, the National FTWMP Executive Manager will support the M&E Officer in ensuring effective linkage between the planning and the monitoring process, and establishing and ensuring an effective M&E system.

The principal M&E activities will be based at locality level, as one of the prime responsibilities of the FTP LIU Managers, supported by the PCU. They will be responsible for data collection at locality and community level with the participation of the Social Facilitators and beneficiaries. The data collected by all M&E parties will be transferred to the M&E Officer in the PCU.

Financial monitoring and reporting at all management levels will be the responsibility of the Financial Officer who will work closely with the M&E officers, Procurement Officer (PO) and Water Resources Engineer. The Financial Officer and the M&E Officer will report directly to the National FTWMP Executive Manager.

9.3 M&E budget and work plan

The budget allocation for M&E will be incorporated within the Project's budget. Financial resources within the PCU will be provided for the salaries of M&E Officer and the salary and allowances of the supporting staff, field transport, a computer and consumables for data collation and analysis, and sundry operating expenses.

A specific budget allocation will be made under the Technical Assistance, Training and Studies cost subcomponent for annual beneficiary review workshops and contracted annual participatory impact assessments. As well, a specific budget allocation will be made under the Technical Assistance, Training and Studies cost category to assess the environmental impact of the Project.

As M&E functions have been streamlined within the management function at all levels, the M&E work program will be integrated within the AWPB at localities and PCU levels.

A schedule for M&E activities and reporting is provided in Annex 4: Results and Monitoring Framework

9.4 Monitoring and reporting

The **Management Information System (MIS)** will be design to generate quantitative verifiable information on the Project's performance. It will be in a form that will assist PCU, LIUs, line ministries, NGOs, and CBO Committees, to plan and finance their activities, compare physical progress against the planned targets and allow timely remedial action to be taken to correct problem areas in the Project implementation.

The data produced through the MIS will be aimed at improving decision making and facilitating the work of the LIUs and PCU by providing the means of focusing on implementation problems and ensuring effective communication and co-ordination between the implementing agencies and participating parties.

Periodic physical and financial progress reporting will be tied to the AWPB targets. They will involve:

- Comparing actual achievements against those planned, including expenditure; explaining variations between the two.
- Proposed remedial actions where necessary.

The six-monthly physical progress will be recorded in terms of quantitative outputs, activities and inputs. It will be prepared at all levels of project management, including each LIU and collated in tabular spreadsheet form by the PCU as a consolidated project progress report. The consolidated progress report will identify the constraints to implementation and corrective actions that have been taken.

Performance indicators of the beneficiaries will be tabulated on a yearly basis and compared with the annual targets set in the Project document and in the AWPB.

The progress reports will also describe the number of beneficiaries, including the type of activities the beneficiaries have participated in, the extent of benefits extended and the estimated impact. The annual progress reports, and to the extent possible six-monthly reports, will include detailed information on:

- Number of new communities reached during the reporting period and cumulative number of communities included in the Project.
- Number of transhumant population reached
- Execution and performance of implementation services by the Implementing Agencies.
- Number and type of land and water interventions (during reporting period and cumulative for the Project).
- Participation of Project's target group in Project implementation.
- Summary of community land and water interventions screened, approved, under implementation and completed showing extent of community involvement/ contributions and number of beneficiaries.
- Constraints in the participation of beneficiaries in development activities.
- Number of beneficiaries disaggregated by gender, cultural, socio-economic and livelihood group and type of benefits

- Type of community implementing structures, degree to which communities are meeting their obligations, description of implementation issues, problems and solutions adopted to resolve them.

- Performance of community organisations in terms of members (% poor, women, landless), financial management and responsibilities.

- No. of men and women with diversified and intensified livelihood practices divided by socio-economic and livelihood grouping and gender

- Description of implementation problems and coping strategies

Financial reporting is described in the financial management section of this PIP.

Formats for physical progress reports and physical performance indicators are provided in Annex 4: Results and Monitoring Framework.

9.5 Evaluation

The evaluation activities will provide analysis of the impact of the Project on the beneficiaries' livelihoods and environmental footprints and effects of the interventions on the economic activities and infrastructures. The information will be disaggregated by gender, socio-cultural group (nomadic pastoralists, IDPs etc) and socio-economic grouping (e.g. landless). As well as quantitative data taken from the Project MIS and formal evaluations, qualitative information will also be obtained that will address, through beneficiary participation, the expressed needs of the target groups and issues and problems requiring follow-up.

Participatory monitoring and evaluation is an important element of the Project and will be a valuable mechanism to gauge impacts. It will provide timely progress and impact reporting from the beneficiaries to Project management, thus enhancing bottom-up communication.

While it is difficult to gain the participation of beneficiaries in such exercises, it will be facilitated through mandatory annual work planning and budgeting requirements, annual beneficiary review workshops, and annual participatory impact assessments. With the preparation of the Committee it will be a requirement that the progress in the previous year is reported. This will include, as well as the targets set for the coming year, the following information collected and collated by the Social Facilitators and Community Committees:

- Physical progress made in the previous year in achieving the targets set by the CBO/NGO Committee and interest groups.

- Financial progress in the previous year, including balance sheet of the Committee revenues and debts.

- Constraints and problems from previous year, and ways to resolve them.

The principal means of measuring project results and impact on the beneficiaries will be through annual participatory impact assessments workshop. These will be contracted out and will adopt techniques involving the full participation of the beneficiaries. The effects and impact indicators will be derived from the Baseline Survey and Community Profiles. The analyzed information will be maintained in a database incorporated in the MIS (Result and Impact Management System _RIMS). It will be used as the bench mark for modifications in the approach to implementation in the AWPB, and provide the background information for impact assessment for the Mid-term Review and Project -Phase 1- Completion Report.

9.6 Impact Indicators

A full set of impact indicators have been identified. These indicators will be adjusted, as needed, as the Project progresses, from the results of the recurrent annual evaluation and beneficiary impact assessment exercises.

Community level indicators and sample household indicators are provided in Annex 4: Results and Monitoring Framework.

9.7 Mid-Term Review

The purpose of the MTR is to evaluate the achievement of the objectives and the constraints during the first 2 years of Project implementation. It will provide specific recommendations for such reorientation of activities and any reallocation of resources that may be required to achieve the objectives and remove the constraints, guidelines on future strategy and details of the implementation plan for the remainder of the Project. The MTR should address the following:

- The Project objectives as embodied in the Project Document and whether these are still valid, and proposed changes in the specific objectives of components that might require modification.
- Project physical performance and the extent to which progress made to date has contributed to the achievement of the Project objectives.
- Project financial performance, including progress with procurement and disbursement, cost sharing arrangements; whether the Project can be expected to be completed during the remaining Project period and within the original cost estimates, and need for funds reallocation.
- Proposed changes in the Project and priority activities to be financed during the remaining period of the Project period (Phase 1), and the need, if any, for an extension of the Grant Closing Date.

The MTR should be based on an evaluation of the performance of the implementing agencies and technical assistance; assessment of all project documents, work plans and reports; and, field visits, meetings and discussions with beneficiaries, line ministries and PCU, LIUs staff and staff at supporting institutions. Special attention should be paid to whether targets have been or will be achieved and that there will be

sustainable benefits in the long-term. The key indicators of this will be the extent of beneficiary participation in Project activities; the LIU's and PCU's own internal reviews of the implementation performance and impact over the first 2 years of the Project.

The scope of the MTR should therefore cover:

- Assessment of the effectiveness of the project in realizing its immediate objectives and the extent to which it has contributed towards the long-term development objectives; the clarity in the definition of the immediate objectives, outputs and the target groups including the balance between the immediate objectives, time and resources as well as among activities and between activities and inputs.

- Assessment of the efficiency in the implementation and coordination and management of the project, including support given by the Central Government, States and Localities Administration, and Coordinating Agency.

- Identification of major factors which have facilitated or impeded the progress of the Project in achieving the intended output, results and impact.

- Examination of the success of the participatory approach in terms of target beneficiary participation and the elements of beneficiary involvement and empowerment.

- Assessment of the features outlined in the approach leading to the formation of community group institutions and document whether the approach being used is sound and if the modality is sustainable given the social, cultural and economic characteristics of the target beneficiaries.

- Assessment of the impact of interventions on the environment and the participation of women.

- Adequacy and performance of the participatory monitoring system and re-examine monitoring indicators and methodologies to be used in assessing Project impact.

The findings and recommendations of the MTR shall be communicated promptly to the implementing agencies, stakeholders and discussed jointly between GOS, the States, localities and Coordinating Agency. GOS – through the PSC and MFNE – shall ensure that the recommendations of the MTR are implemented within the time specified, to the satisfaction of Coordinating Agency. PCU and LIUs should implement the recommendations resulting from the First Review within the time limits specified. The recommendations of the MTR may result in modifications to the Grant Documents.

9.8 Phase 1 Project Completion Report

A Project Completion Report (PCR) for Phase 1 will be prepared by the LIU's /PCU management and must be submitted to Coordinating Agency with the period stated in World Bank Project Implementation Guidelines. The PCR shall address the overall implementation of the Project and include:

A brief history of the Project from its identification to completion.

Assessments of the:

- Thoroughness and adequacy of Project design in the Project Documents and any modifications made.
- Performance of the Central Government, States, Localities Administration, and coordinating Agency, under their obligations under the Project Documents and compliance with the Grant covenants.
- Performance of the LIUs, PCU, the States, Localities and its Infrastructure Services and concerned Line Ministries, and in Project implementation, and the significance of problems encountered and adequacy of solutions adopted during implementation.
- Achievements of the Project against the targets set in the Project Document and AWPBs, i.e. physical, financial and social services performance.
- The costs and benefits of the Project.
- Participation of the target group and sustainability of the benefits and operations of community organizations established by the Project.
- Environmental impact and effectiveness of environmental controls measures, and their interaction to social impact.

Recommendations:

- Lessons learned.
- Any follow up actions required for sustainability of the local organizations.
- Further steps to be taken to ensure the sustainable operation of the Project.

Recommendations based on the assessments and lessons learned regarding future Project implementation and operations, and for improvement in both GOS and World Bank operations, policies, procedures and practices related to the Central, State and Locality level interventions.

9.9 Funds flow and disbursement

Overview organogram of project flow funds is given below.

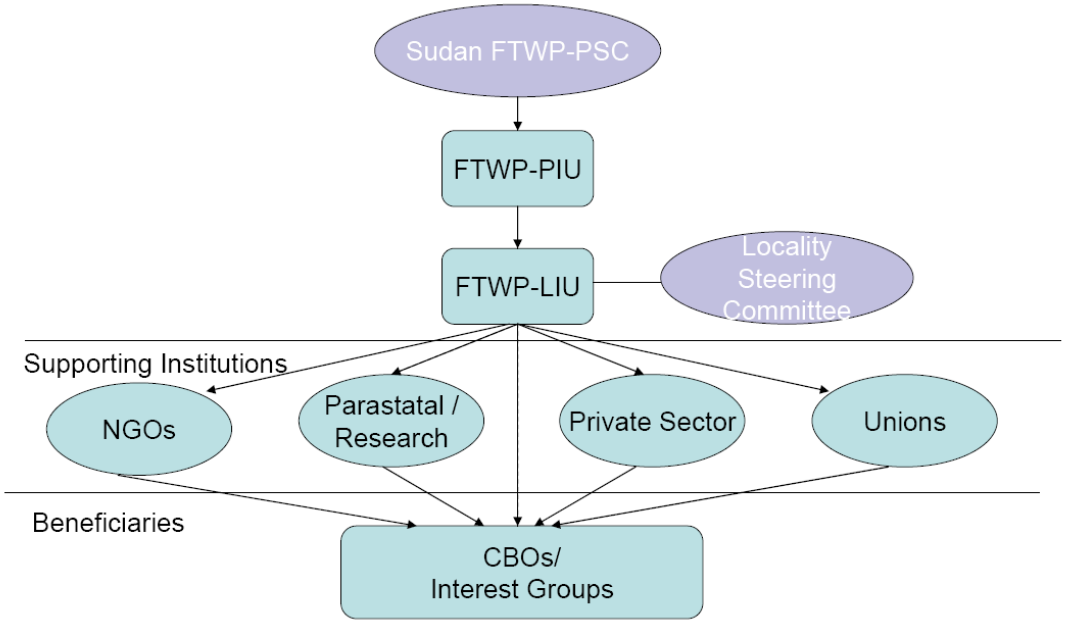


Figure 9.1 Illustration of flow of funds

10 Project Work Plan

The time-bound detailed activity schedule for each project component is provided in Annex 3. It is divided for each project area as well as common critical project start up activities and management activities. The Project is phased over 4 years to reach full scale with yearly quantified targets. A detailed workplan for the first 18 months is provided in the same annex.

11 Project Costs and Financing

Detailed project costs and financing sources as well as schedules for procurement and disbursement actions are provided in Annex 6. Methodology for the financial analysis and results are briefly explained below.

11.1 Costs

Summary of Project Costs: The project costs are estimated at US$ 35.09 million, including physical and price contingencies. Baseline costs without contingencies are estimated at about US$ 30.34 million, while physical contingencies at 10% reach US$ 3.03 million, and price contingencies at an annual rate of inflation of 3% on the dollar between project years yields about US$ 1.72 million in total price contingency.

In terms of components, Component 1[8]: Institutional Strengthening has an estimated allocation of US$ 4.53 million corresponding to 15% of total baseline costs. Component 3: Integrated Watershed management and Development has US$ 20.93 million in allocation corresponding to 69% of the baseline costs. Component 2 deals with project management. It has total allocation of US$ 4.89 million corresponding to 16% of the baseline. Contingencies have a share of 11% of the baseline, hence adding up to US$ 35.09 million.

Sudan			
Watershed Management		%	% Total
Components Project Cost Summary		**Foreign**	**Base**
(US$ Million)	**Total**	**Exchange**	**Costs**
1. Institutional Strengthening			
a. Strengthening of Supporting Institutions	2.83	15	9
b. Strengthening of Beneficiary Organization and Community Participation	1.70	5	6
Subtotal Institutional Strengthening	4.53	11	15
3. Integrated Watershed Management and Development			
a. Water Resources Development	7.63	47	25
b. Agriculture Intensification and Diversification	2.49	26	8
c. Improvement of Rangelands	2.70	25	9
d. Afforestation and Reforestation	5.95	44	20
e. Promotion of Alternative Energy	0.50	5	2
f. Small Holder Mining Management and Mitigation	1.65	5	5
Subtotal Integrated Watershed Management and Development	20.93	36	69
2. Project Management	4.89	28	16
Total BASELINE COSTS	30.34	31	100
Physical Contingencies	3.03	31	10
Price Contingencies	1.72	34	6
Total PROJECT COSTS	35.09	31	116

[8] In Annex 6, the components are referred to as follows: Component 1 = Component A ; Component 3 = Component B and Component 2 = Component C.

It is useful to look at the project costs in terms of expenditure accounts. This is done below with the requisite explanation.

Sudan					
Watershed Management					
Expenditure Accounts by Years -- Base Costs					
(US$ Million)			**Base Cost**		
	2008	**2009**	**2010**	**2011**	**Total**
I. Investment Costs					
A. Civil Works	1.12	5.63	3.72	1.00	11.47
B. Machinery and Equipment	0.54	0.28	0.28	0.21	1.32
C. Seed and Seedlings	0.47	0.67	0.27	0.15	1.57
D. Training	3.50	1.29	0.71	0.37	5.86
E. Technical Assistance	2.35	1.04	0.75	0.36	4.50
F. Community Initiative Fund	0.20	0.27	0.36	0.27	1.10
Total Investment Costs	8.18	9.19	6.09	2.36	25.82
II. Recurrent Costs					
A. Operation and Maintenance Costs	0.95	1.12	1.22	1.23	4.53
Total Recurrent Costs	0.95	1.12	1.22	1.23	4.53
Total BASELINE COSTS	9.13	10.30	7.32	3.60	30.34
Physical Contingencies	0.91	1.03	0.73	0.36	3.03
Price Contingencies	0.15	0.52	0.62	0.43	1.72
Total PROJECT COSTS	10.19	11.85	8.67	4.39	35.09
Taxes	1.02	1.18	0.87	0.44	3.51
Foreign Exchange	2.07	4.48	3.11	1.34	11.00

Civil works comprising infrastructure development has the highest financing share of US$ 11.47 million (33%). The next highest item is training with US$ 5.86 million in funding, most of which is nothing but extension service to the farmers. Collectively, TA and training have an allocation of some US$ 10.36 (30%). The O&M costs are in the order of US$ 4.53 million. The lowest allocations are for goods (machines and equipment) and community initiative fund. It is expected that some US$ 11 will leave the country to procure necessary goods and services to implement the project. The use of contingency funds lends flexibility to project implementation at later stages, and they could be allocated in favour of any expenditure account where there is a need.

11.2 Financing

The project financiers consist of three entities. The first entity is the Government, which finances US$ 6.76 or about 19% of the total project costs. All taxes are payable by the Government. Taxes are estimated for applicable VAT at 10% amounting to some US$ 3.5 million, while the remaining US$ 3.26 million are non-tax contributions by the Government. The second financier is most likely an EU member country with a keen interest in ENTRO's programs. There are a few candidates for this financing slot and no further precision can be supplied in this respect at this point. We have chosen to call this financier Principal Donor which will act as a major source of funding. It is proposed that the principal donor supply about US$ 16 million or 46% of the overall project cost. It is assumed that the principal donor will not finance the

Dinder Park Area, while it would focus on Lower Atbara and Ingessana Areas. The third category is a diverse set of financiers which may consist of more than one source and one country. These are called other donors with a proposed financing burden of US$ 12.3 million or 35% of the project funding needs. In addition to what is shown in the cost tables there will be 5% of user contribution in infrastructural projects as well as O&M financing. Due to lack of sufficient information on user financing, such costs have not been shown in the cost tables. The below table helps capture the essential figures in project financing.

Sudan				
Watershed Management				
Components by Financiers		**Principal**	**Other**	
(US$ Million)	**GOVT**	**Donor**	**Donors**	**Total**
1. Institutional Strengthening				
a. Strengthening of Supporting Institutions	0.57	1.13	1.58	3.28
b. Strengthening of Beneficiary Organization and Community Participation	0.32	0.68	0.90	1.90
Subtotal Institutional Strengthening	0.89	1.80	2.49	5.18
3. Integrated Watershed Management and Development				
a. Water Resources Development	2.01	3.63	3.23	8.87
b. Agriculture Intensification and Diversification	0.48	1.33	1.07	2.87
c. Improvement of Rangelands	0.58	1.15	1.43	3.16
d. Afforestation and Reforestation	1.24	2.59	3.02	6.85
e. Promotion of Alternative Energy	0.15	-	0.44	0.59
f. Small Holder Mining Management and Mitigation	0.29	1.06	0.58	1.93
Subtotal Integrated Watershed Management and Development	4.75	9.77	9.76	24.28
2. Project Management	1.13	4.51	-	5.64
Total PROJECT COSTS	6.76	16.08	12.25	35.09

11.3 Schedule of procurement and disbursement actions

Procurement Arrangements and Distribution Over the Years: Procurement arrangements would be considered under nine major procurement accounts as shown below. The recommended procurement methods consist of: ICB, NCB, LCB, Consultant Qualifications, Limited Tender and other methods. Procurement packaging can only be done during project implementation, because such an effort would need for procurement thresholds to be defined as well as the exact needs of the communities, which are demand driven and cannot be predicted at this pointy in time. Community participation in procurement (a new procurement method) is an avenue which should also be considered and explored.

Sudan					
Watershed Management					
Procurement Accounts by Years					
(US$ Million)	**Totals Including Contingencies**				
	2008	**2009**	**2010**	**2011**	**Total**
A. Large Scale Works	0.32	4.36	2.81	0.62	8.12
B. Medium Scale Works	0.73	1.74	1.53	0.48	4.48
C. Goods and Equipment	0.69	0.41	0.07	0.05	1.21
D. Agricultural Inputs and Materials	0.33	0.52	0.28	0.26	1.40

	E. Technical Assistance		2.21	0.80	0.67	0.22	3.90
	F. Training		4.57	2.34	1.35	0.89	9.15
	G. Farm Credit		0.22	0.31	0.43	0.33	1.29
	H. Technical Services		0.04	0.09	0.07	0.02	0.23
	I. Operating Costs						
	1. Salaries		0.70	0.72	0.74	0.76	2.92
	2. O&M Costs		0.36	0.57	0.71	0.74	2.38
Total			10.19	11.85	8.67	4.39	35.09

Funding by Project Sites: Allocation of funding by project site is shown in the below table. Each site also will have a LIU of its own. On top of all that, there will be a national Project Coordination Unit in Khartoum. Some of the costs under project management are joint project implementation costs which will go back to the sites in terms of services and goods, such as exchange visits and procurement from Government agencies.

Sudan		
Watershed Management		
Disbursement Accounts by Financiers		
(US$ Million)	**Total**	
	Amount	**%**
A. Lower Atbara Area		
Civil Works	3.14	8.9
Machinery and Equipment	0.69	2.0
TA and Training	5.28	15.1
Credit Lines	0.59	1.7
Operating Costs	0.23	0.7
Subtotal Lower Atbara Area	9.94	28.3
B. Dinder National Park Area		
Civil Works	3.39	9.7
Machinery and Equipment	0.95	2.7
TA and Training	3.23	9.2
Credit Lines	0.30	0.8
Operating Costs	0.55	1.6
Subtotal Dinder National Park Area	8.41	24.0
C. Ingessana Area		
Civil Works	6.59	18.8
Machinery and Equipment	0.53	1.5
TA and Training	3.02	8.6
Credit Lines	0.18	0.5
Operating Costs	0.78	2.2
Subtotal Ingessana Area	11.10	31.6
D. Project Management Unit		
Civil Works	0.12	0.3
Machinery and Equipment	0.99	2.8
TA and Training	0.79	2.3
Operating Costs	3.74	10.7
Subtotal Project Management Unit	5.64	16.1
Total PROJECT COSTS	35.09	100.0

Sensitivity analysis: It is not routine practise to perform sensitivity analysis on project costs. The unstable exchange rate vis a vis the US dollar represents a concern which can be handled as some sort of inflation. If the dollar keeps depreciating at more than 3% per annum, this is a matter which will impact project

finances, and result in inadequacy of financing in the distant years, if not in the immediate future. It is estimated that a 10% annual inflation rate will result in an overall project budget of US$ 40 million, and a 15% inflation rate would require US$ 43 in funding. Therefore, the project budget is fairly robust in terms of coping with inflationary pressures, emanating both from within and outside. This situation requires careful budgeting on an annual basis using well crafted annual budgets and work plans.

12 Critical factors, project risks and safeguard actions

12.1 Assumptions and critical factors

The main assumption/critical factor for project success is the commitment of the counterparts at all levels. It can be assumed that the Watershed FTP has full commitment from the government as it has closely involved throughout the detailed project preparation of the FTWMP.

The second critical factor is to ensure readiness of the counterpart institutions to undertake Watershed FTP activities. To this end permanent presence of locality staff and work facilities within the Locality and administrative units should be assured. Provisions to ensure Locality presence in the Locality and administrative units will be regulated in the Implementation Agreement for the FTWMP between the Lead Agency and the State Focal Point Ministry.

Another critical factor is that the watershed management interventions under the fast track project are initiated in parallel and coordinated with a broader range of actions taking place under national and international efforts i.e. NBI and ENSAP. Some of these parallel efforts are already on-going, others are not.

Those actions which are not yet implemented but deemed necessary to create a foundation for a successful Watershed Management Fast Track Project, have been grouped under the definition “Complementary Development Interventions”. These critical development projects are of cross cutting nature rather than specific watershed interventions however they constitute important supporting interventions which should be undertaken in parallel or prior to the specific watershed interventions. The importance of these so called complementary development intervention have been discussed at length with various stakeholders and hence it assumed that the GOS will continue the planning and implementation of the most important of those activities, explicitly described below. None of these activities are budgeted within the Project Budget, although described in the same format as the Project components.

12.1.1 Roads infrastructure

12.1.1.1 Objective

The purpose is to connect communities surrounding the Dinder National Park to markets and basic services such as health and education.

12.1.1.2 Expected Outputs

The following all weather roads between key points constructed and funds for operation and maintenance secured.

- All Weather Road Gedaref to Park HQ. This road will need a total length of approximately 60km
- Bridge Across Rahad. A 70m bridge span is required to cross the Rahad river at Ein Jamel

- All Weather Road Dinder to Park HQ. An all weather road of 160km is required.

12.1.1.3 Narrative

This task would mainly involve feasibility studies, detail design, construction and supervision

12.1.2 Dinder National Park Management Development

12.1.2.1 Objective

Enhance Park management systems and capacity

12.1.2.2 Expected Outputs

The Park management capacitated to undertake park protection as well as wildlife and flora management responsibilities.

12.1.2.3 Narrative

Parks management need to be upgraded in all aspects of park management and planning, including park administration, wildlife management, vegetation management, park security, tourism etc. Some training of the existing Park management and interventions within the Park will be covered by the FTWMP. However, to fully capacitate the Park management to undertake park protection as well as wildlife and flora management responsibilities major interventions are required which can not all be covered by the FTWMP and hence parallel funding is recommended to be sought from other sources for the following critical interventions.

- **Long term support**: The park will require additional staff at several levels and this will need to be funded. In particular the staff has almost no capacity in the field of range management and forest management which are their key habitats. Additional game guards will also be required for the duration of the project.
- **Reforestation** inside the Park
- **Redevelopment of Rest Camp:** The present rest camp although situated in a prime position has been badly designed and needs to be replaced with more appropriate and durable structures. This would most probably be a covered luxury tented camp built on platforms overlooking the waterhole on the river.
- **Redevelopment of Airstrip:** In order to carry out efficient patrolling of the park and also to bring visitors to the park it is vital that the airstrip is refurbished.
- **Light Aircraft for Park Monitoring:** Difficulties of movement around the park make patrolling inefficient. Until such a time as the patrolling road network is completed an aircraft should be based at the park. Once the patrolling road network is complete this aircraft would be required in the wet season.
- **Circular Road and Low Level Dinder Bridge:** A circular road of 120km length and a low level bridge across the Dinder River are needed.

12.2 Main risks and mitigation measures

The main risks and mitigating measures are summarised below.

Potential Risk	Mitigating Measure	Project Sensitivity

Macro-economic and political instability that may negatively affect the flow of counterpart funds and long term commitment to the project	The project has built in cost recovery mechanisms for the various services provided to the communities or localities and thus restricted counterpart funding to salaries, taxes and duties and to 25% of recurrent costs	High
Pastoralists increase herds in response to availability of greater grazing resource	The number should be stabilized by framework agreement between the Locality and the beneficiary groups and also through awareness rising on the environmental consequences of large and concentrated herds but alternative options such as zero grazing, fodder production and focus on the quality of livestock rather than quantity should also be promoted.	Medium
Volatility of the decentralization process and change in the authority of local government and hence position vis-à-vis the participatory watershed management	The annual monitoring ensures the institutionalization of the devolution of the management of natural resources.	Medium during project implementation. High for the post project time-line.
Extended drought and increased impact of climate change	The expected improvement in range and crop productivity and in water availability as well as more efficient water use techniques should strengthen community resilience to drought and climate change impacts.	High
No growth in income of the poor. Income of the poor may not increase due to constrained market opportunities and poor quality of production.	The market driven approach and technical assistance would reduce this risk. It is also assumed that the all weather roads between key points are constructed and funds for operation and maintenance secured in order to connect communities surrounding the Dinder National Park to the markets.	High
Marginalization of poor and women. Benefit sharing to women may remain low	Collection and analysis of gender segregated data will enable continuous monitoring and evaluation of the impact	Medium

	of the project on women and ensure adjustments as required. M&E of those indicators will be linked to leverage of funds.	
Communities do not have trust in the development process	Social facilitators will be part of both the PCU and LIUs. Mechanisms are included under the project to ensure that tri-partite agreements between Locality, FTWMP and the beneficiary organisation are established before any intervention is realised on the ground. The agreements should regulate the long term management arrangements and ownership. A mechanism is built in to establish demonstration projects.	High at project start up. Low once early benefits on the ground have been demonstrated.
No regulated access to land and natural resources	Mechanisms are included under the project to ensure that land use rights are clear before any intervention is realised on the ground.	Medium
Potential environmental and social negative impacts of IWM&D interventions	The FTWMP project cycle will apply the ESMF and the Environmental Guidelines which is based on Environmental and Social Management Framework for World Bank Projects with Multiple Small-Scale Subprojects. A Tool kit. Africa Region. February 2005	Medium to low

12.2.1 Specific social and environmental safeguard actions

In this section specific environmental and social issues and mitigation plans are specified.

Social risks largely arising from differential access to benefits, traditional rights and entitlements, adequacy of targeting mechanisms, and varying public perception of benefits will be addressed through continuous monitoring of agreed social indicators.

There are a number of post-conflict issues of concern in Bau locality such as a lack of government institutions, procedures, and legally defined rights; continuing conflicts in some areas; and grievances arising from perceived lack of inclusiveness and equity that have the potential to undermine project activities and affect the implementation of sub-projects.

With regard to Indigenous Peoples (OD 4.20), the detailed preparation mission has concluded based on a detailed assessment according to WB guidelines that the project will not involve any indigenous people.

With regard to the involuntary settlement the FTWMP will exclude finance interventions resulting in involuntary resettlement. Instead, demarcation of land for IWM&D interventions will be undertaken jointly with the community.

Consequently, resettlement plans and indigenous peoples plans will not be required by the project.

Regarding environmental safeguards policies the environmental impacts are regarded as minor and local. The components of the proposed project likely to generate any environmental impacts include: the construction of small dams. Based upon available information, the impacts are likely to be minimal, local in extent and readily assessed, mitigated and managed.

The construction of large dams (15 meters or more in height) will not be financed and small dams (less than 15 meters in height) will be designed by qualified engineers, and will be built by qualified and adequately supervised contractors. Small dams include weirs, farm ponds, local silt retention dams, and low embankment tanks.

FTWMP will achieve social safeguards and sound environmental management through the immediate application of FTWMP Environmental and Social Management Framework provided in Annex 5.

The social and environmental screening process to be internalized in the project is presented in Section 6 describing the project cycle. In the same section is described the specific project mechanisms (mitigate actions) built in order to ensure participation of all socio-cultural and socio-economic groups etc.

The borrower's capacity for safeguard policies is limited. However, the project will be closely supervised and will be implemented in cooperation with a Project Implementation Unit knowledgeable about World Bank procedures (including use of the WB Africa Region's ESMF Guidelines[9]) and by UN agencies with environmental and social procedures and policies acceptable to the Bank.

Within the institutional support (Component 1) to enhance the capacity of a number of localities, the development of safeguard policies and procedures to handle social and environmental issues prudently, would be included.

It is anticipated that the environmental and social impacts of the project will be minimal and with the adoption of mitigation measures following the FTWMP ESMF, will result in sustainable outputs. Below is a table showing the possible impacts and mitigation interventions.

[9] As expressed in the *Environmental and Social Management Framework for World Bank Projects with Multiple Small-Scale Subprojects. A Tool kit. Africa Region. February 2005*

SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies Triggered	Yes	No	Note
Environmental Assessment (OP/BP 4.01)	X		
Natural Habitats (OP/BP 4.04)		X	Roads etc within the park will be undertaken by parallel project
Forests (OP/BP 4.36)		X	
Pest Management (OP 4.09)		X	
Cultural Property (OPN 11.03)		X	
Indigenous Peoples (OD 4.20)		X	Detailed assessment according to WB guidelines have found that this will not be triggered
Involuntary Resettlement (OP/BP 4.12)		X	The FTWMP will not finance interventions which would trigger involuntary settlement[10]. Demarcation of land for IWD&M interventions will be undertaken jointly with the community and prior to any action on the ground
Safety of Dams (OP/BP 4.37)		X	
Projects on International Waterways (OP/BP 7.50)		X	
Projects in Disputed Areas (OP/BP 7.60)		X	

[10] The Bank has no policy on Voluntary Resettlement. Consequently, persons who are "voluntarily" resettled have no procedural or substantive rights under the draft Bank policy (see: http://www.ciel.org/Ifi/volreslet.html)

12.2.2 Sustainibility aspects

The Fast Track WMP in Sudan aims at demonstrating early results of on the ground improved watershed management. However, fast track does not equal short term interventions. To address watershed management in Sudan, the root causes of inefficient water utilisation and inappropriate land use/management which lead to a spiral of degradation and poverty must be addressed. Any intervention that aims at targeting complex root causes including behavioural change in local management of natural resources must built on a long term commitment from potential financiers.

In order to ensure lasting change, local watershed management interventions need to be initiated in parallel and in line with the broader range of actions taking place under national and regional umbrellas. As explained in the introductory chapters, the FTWMP is firmly grounded in national and regional reform efforts.

The following strategies have been taken in the project design in order to build a strong base for long term sustainability of project interventions.

Devolution of powers: The most important aspect to ensure long lasting impacts of local watershed management interventions is to capacitate the local communities. Hence, the key approach of the FTWMP is to establish well functional CBOs which have the required capacity to manage community development projects and sustainably make productive use of the local natural resources which they depend so heavily on.

Participatory approaches: In order to ensure that the interventions meet community needs, process monitoring of the proposed participatory approaches will be regularly undertaken.

Use of local resources – Project staff are all nationals with a blend of externally recruited and seconded staff. With regard to the TA the project design would allow certain flexibility. The specific demand for TA will depend on which activities will actually be implemented as a response to the community needs. The TA accommodated in the budget is in principle national TA except for Dinder where some international TA is proposed. Included in the national TA is support to be undertaken by a number of service providers such as national consultants, NGOs and governmental institutions. Capacity building of and increased extension services to the communities is deemed greatly needed especially with regard to that this project will support change of livelihood practices

Stakeholder contributions: For the purpose of ensuring a sense of ownership, stakeholder contribution is required from each beneficiary level, whether it is national, state or individual level.

Revolving funds: If successful during project implementation it is likely that the revolving funds will be sustained beyond the project life time.

13 Project accounting and financial management system

There is not yet any country fiduciary assessment in Sudan (NN, 2007). Following the Public Expenditure Review in 2006 (PER 2006), a Country Integrated Fiduciary Assessment (CIFA) is expected within short. The PER stated that the Public Financial Management (PFM) at Federal level functions well, but would need to be modernised. At state level the same report claims that the PFM capacity is weak.

Thus, project accounting procedures and financial management systems need to be developed by the Project to comply with international accounting procedures and standards, especially since the Project will be implemented at a Locality level, where PFM is considered to be weak. These procedures are proposed to include:

- Recruitment of financial officers
- Establishment of manual and computerised accounting systems (accounting books and forms etc.)
- Preparation of accounting guidelines and procedures in the Operations Manual
- Preparation of procedures for release of funds and management of the same
- Preparation of procedures for internal and external audits
- LIUs and PCU will be required to prepare the accounting records an prepare the financial statements for the Project in accordance with International Accounting Standards, which should be externally audited by a certified auditor according to International Accounting Standards
- Progress reports and financial statements should be prepared on a quarterly basis and submitted by the LIUs to the PCU, which will amalgamate these and submit the comprehensive Quarterly Progress Report and Financial Statement to the Project Steering Committee for approval (after the external auditing)

PROJECT LOGFRAME			
Intervention Logic	**Indicators of Performance**	**Means Of Verification**	**Assumptions/Risks**
To ensure efficient integrated land and water management (watershed) and optimal use of the natural resources through the equitable utilization and no significant harm to the environment and to target poverty eradication and promote economic development	Increase in the share of the budgets of the participating localities, elaborated and disbursed on the basis of integrated and participatory plans for land use management and local development.	State and Locality reports	Sudan committed to this overall development objective.
	Diversification and improved resiliance of livelihoods for the target communities and user groups	Baseline and Project Impact Evaluation Reports	National and State polices striving to achieve the same overall development goal
	Reduction of environmental degradation caused by target communities and user groups	NGO reports working in the participating Localities	
Project Objective:			
Stimulate, support and demonstrate alternative livelihood practices and local governance systems in the project areas that contribute to poverty reduction and environmental sustainability	No of local interventions, elaborated and implemented on the basis of integrated and participatory plans for watershed management and local development.	Baseline, progress, midterm and completion reports	Project counterparts and staff are in place at Locality and project levels
	No. of environmental and livelihood improvement projects managed fully or partially by CBOs	Project Evaluation reports	Project counterparts commit to support critical development projects
	Area of improved land use management in the participating Localities	Locality and State economic planning reports	Project counterparts commit to the intersectoral and participatory management framework
		CBO reports	Processes and financial support to ensure enhanced watershed management are integrated in the national institutions and sustained beyond life of project
		Audit reports	Processes can be sustained without disputes on land and water resources, and during periods of unrest or conflicts.
			Donor support is long term
			Enhanced watershed management leads to flow of regional and domestic benefits

Component 1: Institutional Strengthening			
Objective 1: Strengthen relevant local institutions, stakeholders and systems at all appropriate levels for the integrated and sustainable management of watersheds in the Lower Atbara, Dinder and Bau project areas			
Outputs for Objective 1	**Indicators**	**Means Of Verification**	**Risks**
Local guidelines and procedures for integrated and participatory land use management and sustainable development established at the supporting institutions	No and type of local guidelines established at the supporting institutions	Locality reports and staff records	Resistance to change within institutions
Improved competence in integrated and participatory watershed planning, implementation and operation at the supporting institutions	No of staff and type of training/competence at the supporting institutions	State and Locality annual plans and budgets	Difficulty in procuring adequate and competent staff
Functional community based organizations (CBOs) established	No of trained, organized CBOs and sub-committees active in target communities after 2 and 4 years	CBO reports	Bureaucratic practices
Community capacity to managed community environmental management and livelihood improvement projects strengthened	No of Community Land Environmental Management and Development Plans (CLMPs) prepared &/or being implemented.	NGO reports	Lack of counterpart capacity
	No of Effective community-driven interventions to improve livelihoods and practices and reduce/manage environmental impacts onground works, and non-structural planning measures.	Project thematic and activity reports	
	No of community projects in operation and managed by CBO after 2 and 4 years	Baseline, progress/monitoring, and completion reports	
	No of target groups with access to micro-finance	Physical inspection	
	Improved liaison and joint action between communities and local authorities.	Project Evaluation reports	
	Improved access to government Extension services.		
	Manuals for training of trainers & communities		
	No of lending institutions' branches with micro-finance procedures and services institutionalized		
	Amount disbursed by communities and by type of activity		
	Ratio of community fund channeled to poor and disadvantaged men and women		
	Ratio of community fund channeled to settled communities and pastoralists respectively		

Activities	Indicators	Means Of Verification	Inputs and Cost
Sub-component 1a: Strengthening of supporting institutions	Rate of physical achievement compared to project workplan and budget	Annual Work Plans and Budgets (AWPBs)	
	No. and type of Consultancies and studies undertaken	Project thematic and activity reports	
Development and "institutionalization" of integrated and participatory land use planning guidelines	Land use and environmental management action plans produced	Baseline, progress/monitoring, and completion reports	
Skills training in integrated land use planning; stakeholder participation and joint management	Existence of internal regulations and mechanisms intersectoral and stakeholder participation	Physical inspection	
Strengthening and training of Dinder National Park staff in park administration, wildlife management, vegetation management, park security, tourism etc.	Improved data base and maps and up-dated Locality maps	Financial accounts and reports	
	Improved financial systems in place		
Sub-component 1b: Strengthening of beneficiary organizations	No of people trained in various subject themes working in the Localities		
Formation/revitalizing of CBOs	No of manuals and training material available for continuo us training of locality staff, external trainers and communities		
Environmental management and sustainable land use development training and planning	No. and types of training courses undertaken		
Skill training	No. of CBO and sub-committees formed		
Promotion of the Community Initiative Fund	No. of training activities undertaken for the CBOs		
Establishment of Business Development Centres	Amount disbursed by community and by type of activity		
	Ratio of community fund channeled to poor and disadvantaged men and women		
	Ratio of community fund channeled to settled communities and pastoralists respectively		

Component 2: Project Management			
Objective 2: Project activities implemented smoothly and with technical and financial efficiency			
Outputs for Objective 2	**Indicators**	**Means Of Verification**	**Assumptions/Risks**
PCU established and operational	No. of activities undertaken compared to workplan	Project thematic and activity reports	Slow pace of recruitment
LIUs established and operational	Adherence to project administrative systems as stated in the FTWP O&M and ESMF.	Baseline, progress/monitoring, and completion reports	Resistance to change within institutions
PSC and LSCs established	Disbursement rate of loan and counterparts funds	Physical inspection	Difficulty in procuring adequate and competent staff
Project activities implemented as scheduled and within budget.		Project Evaluation reports	Adequate office facilities not provided
		AWPBs	Delays in provision of office equipment and vehicles
		Audit reports	Bureaucratic practices
			Corruption
			Lack of counterpart capacity
			Mishandling of vehicles and equipment
Activities	**Indicators**	**Means Of Verification**	**Inputs and Cost**
Recruitment of project staff	No, profile and gender of staff in place, and working with adequate office and transportation facilities	Project Adminiistrative documents e.g. Project OM, ESMF, M&E Framework	
Establishment of PCU and LIUs including staff	Rate of physical achievement compared to project workplan and budget	Inception and Progress Reports	
Establishment of PSC and LSCs	Implementation administrative including M&E systems in place	Minutes of LPMC and PSC meetings	
Revision of Project Operation Manual	Accounting and stores management systems	Monitoring and audit reports	
Project management and coordination of activities in conformity with AWPB, OM and ESMF	Operation and Maintenance Strategy for equipment developed	Physical verification of transport and equipment	
	Procurement of required offices and communications equipment and transport	Operation and Management Strategy document	
	Developing an Operation and Maintenance Strategy for all equipment		

Component 3: Integrated Watershed Management and Development Interventions			
Objective 3: Stimulate, support and demonstrate fast track appropriate development-oriented investments in the project areas that contribute to poverty reduction and environmental sustainability.			
Outputs for Objective 3	**Indicators**	**Means Of Verification**	**Assumptions/Risks**
Increase in environmentally sustainable livelihood practices	No. and type of Integrated Watershed Management and Development Interventions (IWMDIs) jointly planned and implemented by communities	Locality reports and staff records	Limited motivation for participation in projects
More reliable access to water for domestic use and to allow local communities to shift to more intensive agriculture	No of men and women adopting new environmentally responsible livelihood practices and technology	State and Locality annual plans and budgets	Inappropriate workmanship
More efficient use of water	No. of men and women with diversified and intensified livelihood practices	CBO reports	Lack of capacity for supervision
Improved and diversified farm production and farming systems	No of CBO managed IWMDIS	NGO reports	Lack of funds and capacity for operation and maintenance
Improved pasture conditions in wadis reflected in better livestock productivity	No and type of water sources	Project thematic and activity reports	
Increase in tree cover and in trees of economic value in the area in order to meet the forest products demand of the local people and to combat desertification	Savings in households purchase of water or savings in time collecting water	Baseline, progress/monitoring, and completion reports	
Forest restored and sustainably managed	No and type of water infrastructure operating after 3 and 5 years	Physical inspection	
Carrying capacity of grazing lands increased and rangeland productivity improved and animal grazing pattern established/rehabilitated in selected pilot sites	Increased yields of subsistence and cash crops	Project Evaluation reports	
Pastoralists' livelihood diversified	Area of cropland irrigated with improved agricultural technologies	Satellite images and maps	
Improved income generating livelihood practices	Area of improved dry land farming		
Improved access to alternative energy sources	Area of improved pastures		
	Area of reforested		
	No of beneficiaries reached divided by socio-economic and livelihood grouping and gender		

Activities	Indicators	Means Of Verification	Inputs and Cost
Based on articulated community needs support and implement projects within the following themes:	Rate of physical achievement compared to project workplan and budget	Annual Work Plans and Budgets (AWPBs)	
Sub-component-Water: Community and/or joint managed water resources development supported by technology transfer packages- weirs, dams/hafirs, shallow wells and deep boreholes.	No of demonstration plots for technology transfer	Project thematic and activity reports	
Sub-component-Agriculture: Community and/or joint managed agricultural development supported by enhanced technology transfer packages for raising crops yields and income	No. of men and women accessing extension services	Baseline, progress/monitoring, and completion reports	
Sub-component-Rangeland: Community and/or joint managed rangeland and livestock activities supported by technology transfer packages	No and type of water infrastructure rehabilitated or built	Physical inspection	
Sub-component-Forestry: Community and/or joint managed forestry activities supported by technology transfer packages – shelter-beds, community forests, private planting on farm land, joint management of reserve forests etc	Area with intensified and diversified crop production	Financial accounts and reports	
Sub-component- Alternative Energy: Development of alternative energy sources	Area with improved carrying capacity of rangelands	Satellite images and maps	
	Area with forestry activities	GIS mapping	
	No. of men and women with access to alternative energy sources or sustainable managed energy sources		

LOWER ATBARA PROJECT AREA - PROJECT LOGFRAME			
Intervention Logic	**Indicators of Performance**	**Means Of Verification**	**Assumptions/Risks**
Area specific overall objective:	Increase in the share of the budgets of the Ed Damer Locality, elaborated and disbursed on the basis of integrated and participatory plans for land use management and local development.	Ed Damer Locality reports	Sudan and Nile State committed to this overall development objective.
Lower Atbara Area – To combat desertification, improve environmental resilience and reduce people's vulnerability by promoting more reliable and environmentally sound livelihoods to the people dependent on the meagre natural resources in the Lower Atbara.	Diversification and improved resiliance of livelihoods for the target communities and user groups	FTWMP Baseline and Project Impact Evaluation Reports	National and State polices striving to achieve the same overall development goal
	Reduction of environmental degradation caused by target communities and user groups	NGO reports working in Ed Damer Locality	National and State pro-poor investments in complementary interventions in order to enhance the project benefits
Project Objectives			
	No of local interventions, elaborated and implemented on the basis of integrated and participatory plans for watershed management and local development.	Baseline, progress, midterm and completion reports	Project counterparts and staff are in place at Locality and project levels
Stimulate, support and demonstrate alternative livelihood practices and local governance systems in the project areas that contribute to poverty reduction and environmental sustainability	No. of environmental and livelihood improvement projects managed fully or partially by CBOs	Project Evaluation reports	Project counterparts commit to support complementary development projects
	Area of improved land use management in the Lower Atbara project area	Locality and State Economic planning reports	Project counterparts commit to the intersectoral and participatory management framework
		CBO reports	Processes and financial support to ensure enhanced watershed management are integrated in the national institutions and sustained beyond life of project
		Audit reports	Processes can be sustained without disputes on land and water resources, and during periods of unrest or conflicts.
			Donor support is long term
			Enhanced watershed management leads to flow of regional and domestic benefits

Component 1: Institutional Strengthening			
Objective 1: Strengthen relevant local institutions, stakeholders and systems at all appropriate levels for the integrated and sustainable management of watersheds in the Lower Atbara project area			
Sub-component 1a: Strengthening of supporting institutions			
Outputs for Objective 1	**Indicators**	**Means Of Verification**	**Risks**
Local guidelines and procedures for integrated and participatory land use management and sustainable development established at the supporting institutions	No and type of local guidelines established at the supporting institutions	Locality reports and staff records	Resistance to change within institutions
Improved competence in integrated and participatory watershed planning, implementation and operation at the supporting institutions	No of staff and type of training/competence at the supporting institutions	State and Locality annual plans and budgets CBO reports NGO reports Project thematic and activity reports Baseline, progress/monitoring, and completion reports Physical inspection Project Evaluation reports	Difficulty in procuring adequate and competent staff Bureaucratic practices Lack of counterpart capacity
Activities	**Indicators**	**Means Of Verification**	**Cost**
Development and "institutionalization" of integrated and participatory land use planning guidelines	Rate of physical achievement compared to project work plan and budget	Annual Work Plans and Budgets (AWPBs)	
Skills training in integrated land use planning; stakeholder participation and joint management, micro-finance management, conflict resolution and gender sensitisation	No. and type of Consultancies and studies undertaken	Project thematic and activity reports	
Undertake detailed water resources assessment and ground water mapping	Land use and environmental management action plans produced Existence of internal regulations and mechanisms intersectoral and stakeholder participation Improved data base and maps and up-dated Locality maps Improved financial and micro-finance systems in place No of people trained in various subject themes working in the Localities No of manuals and training material available for continuo us training of locality staff, external trainers and communities	Baseline, progress/monitoring, and completion reports Physical inspection Financial accounts and reports	

Sub-component 1b: Strengthening of beneficiary organizations			
Outputs for Objective 1	**Indicators**	**Means Of Verification**	**Risks**
Functional community based organizations (CBOs) established	No of trained, organized CBOs and sub-committees active in target communities after 2 and 4 years	Annual Work Plans and Budgets (AWPBs)	Low community trust in Locality support
Community capacity to managed community environmental management and livelihood improvement projects strengthened	No of Community Land Environmental Management and Development Plans (CLMPs) prepared &/or being implemented.	Project thematic and activity reports	No growth in income of the poor.
	No of Effective community-driven interventions to improve livelihoods and practices and reduce/manage environmental impacts on ground works, and non-structural planning measures.	Baseline, progress/monitoring, and completion reports	Marginalization of poor and women.
	No of community projects in operation and managed by CBO after 2 and 4 years	Physical inspection	
	Improved liaison and joint action between communities and local authorities.	Financial accounts and reports	
	Improved access to government Extension services.	Agreements micro-finance lending institutions	
		Manuals for training of trainers & communities	
Activities	**Indicators**	**Means Of Verification**	**Cost**
Formation/revitalizing of CBOs	No. and types of training courses undertaken	Annual Work Plans and Budgets (AWPBs)	
Environmental management and sustainable land use development training and planning	No. of CBO and sub-committees formed	Project thematic and activity reports	
Skill training	No. of training activities undertaken for the CBOs	Baseline, progress/monitoring, and completion reports	
Promotion of the Community Initiative Fund	CIF amount disbursed by community and by type of activity	Physical inspection	
Establishment of Business Development Centre	Ratio of community fund channelled to poor and disadvantaged men and women	Financial accounts and reports	
	Ratio of community fund channelled to settled communities and pastoralists respectively		

Component 2: Project Management			
Objective 2: Project activities implemented smoothly and with technical and financial efficiency			
Outputs for Objective 2	**Indicators**	**Means Of Verification**	**Assumptions/Risks**
PCU established and operational	No. of activities undertaken compared to work plan	Project thematic and activity reports	Slow pace of recruitment
LIU at Ed Damer Locality established and operational	Adherence to project administrative systems as stated in the FTWP O&M and ESMF.	Baseline, progress/monitoring, and completion reports	Resistance to change within institutions
PSC and LSC established	Disbursement rate of loan and counterparts funds	Physical inspection	Difficulty in procuring adequate and competent staff
Project activities implemented as scheduled and within budget.		Project Evaluation reports	Adequate office facilities not provided
		AWPBs	Delays in provision of office equipment and vehicles
		Audit reports	Bureaucratic practices
			Corruption
			Lack of counterpart capacity
			Mishandling of vehicles and equipment
Activities	**Indicators**	**Means Of Verification**	**Cost**
Recruitment of project staff	No, profile and gender of staff in place, and working with adequate office and transportation facilities	Project Administrative documents e.g. Project OM, ESMF, M&E Framework	
Establishment of PCU and LIU including staff	Rate of physical achievement compared to project work plan and budget	Inception and Progress Reports	
Establishment of PSC and LSC	Implementation administrative including M&E systems in place	Minutes of LSC and PSC meetings	
Revision of Project Operation Manual	Accounting and stores management systems	Monitoring and audit reports	
Project management and coordination of activities in conformity with AWPB, OM and ESMF	Operation and Maintenance Strategy for equipment developed	Physical verification of transport and equipment	
	Procurement of required offices and communications equipment and transport	Operation and Management Strategy document	
	Developing an Operation and Maintenance Strategy for all equipment		

Component 3: Integrated Watershed Management and Development Interventions			
Objective 3: Stimulate, support and demonstrate fast track appropriate development-oriented investments in Lower Atbara that contribute to poverty reduction and environmental sustainability.			
Outputs for Objective 3	**Indicators**	**Means Of Verification**	**Assumptions/Risks**
Increase in environmentally sustainable livelihood practices	No. and type of Integrated Watershed Management and Development Interventions (IWMDIs) jointly planned and implemented by communities	Locality reports and staff records	Limited motivation for participation in projects
More reliable access to water for domestic use and to allow local communities to shift to more intensive agriculture	No of men and women adopting new environmentally responsible livelihood practices and technology	State and Locality annual plans and budgets	Inappropriate workmanship
More efficient use of water	No. of men and women with diversified and intensified livelihood practices	CBO reports	Lack of capacity for supervision
Improved pasture conditions in wadis reflected in better livestock productivity	No of CBO managed community projects	NGO reports	Lack of funds and capacity for operation and maintenance
Increase in tree cover and in trees of economic value in the area in order to meet the forest products demand of the local people and to combat desertification	No and type of water sources	Project thematic and activity reports	
Riverine Forest restored and sustainably managed	Savings in households purchase of water or savings in time collecting water	Baseline, progress/monitoring, and completion reports	
Carrying capacity of grazing lands increased and rangeland productivity improved and animal grazing pattern established/rehabilitated in selected pilot sites	No and type of water infrastructure operating after 3 and 5 years	Physical inspection	
Pastoralists' livelihood diversified	Increased yields of subsistence and cash crops	Project Evaluation reports	
Improved income generating livelihood practices	Area of cropland irrigated with improved agricultural technologies	Satellite images and maps	
Improved access to alternative energy sources	Area of improved dry land farming		
	Area of improved pastures		
	Area reforested		
	No of beneficiaries reached divided by socio-economic and livelihood grouping and gender		

Activities	Indicators	Means Of Verification	Cost
Based on articulated community needs support and implement community and/or joint managed environmentally sustainable development interventions supported by technology transfer packages within the following themes:	Rate of physical achievement compared to project work plan and budget	Annual Work Plans and Budgets (AWPBs)	
	No of demonstration plots for technology transfer	Project thematic and activity reports	
	No. of men and women accessing extension services	Baseline, progress/monitoring, and completion reports	
Sub-component-Water:	No and type of water infrastructure rehabilitated or built	Physical inspection	
Design and construction of) in take and out flow structures at Adaarma scheme; ii) shallow wells; iii) deep boreholes and water harvesting structures in wadis		Financial accounts and reports	
Capacity building of i) operators and users of water facilities in order to minimize water spillage and usage; ii) of designers, contractors and supervisors in order to improve quality of water facilities; and of institutions , which are responsible for advice to communities on water utilities		Satellite images and maps	
Sub-component-Agriculture:	Area with intensified and diversified crop production	GIS mapping	
Design of technology packages			
Organization of extension programmes through the already existing "farmers schools" to disseminate to farmers the new agricultural systems and technological package for raising yields of crops.			
Provision of irrigation infrastructure (flood and drip) and agricultural and marketing services for Adaarma and Lalabla schemes			
Sub-component-Rangeland:	Area with improved carrying capacity of rangelands		
Improvement of rangelands through water harvesting and reseeding of wadis and water supply for pastoralists supported by technology transfer packages			
Organization of extension programmes			
Provision of livestock product processing and marketing services			
Sub-component-Forestry:	Area with forestry activities		
Promotion, planning and joint development of nurseries, homestead plantations, shelterbed and joint management of riverine forests			
Organization of extension programmes			
Provision of forestry and marketing services			
Sub-component- Alternative Energy: Development of alternative energy sources	No. of men and women with access to alternative energy sources or sustainable managed energy sources		

PROJECT LOGFRAME			
Intervention Logic	**Indicators of Performance**	**Means Of Verification**	**Assumptions/Risks**
Area specific overall objective: Dinder National Park (DNP) Area – To safeguard the natural resources and the biodiversity of the Dinder National Park by improving the Park management and enhance participatory planning and offering alternative livelihoods to target groups who at present depend on the park's natural resources.	No of interventions (physical and non-physical) to improve Park biodiversity and community livelihoods, jointly elaborated, implemented and managed between the Park, the States/Localities and the targeted communities.	Park managment reports Baseline and Project Impact Evaluation Reports NGO reports working in the Dinder area	 National and State polices striving to achieve the same overall development goal with regard to Dinder National Park National and States pro-poor investments in complementary interventions in order to enhance the project benefits
Project Objective:			
Strengthen relevant local institutions, stakeholders and systems at all appropriate levels for the integrated and sustainable management of the natural resources within and outside Dinder National Park	Functional stakeholder dialogue procedures and channels	Baseline, progress, midterm and completion reports	Project counterparts and staff are in place
Stimulate, support and demonstrate alternative livelihood practices and appropriate development-oriented investments in the project area that contribute to poverty reduction and reduce dependency on Park natural resources	Area of rehabilitated ecosystems to sustain biodiversity within the Park	Project Evaluation reports	Project counterparts commit to support critical development projects
	No. of communites with reduced dependency on the Park's natural resouces	Park usage survey, Aerial survey of Cattle, Ground based records, wildlife counts. Livelihood and income surveys.	Project counterparts commit to the intersectoral and participatory management framework
	Reduced Park encroachment by people and cattle	CBO reports	Processes and financial support to ensure enhanced watershed management are integrated in the national institutions and sustained beyond life of project
		Audit reports	Processes can be sustained without disputes on land and water resources, and during periods of unrest or conflicts. Donor support is long term Enhanced watershed management leads to flow of regional and domestic benefits

Component 1: Institutional Strengthening

Objective 1: Strengthen relevant local institutions, stakeholders and systems at all appropriate levels for the integrated and sustainable management of the natural resources within and outside Dinder National Park

Sub-component 1a: Strengthening of supporting institutions

Outputs for Objective 1	**Indicators**	**Means Of Verification**	**Risks**
Dinder National Park mangement improved regarding stakeholder dialogue, park administration, wildlife management, vegetation management, park security and tourism etc.	No and type of local guidelines established at the supporting institutions	Locality reports and staff records	Resistance to change within institutions
Improved competence in integrated and participatory land use planning, implementation and operation at the supporting institutions	No of staff and type of training/competence at the supporting institutions	State and Locality annual plans and budgets	Difficulty in procuring adequate and competent staff
	Frequency and quality of dialogue activities	CBO reports	Bureaucratic practices
		NGO reports	
		Project thematic and activity reports Baseline, progress/monitoring, and completion reports Physical inspection Project Evaluation reports	Lack of counterpart capacity
Activities	**Indicators**	**Means Of Verification**	**Cost**
Strengthening and training of Dinder National Park staff in park administration, wildlife management, vegetation management, park security, tourism etc.	Rate of physical achievement compared to project workplan and budget	Annual Work Plans and Budgets (AWPBs)	
Skills training in integrated land use planning; stakeholder participation and joint management, micro-finance management, conflict resolution and gender sensitisation of staff at Park managemnt unit and participating/Localities	No. and type of Consultancies and studies undertaken	Project thematic and activity reports	
	Land use and environmental management action plans produced	Baseline, progress/monitoring, and completion reports	
Assist in reviewing and improving the animal migration routes and livestock integration in agriculture in in Gedrif, Sennar and Blue Nile States	Existence of internal regulations and mechanisms intersectoral and stakeholder participation	Physical inspection	
	Improved data base and maps and up-dated Locality maps Improved financial systems in place No of people trained in various subject themes working in the Localities No of manuals and training material available for continuo us training of locality staff, external trainers and communities	Financial accounts and reports	

Sub-component 1b: Strengthening of beneficiary organizations			
Outputs for Objective 1	**Indicators**	**Means Of Verification**	**Risks**
Functional community based organizations (CBOs) established Establish DNP Stakeholder Committee Community capacity to managed community environmental management and livelihood improvement projects strengthened	No of trained, organized CBOs and sub-committees active in target communities after 2 and 4 years No of Community Land Environmental Management and Development Plans (CLMPs) prepared &/or being implemented. No of Effective community-driven interventions to improve livelihoods and practices and reduce/manage environmental impacts onground works, and non-structural planning measures. No of community projects in operation and managed by CBO after 2 and 4 years Improved liaison and joint action between communities and local authorities and between communities and Park Management. Improved access to government Extension services. Manuals for training of trainers & communities	Annual Work Plans and Budgets (AWPBs) Project thematic and activity reports Baseline, progress/monitoring, and completion reports Physical inspection Financial accounts and reports Agreements micro-finance lending institutions	
Activities	**Indicators**	**Means Of Verification**	**Cost**
Formation/revitalizing of CBOs Environmental management and sustainable land use development training and planning Skill training Promotion of Community Initiative Fund Establishment of Business Development Centres	No. and types of training courses undertaken No. of CBO and sub-committees formed No. of training activities undertaken for the CBOs Amount disbursed by community and by type of activity Ratio of community fund channeled to settled communities and pastoralists respectively	Annual Work Plans and Budgets (AWPBs) Project thematic and activity reports Baseline, progress/monitoring, and completion reports Physical inspection Financial accounts and reports	
Component 2: Project Management			
Objective 2: Project activities implemented smoothly and with technical and financial efficiency			
Outputs for Objective 2	**Indicators**	**Means Of Verification**	**Assumptions/Risks**
PCU established and operational LIU at Park Management Unit established and operational PSC and LSCs established Project activities implemented as scheduled and within budget. Seconded development teams established at Dinder, Rhahad and Rosaries Localities	No. of activities undertaken compared to workplan Adherence to project administrative systems as stated in the FTWP O&M and ESMF. Disbursement rate of loan and counterparts funds	Project thematic and activity reports Baseline, progress/monitoring, and completion reports Physical inspection Project Evaluation reports AWPBs Audit reports	Slow pace of recruitment Resistance to change within institutions Difficulty in procuring adequate and competent staff Adequate office facilities not provided Delays in provision of office equipment and vehicles Bureaucratic practices Corruption Lack of counterpart capacity Mishandling of vehicles and equipment

Activities	Indicators	Means Of Verification	Cost
recruitment of project staff	No, profile and gender of staff in place, and working with adequate office and transportation facilities	Project Adminiistrative documents e.g. Project OM, ESMF, M&E Framework	
Establishment of PCU and LIUs including staff	Rate of physical achievement compared to project workplan and budget	Inception and Progress Reports	
Establishment of PSC and LSCs	Implementation administrative including M&E systems in place	Minutes of LSC and PSC meetings	
Revision of Project Operation Manual	Accounting and stores management systems	Monitoring and audit reports	
Project management and coordination of activities in conformity with AWPB, OM and ESMF	Operation and Maintenance Strategy for equipment developed	Physical verification of transport and equipment	
	Procurement of required offices and communications equipment and transport	Operation and Management Strategy document	
	Developing an Operation and Maintenance Strategy for all equipment		

Component 3: Integrated Watershed Management and Development Interventions			
Objective 3: Stimulate, support and demonstrate fast track appropriate development-oriented investments in the project areas that contribute to poverty reduction and environmental sustainability.			
Outputs for Objective 3	**Indicators**	**Means Of Verification**	**Assumptions/Risks**
Increase in environmentally sustainable livelihood practices	No. and type of Integrated Watershed Management and Development Interventions (IWMDIs) jointly planned and implemented by communities	Locality reports and staff records	Limited motivation for participation in projects
More reliable access to water for domestic use and to allow local communities to shift to more intensive agriculture	No of men and women adopting new environmentally responsible livelihood practices and technology	State and Locality annual plans and budgets	Inappropriate workmanship
More efficient use of water	No rehabilitated, intesified and diversified livelihoods for the target communities within and surrounding the Park	CBO reports	Lack of capacity for supervision
Improved and diversified farm production and farming systems	No of CBO managed community projects	NGO reports	Lack of funds and capacity for operation and maintenance
Improved pasture conditions in wadis reflected in better livestock productivity	No and type of water sources	Project thematic and activity reports	
Increase in tree cover and in trees of economic value in the area in order to meet the forest products demand of the local people and to combat desertification	Savings in households purchase of water or savings in time collecting water	Baseline, progress/monitoring, and completion reports	
Forest restored and sustainably managed	No and type of water infrastructure operating after 3 and 4 years	Physical inspection	
Carrying capacity of grazing lands increased and rangeland productivity improved and animal grazing pattern established/rehabilitated in selected pilot sites	Increased yields of subsistence and cash crops	Project Evaluation reports	
Pastoralists' livelihood diversified	Area of cropland irrigated with improved agricultural technologies	Satellite images and maps	
Improved income generating livelihood practices	Area of improved dry land farming		
Improved access to alternative energy sources	Area of improved pastures		
	Area reforested		
	No of beneficiaries reached divided by socio-economic and livelihood grouping and gender		
Activities	**Indicators**	**Means Of Verification**	**Cost**
Based on articulated community needs, support and implement community and/or joint managed environmentally sustainable development interventions supported by technology transfer packages within the following themes:	Rate of physical achievement compared to project work plan and budget	Annual Work Plans and Budgets (AWPBs)	
Sub-component-Water:	No of demonstration plots for technology transfer	Project thematic and activity reports	
Design and construction of i) dams for drinking and irrigation in Rahad Locality;	No. of men and women accessing extension services	Baseline, progress/monitoring, and completion reports	
Design and construction of One hafir and 4 wateryards and 6 mayas	No and type of water infrastructure rehabilitated or built	Physical inspection	
Design and construction of Rain water harvesting structures at Magano (collection surfaces, storage facilities, 3 pumps) for small village at the foot of rock outcrop		Financial accounts and reports	
Capacity building of i) operators and users of water facilities in order to minimize water spillage and usage; ii) of designers, contractors and supervisors in order to improve quality of water facilities; and of institutions , which are responsible for advice to communities on water utilities		Satellite images and maps	

Sub-component-Agriculture in Rahad Locality:		GIS mapping	
Design of technology packages			
Organization of extension programmes through the "farmers schools" to disseminate to farmers the new agricultural systems and technological package for raising yields of crops.	Area with intensified and diversified crop production		
Provision of irrigation infrastructure (drip) and agricultural and marketing services for Rahad Locality			
Sub-component-Rangeland in Gedarif and Sennar States:			
Improvement of rangeland carrying capacity of rangelands by reseeding them with high nutritive value leguminous fodder plants and water supply for pastoralists supported by technology transfer packages			
Organization of extension programmes	Area with improved carrying capacity of rangelands		
Provision of livestock products processing and marketing services			
Sub-component-Forestry:			
Resforestation within the Park			
Promotion, planning and joint development of reforestation and protection of vast areas through aerial seeding in combination with samller scale community managed forests and private forestry on mechanised farms			
Organization of extension programmes	Area with forestry activities		
Provision of forestry and marketing services			
Sub-component- Alternative Energy: Development of alternative energy sources	No. of men and women with access to alternative energy sources or sustainable managed energy sources		

PROJECT LOGFRAME			
Intervention Logic	**Indicators of Performance**	**Means Of Verification**	**Assumptions/Risks**
Area specific overall objective:	Increase in the share of the budgets of the Bau Locality, elaborated and disbursed on the basis of integrated and participatory plans for land use management and local development.	State and Locality reports	Sudan committed to this overall development objective.
Bau Area - To reduce the pressure on and conflicts over the natural resources, to capture the long-term development potential of the area, and to build a foundation for sustained peace by promoting alternative, more reliable and environmentally friendly livelihood practices	Diversification and improved resiliance of livelihoods for the target communities and user groups	Baseline and Project Impact Evaluation Reports	National and State polices striving to achieve the same overall development goal
	Reduction of environmental degradation caused by target communities and user groups	NGO reports working in Bau Locality	
Project Objective:			
	No of local interventions, elaborated and implemented on the basis of integrated and participatory plans for watershed management and local development.	Baseline, progress, midterm and completion reports	Project counterparts and staff are in place at Locality and project levels
Stimulate, support and demonstrate alternative livelihood practices and appropriate development-oriented investments in the project areas that contribute to poverty reduction and environmental sustainability	No. of environmental and livelihood improvement projects managed fully or partially by CBOs	Project Evaluation reports	Project counterparts commit to support critical development projects
	Area of improved land use management in the Bau project area	Locality and State Economic planning reports	Project counterparts commit to the intersectoral and participatory management framework
		CBO reports	Processes and financial support to ensure enhanced watershed management are integrated in the national institutions and sustained beyond life of project
		Audit reports	Processes can be sustained without disputes on land and water resources, and during periods of unrest or conflicts.
			Donor support is long term
			Enhanced watershed management leads to flow of regional and domestic benefits

Component 1: Institutional Strengthening			
Objective 1: Strengthen relevant local institutions, stakeholders and systems at all appropriate levels for the integrated and sustainable management of watersheds in the Bau project area			
Sub-component 1a: Strengthening of supporting institutions			
Outputs for Objective 1	**Indicators**	**Means Of Verification**	**Risks**
Local guidelines and procedures for integrated and participatory land use management and sustainable development established at the supporting institutions	No and type of local guidelines established at the supporting institutions	Locality reports and staff records	Resistance to change within institutions
Improved competence in integrated and participatory watershed planning, implementation and operation at the supporting institutions	No of staff and type of training/competence at the supporting institutions	State and Locality annual plans and budgets	Difficulty in procuring adequate and competent staff
		CBO reports	Bureaucratic practices
		NGO reports	
		Project thematic and activity reports	Lack of counterpart capacity
		Baseline, progress/monitoring, and completion reports	
		Physical inspection	
		Project Evaluation reports	
Activities	**Indicators**	**Means Of Verification**	**Cost**
Development and "institutionalization" of integrated and participatory land use planning guidelines and	Rate of physical achievement compared to project workplan and budget	Annual Work Plans and Budgets (AWPBs)	
Skills training in integrated land use planning; stakeholder participation and joint management, micro-finance management, conflict resolution and gender sensitisation	No. and type of Consultancies and studies undertaken	Project thematic and activity reports	
Undertake detailed water resources assessment and ground water mapping	Land use and environmental management action plans produced	Baseline, progress/monitoring, and completion reports	
Assist in reviewing and improving the animal migration routes and livestock integration in agriculture in Blue Nile State	Existence of internal regulations and mechanisms intersectoral and stakeholder participation	Physical inspection	
	Improved data base and maps and up-dated Locality maps	Financial accounts and reports	
	Improved financial systems in place		
	No of people trained in various subject themes working in the Localities		
	No of manuals and training material available for training of locality staff, external trainers and communities		

Sub-component 1b: Strengthening of beneficiary organizations			
Outputs for Objective 1	**Indicators**	**Means Of Verification**	**Risks**
Functional community based organizations (CBOs) established	No of trained, organized CBOs and sub-committees active in target communities after 2 and 4 years	Annual Work Plans and Budgets (AWPBs)	Low community trust in Locality support
Community capacity to managed community environmental management and livelihood improvement projects strengthened	No of Community Land Environmental Management and Development Plans (CLMPs) prepared &/or being implemented.	Project thematic and activity reports	No growth in income of the poor.
	No of Effective community-driven interventions to improve livelihoods and practices and reduce/manage environmental impacts onground works, and non-structural planning measures.	Baseline, progress/monitoring, and completion reports	Marginalization of poor and women.
	No of community projects in operation and managed by CBO after 2 and 4 years	Physical inspection	
	Improved liaison and joint action between communities and local authorities.	Financial accounts and reports	
	Improved access to government Extension services.	Agreements micro-finance lending institutions	
	Manuals for training of trainers & communities		
Activities	**Indicators**	**Means Of Verification**	**Cost**
Formation of CBOs	No. and types of training courses undertaken	Annual Work Plans and Budgets (AWPBs)	
Environmental management and sustainable land use development training and planning	No. of CBO and sub-committees formed	Project thematic and activity reports	
Skill training	No. of training activities undertaken for the CBOs	Baseline, progress/monitoring, and completion reports	
Promotion of Community Initiative Fund	CIF Amount disbursed by community and by type of activity	Physical inspection	
Establishment of Business Development Centre	Ratio of community fund channeled to poor and disadvantaged men and women	Financial accounts and reports	
	Ratio of community fund channeled to settled communities and pastoralists respectively		

Component 2: Project Management			
Objective 2: Project activities implemented smoothly and with technical and financial efficiency			
Outputs for Objective 2	**Indicators**	**Means Of Verification**	**Assumptions/Risks**
PCU established and operational	No. of activities undertaken compared to workplan	Project thematic and activity reports	Slow pace of recruitment
LIU at Bau Locality established and operational	Adherence to project administrative systems as stated in the FTWP O&M and ESMF.	Baseline, progress/monitoring, and completion reports	Resistance to change within institutions
PSC and LSCs established	Disbursement rate of loan and counterparts funds	Physical inspection	Difficulty in procuring adequate and competent staff
Project activities implemented as scheduled and within budget.		Project Evaluation reports	Adequate office facilities not provided
		AWPBs	Delays in provision of office equipment and vehicles
		Audit reports	Bureaucratic practices Corruption Lack of counterpart capacity Mishandling of vehicles and equipment
Activities	**Indicators**	**Means Of Verification**	**Cost**
Recruitment of project staff	No, profile and gender of staff in place, and working with adequate office and transportation facilities	Project Adminiistrative documents e.g. Project OM, ESMF, M&E Framework	
Establishment of PCU and LIUs including staff	Rate of physical achievement compared to project workplan and budget	Inception and Progress Reports	
Establishment of PSC and LSCs	Implementation administrative including M&E systems in place	Minutes of LSC and PSC meetings	
Revision of Project Operation Manual	Accounting and stores management systems	Monitoring and audit reports	
Project management and coordination of activities in conformity with AWPB, OM and ESMF	Operation and Maintenance Strategy for equipment developed	Physical verification of transport and equipment	
	Procurement of required offices and communications equipment and transport	Operation and Management Strategy document	
	Developing an Operation and Maintenance Strategy for all equipment		

Component 3: Integrated Watershed Management and Development Interventions			
Objective 3: Stimulate, support and demonstrate fast track appropriate development-oriented investments in the project areas that contribute to poverty reduction and environmental sustainability.			
Outputs for Objective 3	**Indicators**	**Means Of Verification**	**Assumptions/Risks**
Increase in environmentally sustainable livelihood practices	No. and type of Integrated Watershed Management and Development Interventions (IWMDIs) jointly planned and implemented by communities	Locality reports and staff records	Limited motivation for participation in projects
More reliable access to water for domestic use and to allow local communities to shift to more intensive agriculture	No of men and women adopting new environmentally responsible livelihood practices and technology	State and Locality annual plans and budgets	Inappropriate workmanship
More efficient use of water	No. of men and women with diversified and intensified livelihood practices	CBO reports	Lack of capacity for supervision
Improved and diversified farm production and farming systems	No of CBO managed IWMDIS	NGO reports	Lack of funds and capacity for operation and maintenance
Improved pasture conditions in wadis reflected in better livestock productivity	No and type of water sources	Project thematic and activity reports	
Increase in tree cover and in trees of economic value in the area in order to meet the forest products demand of the local people and to combat desertification	Savings in households purchase of water or savings in time collecting water	Baseline, progress/monitoring, and completion reports	
Forest restored and sustainably managed	No and type of water infrastructure operating after 3 and 5 years	Physical inspection	
Carrying capacity of grazing lands increased and rangeland productivity improved and animal grazing pattern established/rehabilitated in selected pilot sites	Increased yields of subsistence and cash crops	Project Evaluation reports	
Pastoralists' livelihood diversified	Area of cropland irrigated with improved agricultural technologies	Satellite images and maps	
Improved income generating livelihood practices	Area of improved dry land farming		
Improved access to alternative energy sources	Area of improved pastures		
	Area reforested		
	No of beneficiaries reached divided by socio-economic and livelihood grouping and gender		

Activities	Indicators	Means Of Verification	Cost
Based on articulated community needs support and implement community and/or joint managed environmentally sustainable development interventions supported by technology transfer packages within the following themes:	Rate of physical achievement compared to project work plan and budget	Annual Work Plans and Budgets (AWPBs)	
	No of demonstration plots for technology transfer	Project thematic and activity reports	
Sub-component-Water:	No. of men and women accessing extension services	Baseline, progress/monitoring, and completion reports	
Design and construction of haffirs, small dams, sub-units of ground water dams with shallow wells, rainwater harvesting structures and infiltration in shallow aquifers close to rock outcrops in the foothill area and deep boreholes	No and type of water infrastructure rehabilitated or built	Physical inspection	
Capacity building of i) operators and users of water facilities in order to minimize water spillage and usage; ii) of designers, contractors and supervisors in order to improve quality of water facilities; and of institutions , which are responsible for advice to communities on water utilities		Financial accounts and reports	
Sub-component-Agriculture:		Satellite images and maps	
Design of technology packages	Area with intensified and diversified crop production	GIS mapping	
Organization of extension programmes through the already existing "farmers schools" to disseminate to farmers the new agricultural systems and technological package for raising yields of crops.			
Provision of irrigation infrastructure and agricultural and marketing services			
Sub-component-Rangeland:			
Improvement of rangelands through water harvesting and reseeding of wadis and water supply for pastoralists supported by technology transfer packages	Area with improved carrying capacity of rangelands		
Organization of extension programmes			
Provision of livestock product processing and marketing services			

Sub-component-Forestry: Promotion, planning and joint development of nurseries, community managed forests, joint management of reserve forests and private forestry on mechanised farms Organization of extension programmes Provision of forestry and marketing services	Area with forestry activities		
Sub-component- Mining Improving small scale gold panning practicies	No of smale scale miners with healthier and environmentally improved practices		
Sub-component- Alternative Energy: Development of alternative energy sources	No. of men and women with access to alternative energy sources		

DYNAMIC STAKEHOLDER DATABASE -To be continously up-dated

LOWER ATBARA - SUPPORTING INSTITUTIONS

	Type of Stakeholder	*Location*	*Area of responsibility/interest*	*Assets, capabilities, comp. advantages*	*Importance*	*Influence*
Central Government						
	MOIWR and National Working Group for the ENSAP Watershed Management Project: Ministry of Irrigation and Water Resources , the Forest National Corporation (FNC),Forestry Research Centre, the Energy Research Institute, the Ministry of Finance and National Economy, the Higher Council for Environment and Natural Resources, Ministry of Interior (Wildlife) and two environment NGOs, the Sudanese Environmentalist Society and the Sudan Environmental Conservation Society	Ibrahim Adam Ahmed Balila Water Resources Technical Organ Ministry of Irrigation and Water Resources Sudan Mobile:+249122192711 Fax:+249183783221 Email: ibrahimbalila@yahoo.com adambalila@gmail.com	Project Steering	Multidiciplinary expertise. Decision making and coordination	Policy and decision makers at national and multi-diciplinary level	High
State Government						
	Govenor (Wali) and State Council	Located in Ed Damer	Political decision making	Political decision making	State decisions/activities have impacts on lower Atbara	Average to High
	Min. of Finance, Economic Planning and Labor Forces	As above	Planning, implementation and management of state responsibilities	Staff and technical expertise. Limited resources for implementation and management	Can contribute with staff and technical expertise to project activities. Abilty to influence Ed Damer local authority institutions, work through local authority offices.	High
	Min. of Agriculture, Forestry, Animal Wealth and Irrigation	As above	As above	As above	As above	High
	Forest National Cooperation	Yusuf Ahmed Abdula, as above	As above	As above	As above	High
	Min. of Physical Planning and Public Utilities	As above	As above	As above	As above	High
	Min. of Health	As above	As above	As above	As above	Low
	Min. of Education	As above	As above	As above	As above	Low
	Min. of Social Affairs	As above	As above	As above	As above	Average
	Min. of Local Governance	As above	As above	As above	As above	Low
Local Government						
	Commissioner (Muhtamad)	Located in Ed Damer	Political decision making	Political decision making	Project planning and implementation	High
	Executive Manager	Located in Ed Damer	Planning, implementation and management of locality responsibilities	Staff and technical expertise. Limited resources for implementation and management	Project planning and implementation	High
	Departments for Agriculture and Planning, Finance and Works Affair, Education, and Health, Welfare, Youth and Sports.	Most staff located in Ed Damer and not in Atbarawi and Sidon administrative units	As above and Extension services	Staff and technical expertise. Limited resources for implementation and management	Project planning and implementation	High

FNC	With the exception of forest guards, most staff located in Ed Damer and not in Atbarawi and Sidon administrative units	As above and Extension services	Staff and technical expertise. Limited resources for implementation and management	Project planning and implementation	High
VPC and traditional leadership structures (including nazers, omdas and sheiks)	In villages	Political decision making	Political decision making	Project planning and implementation	Low to Average
Research Institutions					
Hudeiba Agricultural Research Station	Director of the Research Station (Dr. Waheeb Saleem Suliman)	Agricultural research , data collection, storage and analysis	Strong on staff capacities. Weak on data management and dissemination tools and capacities	Adapted agricultural research adopted to local conditions	Could be high through improved transfer of information
Hydraulic Research Station	Wad Medani YounisA.Gismalla Associate Prof. Head, Hydraulics and Sedimentation Unit The Hydraulics Research Station MOI - Sudan Mobile +249122607967	Water resources and sedimentation monitoring, data collection, management and modelling	Strong on staff capacities. Weak on data management and dissemination tools and capacities	Data collection, analysis and management is the basis for efficient IWRM	Could be high through improved transfer of information
Forest Research Center	Prof. Ahmed Saleh, Director. Research Centres in Khartoum and Ed Damazin. Research centres in Khartoum and Atbara	Forestry research such as design and establishment of shelterbelts, methods of tree propagation, and collection and supply of tree seeds.	FRChas nine research stations throughout Sudan , one is located in Atbara and one in Ingessana (Ed Damazeen)	FRC could participate through provision of technical backstopping and collection and supply of improved tree seeds.	Could be high through improved transfer of information and products
Energy Research Institute	Khartoum	Applied and practical research for community puropses	Good knowledge base. May need a market for new products.	New and innovative solutions	Could be high through improved transfer of information and products
Interest organisations					
Pastoralist Union	Located in Atbara	Try to promote proposed irrigation scheme in Area 3 as a means of livelihood diversification	They realise that the natural basis not good for pastoralists and the need to develop agricultural practices as an alternative	High for Area 3	High
Mechanized Farmers Union	Located in Atbara	Main interest is to harvest flood water.	No real conflict between large scale farmers and smallholders and pastoralists	Average since few large scale mechanised farmers in the target area, outside Sidon.	Average to high
Farmers Union	Located in Atbara	Representing its members in key issues. Not really representing small-scale farmers	A weakness that they represent a broad variety of farmers, from small-scale to large scale. However have experience of management and operation of irrigation scheme	Average since they are not really representing smallholders	Average to high

NGOs						
	Sudanese Environment Conservation Society (SECS)	Dr. Galal el-Din el-Tayeb (President of SECS) email tahrhamad@hotmail.com	Its main goal is the conservation of environment and achievement of Sustainable development through community participation	SECS membership in 104 branches all over Sudan. SECS has one branch in	Environmental awareness. Community participation. Promotion of practical actions in the field	Average to High
	LADACO (Lower Atbara Development Company)	Office in Ed Damer	Improved livlihood	Strong knowledge of the area and the stakeholders' needs. Trained in project managemnt and out reach. Small resources.	Depend on project activity	Average to High
	SOS SAHEL women's group	Office in Ed Damer	Forestry	Strong knowledge of the area and the stakeholders' needs.Trained in project managemnt and out reach. Small resources.	Depend on project activity	Average to High
	Sudanese Women Lower Atbara	Office in Ed Damer	Improved livlihood	Strong knowledge of the area and the stakeholders' needs.Trained in project managemnt and out reach. Small resources.	Depend on project activity	Average to High
	Popular forest organisation El Sahel organisation Roots organisation		Forestry			Average to High
Others						
Relevant projects						
	NBI/NTEAP Micro Grant Project	Located in the offices of the Sudanese Environment Conservation Society	Environmental protection Support to small-holder agro-pastoralists, small-holder irrigators and small-holder transhumants	Working with Small grants. No project office in the field.	Very small scale. Community driven projects Integrated and community driven approach.	Low
	Butana Integrated Rural Development Project IFAD	Project Manager Mr. Glal Mustafa +249912306898		Project finance secured	Synergies are possible. Same objectives but at different level. Synergies are possible	High
	ENTRO CRA Project	ENTRO Office, Addis Adeba, Ethiopia	Transboundary watershed activities	No projects on the ground as yet		High
	FAO shallow wells	FAO Khartoum	Construction of shallow wells	Small scale funding and resources	Synergies are possible	Average
	FAO project on reseeding wadis in lower Atbara. 2002 - 2007. Extension possible	FAO Khartoum	Seeds of local legumes and grasses spread manually in an area of 150,000 feddans. Terraces of 40 cm high are made for wadis water harvesting.	Project extension under negotiation	Water harvesting. Synergies are possible	High
Governmental actors						
	FNC	Ms. Sayda Mohammed Elhassan, Forester and Member of national and regional working groups for watershed projects	Forestry reserves	Good staff resources. Ongoing projects.	Potential for community managed reserves	High
	State Ministry of Agriculture. Each government project is managed by a Board of Directors	State Ministry of Agriculture	Makabrab Resettlement Project (11 000 feddans)	Infrastructure in place.	Job opportunties for land less. Atbara as a market place likely to increase	Average

	State Ministry of Agriculture. Each government project is managed by a Board of Directors	State Ministry of Agriculture	Food Security project near Ed Damer town (15 000 feddans)	Infrastructure in place. The government involvement is providing irrigation water, the cultural practices and project management are done by farmers and the farmers union.	Potential for exchange of lessons learnt	Average
	State Min. of Physical Planning and Public Utilities Each government project is managed by a Board of Directors	State Min. of Physical Planning and Public Utilities	Electrification of Lower Atbara	Finance secured	Potential for rural electrification	Could be high
Private sector actors						
	Various	Various	Non-government agricultural investment projects in Ed Damer locality, totalling an area of about 250,000 feddans Two are Saudis (total area 150,000 feddans), two are Jordanian (total 69,000 feddans), and one Sudanese (are 4,000 feddans).	No water is taken from Lower Atbara river. Water is taken from Main Nile. Ground water is used	Job opportunties for land less. Atbara as a market place likely to increase. Production of food crops, fodders and vegetables for local and foreign markets.	High

DYNAMIC STAKEHOLDER DATABASE -To be continously up-dated

Lower Atbara - Ed Damer Locality- Atbarawi and Sidon Administrative Units

Potential beneficiaries/ Users of natural resources and environmental services

Type of Stakeholder	*Location*	*Resource dependency*	*Practices with negative impact on env.*	*Main interest and concerns*	*Assets*	*Importance*	*Influence*
Smallholder							
Area 1: Atbara to Sidon							
Mainly small scale irrigators and flood recession farmers.	Along the river Atbara. Area 1: Atbara to Sidon	Water from river and overflow, income from products	Mainly small scale irrigators and flood recession farmers. Inefficient use of water. Tree and dome cutting. Tree planting culture observed only in one village.	Improved access to water for production, access to finance, seeds and technology packages.	Some organisational skills. Some environmental awareness. Proximity to town.	Average. Fast track project success likely but the other areas are in greater need of support	High
Area 2: Sidon to Shababit							
Mainly rain fed farming. Few irrigators	Along the river Atbara. Area 1: Sidon to Shababit	Dependant on rainfall and river overflow	Tree and dome cutting. No tree planting culture.	Improved access to water for production, access to finance, seeds and technology packages.	Good agricultural production potential. Some environmental awareness.	High. Many opportunities for project interventions	High
Area 3: Shababit to Kassala							
Only 10% farmers, mainly rain fed	Along the river Atbara. Area 1: Shababit to Kassala border	High resource dependency. Poor natural resources	Drastic environmental degradation can be seen in Area 3.Area 3 Tree and dome cutting. No tree planting culture.	Improved access to water for production, access to finance, seeds and technology packages.	Little organisational experience, people very poor. Poor natural resources. Some environmental awareness	High. Combination poor people/ignored area and visible environmental degradation makes this area an important target area. However, poor natural resources and development potential.	Average
Area 1-3: Nomads and pastoralists							
The Rshida and Shukriya are the main nomadic tribes in Lower Atbara area.	Approx. 10% of semi nomads in Area 1: Atbara to Sidon; Approx. 50% in Area 2: Sidon to Shababit; approx. 90% in Area 3: Shababit to Kassala border.	They come to Lower Atbara area after the harvest of the crops to feed their herds on crops residues and get water from wadis. High resource dependency in Area 3	There is a major concern that the number of cattle exceeds the carrying capacity of the Lower Atbara , especially in Area 3. No tree planting culture.	Farmers and herders have mutual interests and a sort of symbiotic relationships, which rarely develop into conflicts. However, regarding number of cattle and overgrazing the willingness to change is low but can be improved with improved awareness and promoting activities.	Little organisational experience, people very poor. Poor natural resources.	High. Combination poor people/ignored area and visible environmental degradation makes this area an important target area. However, poor natural resources and development potential.	High

DYNAMIC STAKEHOLDER DATABASE -To be continously up-dated

BAU LOCALITY - SUPPORTING INSTITUTIONS

Type of Stakeholder	*Location*	*Area of responsibility*	*Assets and capabilities/ comparative advantages*	*Importance*	*Influence*
Central Government					
MOIWR and National Working Group for the ENSAP Watershed Management Project: Ministry of Irrigation and Water Resources , the Forest National Corporation (FNC), Forestry Research Centre, the Energy Research Institute, the Ministry of Finance and National Economy, the Higher Council for Environment and Natural Resources, Ministry of Interior (Wildlife) and two environment NGOs, the Sudanese Environmentalist Society and the Sudan Environmental Conservation Society Sudan Environmental Conservation Society	Ibrahim Adam Ahmed Balila Water Resources Technical Organ Ministry of Irrigation and Water Resources Sudan Mobile:+249122192711 Fax:+249183783221 Email: ibrahimbalila@yahoo.com adambalila@gmail.com	Project Steering	Multidisciplinary expertise. Decision making and coordination	Policy and decision makers at national and multi-disciplinary level	High
State Government					
Governor (Wali) and State Council	Located in State Capital i.e. Ed Damazin	Political decision making	Political decision making	State decisions/activities have impacts on Bau Locality	Average to High
Min. of Finance, Economic Planning and Labour Forces	As above	Planning, implementation and management of state responsibilities	Staff and technical expertise. Limited resources for implementation and management	Can contribute with staff and technical expertise to project activities. Ability to influence Bau local authority institutions, work through local authority offices.	High
Min. of Agriculture, Forestry, Animal Wealth and Irrigation	As above	As above	As above	As above	High
FNC	Musa Sulieman Musa, Director of FNC, Blue Nile, Ed Damazin	As above	As above	As above	High
Min. of Physical Planning and Public Utilities	As above	As above	As above	As above	High
Min. of Health	As above	As above	As above	As above	Low
Min. of Education	As above	As above	As above	As above	Low
Min. of Social Affairs	As above	As above	As above	As above	Average
Min. of Local Governance	As above	As above	As above	As above	Low
Local Government					
Commissioner (Muhtamad)	Located in Ed Damazin	Political decision making	Political decision making	Project planning and implementation	High
Executive Manager	Located in Ed Damazin	Planning, implementation and management of locality responsibilities	Staff and technical expertise. Limited resources for implementation and management	Project planning and implementation	High
Departments for Agriculture and Planning, Finance, Education, and Services	Most staff located in Ed Damazin not in Bau or the three administrative units	As above and Extension services	Staff and technical expertise. Limited resources for implementation and management	Project planning and implementation	High
FNC	Abdul El Ghani Mohammed Ibrahim, FNC Bau Locality based in Ed Damazin and other staff in the three administrative units	As above and Extension services	Staff and technical expertise. Limited resources for implementation and management	Project planning and implementation	High
VPC and traditional leadership structures (including nazers, omdas and sheiks)	In villages	Political decision making	Political decision making	Project planning and implementation	Low

Research Institutions					
Hudeiba Agricultural Research Station	Director of the Research Station (Dr. Waheeb Saleem Suliman)	Agricultural research , data collection, storage and analysis	Strong on staff capacities. Week on data management and dissemination tools and capacities	Adapted agricultural research adopted to local conditions	Could be high through improved transfer of information
Hydrological Research Station	Wad Medani YounisA.Gismalla Associate Prof. Head, Hydraulics and Sedimentation Unit The Hydraulics Research Station MOI - Sudan Mobile +249122607967	Water resources and sedimentation monitoring, data collection, management and modelling	Strong on staff capacities. Week on data management and dissemination tools and capacities	Data collection, analysis and management is the basis for efficient IWRM	Could be high through improved transfer of information
Forest Research Centre	Prof. Ahmed Saleh, Director. Research Centres in Khartoum and Ed Damazin. Centres in Khartoum and Ed Damazin	Forestry research such as design and establishment of shelterbelts, methods of tree propagation, and collection and supply of tree seeds and other planting materials.	FRC has nine research stations throughout Sudan , one is located in Atbara and one in Ingessana (Ed Damazeen)	FRC could participate through provision of technical backstopping and collection and supply of improved tree seeds and other planting materials.	Could be high through improved transfer of information and products
Energy Research Institute	Khartoum	Applied and practical research for community purposes	Good knowledge base. May need a market for new products.	New and innovative solutions	Could be high through improved transfer of information and products
Interest organisations					
Pastoralists Union	Located in Ed Damazin	Representing its members in key issues. The main issues is the loss of land to mechanised farming	Strong and recognised as a negotiation partner. Union is more forward thinking than its members on issues as settling of nomads and reduction of number of cattle heads.	An important stakeholder and facilitator	Could be strengthened
Mechanized Farmers Union	Located in Ed Damazin	Representing its members in key issues. Very low profile on land licensing issues and conflict with the pastoralists	Strong and recognised as a negotiation partner	An important stakeholder and facilitator	High
Farmers Union	Located in Ed Damazin	Representing its members in key issues. Not really representing small-scale farmers	A weakness that they represent a broad variety of farmers, from small-scale to large scale.	Average since they are not really representing smallholders	Average to high
Gum Arabic	Arabic producers union of Sudan has an active side branch in Ed Damazin	Representing its members in key issues such as removal of middle men	Not all gum Arabic producers are members	An important stakeholder and facilitator	Average to high
NGOs					
UNICEF/UNICEF WES		Independent, Education, Water and sanitation and health	Office in Damazin, working in Bau	building schools	Average to high
Islamic Relief		Independent, Education, Agriculture	Office in Damazin, not in Bau at the moment, Privately owned 4-Wheel drives to overcome bad routes during the rainy season	building schools and water pumps and distributing seeds	Average to high

World Vision	51 street, Al Amarat. block 10. Khartoum +(249) 183 581684	Independent, agricultural awareness and providing agricultural equipment	Office in Damazin, working in Bau, Privately owned 4-Wheel drives to overcome bad routes during the rainy season	providing agricultural equipment and seeds for cultivation as well as raising agricultural awareness	Average to high
Practical action	Deputy Country Director email: evanss@practicalaction.org.sd	Independent, Advocational training in appropriate training, Committee development, women groups, livelihood	Office in Damazin, starting their work in Bau		Average to high
IRC	Field Manager Blue Nile State email:hakamm@sudan.theirc.org	Independent, refugees and IDPs	Office in Damazin, not in Bau at the moment		Average
Blue Nile Organizations network		Networking	Office in Damazin	No own activities	Low
Others					
Relevant projects					
ENTRO CRA Project	ENTRO Office, Addis Adaba, Ethiopia	Transboundary watershed activities	No project on the ground as yet	Same objectives but at different level. Synergies are possible	High
Community Development Fund (CDF) Project	Local office in Ed Damazin	Post conflict development of health and educational services	Project funding secured. Staff and transport etc available	Cooperation with Bau Locality. Synergies are possible	High
UNIDO Global Mercury Project	No specific project office. Eng. Ibrahim Mohamed Tom, in charge of Gogub gold mine field site, Ingessana.	Sustainable small scale gold panning	Small scale	Promoting improved livelihood practices. Environmental awareness Synergies are possible	High
JAM MDTF project		Supporting rehabilitation and peace building activities	Disbursement of funding is slow	Supporting infrastructure development Synergies are possible	High
UNICEF WES	Local office in Ed Damazin	Promoting water supply and sanitation	Working through Government. Staff and transport available	Synergies are possible	High
Governmental actors					
FNC	Ms. Sayda Mohammed Elhassan, Forester and Member of national and regional working groups for watershed projects	Forestry reserves and community forestry	Good staff resources. Ongoing projects.	Potential for community managed reserves and plantations	High
State Ministry of Agriculture	State Ministry of Agriculture, Departments of animal wealth, pasture and fodder at State and Locality level	One ongoing effort is project planning on integrating livestock in agriculture	Not adequate on staff resources. Few means of transportation.	Project support possible. One area of interest is to develop animal routes with service points. Two to three scenarios could be considered – semi-settled nomads , ii)settlement of the nomads or iii) integrate animals in already existing farms.	High
Private actors					
The Arab Authority for Agricultural Investment and Development (AAAID)		Agricultural investment and production	The AAAID has demonstrated the no till (zero tillage) farming system to Agady (Blue Nile State) farmers who showed willingness to adopt the technology	Potential for PPP	Average

DYNAMIC STAKEHOLDER DATABASE -To be continuously up-dated

Bau Locality

Potential beneficiaries/ Users of natural resources and environmental services

Type of Stakeholder	*Location*	*Resource dependency*	*Practices with negative impact on env.*	*Main interest and concerns*	*Assets*	*Importance*	*Influence*
Area 1: Low-lying farmlands							
Largescale							
Mainly Large scale mechanised and semi-mechanised farmers	South west of Ingessana Hills	Low	Using vast land areas without proper licensing in many cases. Severe deforestation. Decline in soil fertility and deterioration of its physical condition, the soil surface has become vulnerable to erosion. Reduce areas for grazing and livestock corridors.	Keep low profile on areas of concern as nutrient mining, 10% tree cover, licensing and negotiations with pastoralists. Open to grow 10% tree cover if assisted with seedlings	Perceptions of resources conservation and sustainability of rain fed areas are still lacking. Negotiations with Pastoralists Union and Government has started.	High. Could contribute with land for livestock corridors and with tree planting	High
Small-scale							
Scattered small scale traditional farmers and charcoal makers.	South west of Ingessana Hills	High	Charcoal making as important income generating activity	Concerned out reduced agr. production yields Great need for Drinking water.	Awareness of negative impacts of deforestation but lack alternatives due to reduced crop yields	High on tree felling issues	High
Transhumant							
Nomads	Temporarily settlements in this area	High for pasture, water and animal routes	Land and water use conflicts with local traditional farmers and large scale mechanised farmers. No of cattle exceeds carrying capacity of the area.	Secured animal routes with service points, especially water points	Perceptions of negatives environmental impacts of large number of cattle are still lacking. Negotiations with Mechanised farmers' Union and Government have started.	High. Conflict resolution of natural resources. Rights to land	High
Area 2: Foothills of Ingessana Hills							
Small-scale							
Scattered small scale traditional farmers and charcoal makers.	Foothills of Ingessana Hills	High. Rain fed agricultural production. Most of the farmers are also involved in incense tapping, charcoal making and harvesting and selling of fruits	Charcoal making as important income generating activity	Drinking water. Mitigate soil erosion from the Hills since it causes decrease of agri.prodction.	Soils are good but area suffers from water erosion. Therefore, these slopes require prior intervention before any meaningful conservation measures can be put in the farms in the foot-hills.	Average	Average
Transhumant							
Nomads	Temporarily settlements in this area	High	Land and water use conflicts with local traditional farmers and large scale mechanised farmers. No of cattle exceeds carrying capacity of the area.	Secured animal routes (5 km) with service points	Perceptions of negatives environmental impacts of large number of cattle are still lacking. Negotiations with Mechanised farmers' Union and Government has started.	High. Highly impacted group at the same time contribute to environmental degradation. Conflict resolution of natural resources. Rights to land	High
Area 3: Ingessana Hills							
Miners							
Ingessana people	Ingessana Hills	High resource dependency.	Drastic environmental degradation, deforestation, erosion, open scares in the ground, pollution from mercury etc. Health problems	Drinking water	Some awareness of environmental and health problems exist. Little organisational experience	High. Reforestation of hills is of paramount importance. Opportunities for project interventions exist but problem bigger than means.	High

DYNAMIC STAKEHOLDER DATABASE -To be continously up-dated

DINDER NATIONAL PARK AND SURROUNDINGS - SUPPORTING INSTITUTIONS

	Type of Stakeholder	*Location*	*Area of responsibility/interest*	*Assets, capabilities, comparative advantages*	*Importance*	*Influence*
Central Government						
	MOIWR and National Working Group for the ENSAP Watershed Management Project: Ministry of Irrigation and Water Resources , the Forest National Corporation (FNC), Forestry Research Centre, the Energy Research Institute, the Ministry of Finance and National Economy, the Higher Council for Environment and Natural Resources, Ministry of Interior (Wildlife) and two environment NGOs, the Sudanese Environmentalist Society and the Sudan Environmental Conservation Society	Khartoum	Project Steering	Multidisciplinary expertise. Decision making and coordination	Policy and decision makers at national and multi-disciplinary level	High
	Joint Committee for DNP: Ministry representatives in Sinnar, Al Qadarif and Blue Nile, Minister of interior, Minister of Tourism and Wild Life, Ministers of Finance of the three states and chaired by the Minister of Environment	Khartoum	Coordination and cooperation between the centre and states concerned ministries and institutions on the investment on DNP	Decision making capability on DNP issues. Committee set up specifically for DNP.	Decision makers	High
State Level	***In Sinnar, Qadarif and Blue Nile***					
	Governor (Wali) and State C	Located in State Capitals i.e. Sinja (Sinnar), Ed Damazin (Blue Nile) and Gedarif (Al Qadarif)	Political decision making	Political decision making	State decisions/activities have impacts on DNP.	High
	Min. of Finance, Economic Planning and Labour Forces	As above	Planning, implementation and management of state responsibilities	Staff and technical expertise. Limited resources for implementation and management	State decisions/activities have impacts on DNP. Can contribute with staff and technical expertise to project activities. Ability to influence local authority institutions, work through local authority offices.	High
	Min. of Agriculture, Forestry, Animal Resource and Irrigation	As above	As above	As above	As above	High
	Min. of Physical Planning and Public Utilities	As above	As above	As above	As above	High
	Min. of Health	As above	As above	As above	As above	Low
	Min. of Education	As above	As above	As above	As above	Low
	Min. of Social Affairs	As above	As above	As above	As above	Average
Park Level						
	DNP Management	Dinder Town and Galagub	Law enforcement. Park protection and management	Limited expertise and resources for park management and development	Focused on protection	High

Research Institutions						
	Agricultural Research Station	Wad Medani	Agricultural research , data collection, storage and analysis	Strong on staff capacities. Week on data management and dissemination tools and capacities	Adapted agricultural research adopted to local conditions	Could be high through improved transfer of information
	Hydrological Research Station	Wad Medani YounisA.Gismalla Associate Prof. Head, Hydraulics and Sedimentation Unit The Hydraulics Research Station MOI - Sudan Mobile +249122607967	Water resources and sedimentation monitoring, data collection, management and modelling	Strong on staff capacities. Week on data management and dissemination tools and capacities	Data collection, analysis and management is the basis for efficient IWRM	Could be high through improved transfer of information
	Forest Research Center	Prof. Ahmed Saleh, Director. Research Centres in Khartoum and Ed Damazin	Forestry research such as methods of tree propagation, and collection and supply of tree seeds.	FRC has nine research stations throughout Sudan , one is located in Atbara and one in Ingessana (Ed Damazeen)	FRC could participate through provision of technical backstopping and collection and supply of improved tree seeds in order to reforest areas outside the DNP	Could be high through improved transfer of information and products
	Energy Research Institute	Khartoum	Research on solar energy, energy saving technologies etc	Strong on staff capacities. Week on data management and dissemination tools and capacities	Practical research and trials on locally adapted and accepted new technologies	Could be high through improved transfer of information
Interest organisations						
	Pastoralists Union	Located in State Capitals i.e. Sinja (Sinnar), Ed Damazin (Blue Nile) and Gedarif (Al Qadarif)	Representing its members in key issues. The main issues is the loss of land to mechanised farming	Strong and regocnised as a negotiation partner. Union is more forward think than its members on issues as settling of nomads and reduction of cattle heads.	An important stakeholder and facilitator	Could be strengthened
	Mechanized Farmers Union	Located in State Capitals i.e. Sinja (Sinnar), Ed Damazin (Blue Nile) and Gedarif (Al Qadarif)	Representing its members in key issues. Very low profile on land licening issues and conflict with the pastoralists	Strong and regocnised as a negotiation partner	An important stakeholder and facilitator	High
NGOs						
	Sudanese Environment Conservation Society (SECS)	Dr. Galal el-Din el-Tayeb (President of SECS) email tahrhamad@hotmail.com	Its main goal is the conservation of environment and achievement of Sustainable development through community participation	SECS membership in 104 branches all over Sudan. SECS also have branches in Gedaref and Dinder	Environmental awareness. Community participation. Promotion of practical actions in the field	Average to High
	World Vision	51 street, Al Amarat. block 10. Khartoum +(249) 183 581684	Agricultural awareness and providing agricultural equipment and seeds for cultivation as well as raising agricultural awareness	Independent, Office in Damazin, working in Kadalo, Privately owned 4-Wheel drives to overcome bad routes during the rainy season. Radio communication	Alternative or supplement to existing extension services	Average to High
	Practical action	Deputy Country Director email: evanss@practicalaction.org.sd	Advocational training in appropriate training, Committee development, women groups, livelihood	Independent, Establishing Office in Damazin	Alternative or supplement to existing extension services	Average to High

	IRC	Field Manager Blue Nile State email:hakamm@sudan.theirc.org	Socio-economic integration of refugees and IDPs	Independent, office in Damazin, and focal points in Kadalo area, Privately owned 4-Wheel drives to overcome bad routes during the rainy season. Radio communication	Depend on project activity	Average
Others						
Relevant projects						
	GEF/UNDP DNPP	Finance cancelled	The project developed a management plan for the park, and worked with local communities to achieve implementation.	n/a	Created awareness	n/a
	NBI/NTEAP Micro Grant F	Located in the offices of the Sudanese Environment Conservation Society Tel: +249-1-83467039	Environmental protection	Working with Small grants. No project office in the field.	Very small scale. Community driven projects	Low
	Butana Integrated Rural Development Project IFAD	Project Manager Mr. Glal Mustafa +249912306898	Support to small-holder agro-pastoralists, small-holder irrigators and small-holder transhumants	Project finance secured	Integrated and community driven approach. Synergies are possible.	High
	ENTRO CRA Project	ENTRO Office, Addis Adeba, Ethiopia	Transboundary watershed activities	No project on the ground as yet	Same objectives but at different level. Synergies are possible	Could be High if transboundary national park project is realized

DYNAMIC STAKEHOLDER DATABASE -To be continously up-dated

DINDER NATIONAL PARK AND SURROUNDINGS

Potential beneficiaries/ Users of natural resources and environmental services

Type of Stake-holder	*Name of Organisation/ Individual*	*Location/Contact Details*	*Resource dependency*	*Practices with negative impact on env.*	*Interest and concerns/ reluctance or openness to change*	*Assets and capabilities comparative advantages*	*Importance*	*Influ-ence*
Smallholders								
	<u>Qadarif State</u> Rahad villages	Along both sides of Rahad River	Depending on natural resources from the DNP	The ten villages have exerted a considerable influence on the vegetation and wildlife in their zone of influence which extends approximately five kilometres into the park; agri.production, honey, fires, poaching, grazing etc	The villagers here recognise that they are using the resources of the national park and are therefore prepared to negotiate agreements about how they can use these resources. Lack support for alternative livelihood practices	Some awareness and organisational skills from previous projects. Room for intensification of agri. production (incl. Livestock) i.e. decrease pressure on land area.	High.	High
	<u>Blue Nile State</u> Magano village	Residing inside the DNP. Rosaries Locality	Depending on natural resources from the DNP	Detrimental effect on wildlife resources due to disturbance and in the long term there is an increased risk of both poaching and disease transmission from domestic livestock to wild animals as well as limited honey, agri.production, fires, poaching etc	Lack alternatives but understand the dilemma. The biggest need is water.	Village and Park management recognise and respect each other	High. A previously ignored village residing inside the DNP.	Average but high in the long term
	Kadalu area	Residing south of the DNP. Rosaries Locality	Large scale use of DNP resources	Substantial areas of rain fed agriculture within the DNP area	Oppose the new extension of the DNP. Not willing to negotiate at this state.	Negative comparative advantage at this point in time due to severe conflict situation between	n/a. Are not recommended to be included at this point in time	High
	Others	Lie just outside the extended boundary of the park however the agricultural activities of these villages extend well into the park	Depending on natural resources from the DNP	Grazing of livestock and rain fed agriculture inside the DNP. This means that although these areas have now been included in the park for more than twenty years they at present contribute nothing to the functioning ecosystems of the park. They carry few trees and the majority of this area is still divided into rectilinear field shapes.	Awareness of DNP value is low. Perceptions of resources conservation and sustainability of rainfed areas are still lacking	Room for improved livelihood practices. Potential for interventions identified	High since villages are located close to the DNP	High
	<u>Sennar State</u>	There are no villages in Sennar State that lie inside the park. The nearest village is approximately 7km away.	Depending to some extent on natural resources from the DNP	Risk of tree felling inside the DNP. The boundary between the park and the village lands in this area is abrupt since trees have been cleared right up to the park boundary.	Awareness of DNP value is low.	Some communities participate in Community forests	Average but high in the long term	Average but high in the long term

Large-scale								
	Large scale mechanised farmers	In all States. Closest in the north of Rahad river.	Holders of licences for land adjacent (5 km away) to the park	Using vast land areas without proper licensing in many cases. Decline in soil fertility and deterioration of its physical condition, the soil surface has become vulnerable to erosion. Reduce areas for grazing and livestock corridors	Main interest is water and improved marketing opportunities. Low profile on areas of concern as nutrient mining, 10% tree cover, licensing and negotiations with pastoralists.	Perceptions of resources conservation and sustainability of rainfed areas are still lacking. Are open to negotiations on a win-win basis	High. Could contribute with land for livestock corridors and tree planting	High
Transhumant								
	Pastoralists	Herders originate both from settled villages along the borders of the park and also from more distant areas when accompanied by nomadic and semi nomadic pastoralists such as Fulani and Mbororo.	Depending on grazing areas outside and inside the DNP. The entire park is subject to the incursions of cattle when alternative grazing is not available due to restrictions on the movement by rain fed agriculture. Also to seek shade since shade trees are almost absent outside of the park.	Cattle compete with the wild ungulates for water and food, are likely to transmit diseases and cause large scale changes to the grass sward and cause a progressive reduction in the quality of the habitat for grazing ungulates.	Some nomads are represented in development committees	Aware of the problem however lack alternatives. (Union maybe more aware than individuals)	High. Combination of a group with little access to alternatives and the high negative impact of current practices make this group an imoprtant target group.	High

ATBARA PROJECT AREA - SUPPORTING INSTITUTIONS	
COMPONENT/ACTIVITY	**SUPPORTING INSTITUTIONS**
Component 1: Institutional Strengthening	
Sub-component 1a: Strengthening of supporting institutions	PCU; LIU; TA; NILE STATE MINISTRIES AND RESEARCH INSTITUTES; FNC
Sub-component 1b: Strengthening of beneficiary organizations	ED DAMER LOCALITY; NGOS; LIU; TRADITION LEADERS/ADMINISTRATION
Component 2: Project Management	
Sub-Component: Project Management	PCU; LIU; PSC; LSC
Component 3: IWMDIs	
Sub-component-Water:	LOCALITY; NGOs; LIU; MOIWR; SWC; PRIVATE SECTOR
Sub-component-Agriculture:	LOCALITY; NGOs; LIU; STATE MAARI; SWC; HUDEIBA AGRICULTURE RESEARCH STATION; FARMERS UNION; MECHANISED FARMERS UNION; PRIVATE SECTOR
Sub-component-Rangeland:	LOCALITY; NGOs; LIU; STATE MAARI; SWC; PASTROALIST UNION; PRIVATE SECTOR
Sub-component-Forestry:	LOCALITY; NGOs; LIU; FNC; FRC; PRIVATE SECTOR
Sub-component- Alternative Energy:	LOCALITY; NGOs; LIU; ENERGY RESEARCH INSTITUTE; PRIVATE SECTOR
DINDER PROJECT AREA - SUPPORTING INSTITUTIONS	
COMPONENT/ACTIVITY	**SUPPORTING INSTITUTIONS**
Component 1: Institutional Strengthening	
Sub-component 1a: Strengthening of supporting institutions	PCU; LIU; WILDLIFE AUTHORITIES; TA; GEDARIF; SENNAR AND BLUE NILE STATES MINISTRIES AND RESEARCH INSTITUTES; FNC
Sub-component 1b: Strengthening of beneficiary organizations	RAHAD; DINDER AND ROSARIES LOCALITIES; NGOS; LIU; TRADITION LEADERS/ADMINISTRATION
Component 2: Project Management	
Sub-Component: Project Management	PCU; LIU; PSC; LSCs
Component 3: IWMDIs	
Sub-component-Water:	DNP MA; LOCALITIES; NGOs ;LIU; MOIWR; SWCs; PRIVATE SECTOR
Sub-component-Agriculture:	DNP MA; LOCALITIES; NGOs; LIU; STATE MAARIs; SWCs; AGRICULTURE RESEARCH STATIONS; FARMERS UNIONS; MECHANISED FARMERS UNIONS; PRIVATE SECTOR
Sub-component-Rangeland:	DNP MA; LOCALITIES; NGOs ;LIU; STATE MAARIs; SWCs; PASTORALIST UNIONS; PRIVATE SECTOR
Sub-component-Forestry:	DNP MA; LOCALITIES; NGOs LIU; FNC; FRC; PRIVATE SECTOR
Sub-component- Alternative Energy:	DNP MA; LOCALITIES; NGOs; LIU; ENERGY RESEARCH INSTITUTE; PRIVATE SECTOR
BAU PROJECT AREA - SUPPORTING INSTITUTIONS	
COMPONENT/ACTIVITY	**SUPPORTING INSTITUTIONS**
Component 1: Institutional Strengthening	
Sub-component 1a: Strengthening of supporting institutions	PCU ;LIU; TA; BLUE NILE STATE MINISTRIES AND RESEARCH INSTITUTES; FNC
Sub-component 1b: Strengthening of beneficiary organizations	BAU LOCALITY; NGOs; LIU; TRADITION LEADERS/ADMINISTRATION
Component 2: Project Management	
Sub-Component: Project Management	PCU;LIU;PSC;LSC
Component 3: IWMDIs	
Sub-component-Water:	LOCALITY; NGOs; LIU; MOIWR; SWC ;PRIVATE SECTOR
Sub-component-Agriculture:	LOCALITY; NGOs; LIU; STATE MAARI; SWC; AGRICULTURE RESEARCH STATION; FARMERS UNION; MECHANISED FARMERS UNION; PRIVATE SECTOR
Sub-component-Rangeland:	LOCALITY; NGOs; LIU; STATE MAARI; SWC; PASTORALIST UNION; PRIVATE SECTOR
Sub-component-Forestry:	LOCALITY; NGOs LIU; FNC; FRC; PRIVATE SECTOR
	LOCALITY; NGOs; LIU; FNC; PRIVATE SECTOR
Sub-component-Mining:	LOCALITY; NGOs; LIU; ENERGY RESEARCH INSTITUTE; PRIVATE SECTOR
Sub-component- Alternative Energy:	LOCALITY; NGOs; LIU; ENERGY RESEARCH INSTITUTE; PRIVATE SECTOR

FAST TRACK WATERSHED MANAGEMENT PROJECT IN SUDAN

FTWP SUDAN - OVERALL PROJECT MANAGEMENT

	YEAR	2008				2009				2010				2011				2012	
COMPONENT	QUARTER	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
No.	ACTIVITY																		
PROJECT MANAGEMENT	**Project Start Up**																		
	Implementation Ageements																		
	Operational Management System																		
	AWPB																		
	Financial Control System																		
	Capacity Building of Local Partners																		
	Development of Financial Instruments, loans, grants, large infrstructure finance systems																		
	Local Project Management System Design And Recruitment																		
	FTWP LIU established in Ed Damer Locality in River Nile State responsible for project implementation in Lower Atbara project area																		
	FTWP LIU established in Bau Locality with responsibilities for project implementation in Bau																		
	FTWP LIU established in DNP management unit with responsibilities to coordinate activities in the Park and in the three states surrounding the Dinder National Park																		
	Establish LSCs																		
	Daily Project Management																		
	M&E Reporting																		
	Preparation																		
	Baseline study																		
	Database design and development																		
	Monitoring																		
	Progress Reports Locality Level																		
	Progress Reports national Project Level																		
	Annual Work Plan and Budget Locality Level																		
	Annual Work Plan and Budget National Poject Level																		
	Annual Financial Reporting Locality Level																		
	Annual Financial ReportingNational Project Level																		
	Evaluation																		
	Partcipatory impact assessment + workshops																		
	Mid - term review																		
	Project Completion Report																		

Initial phase

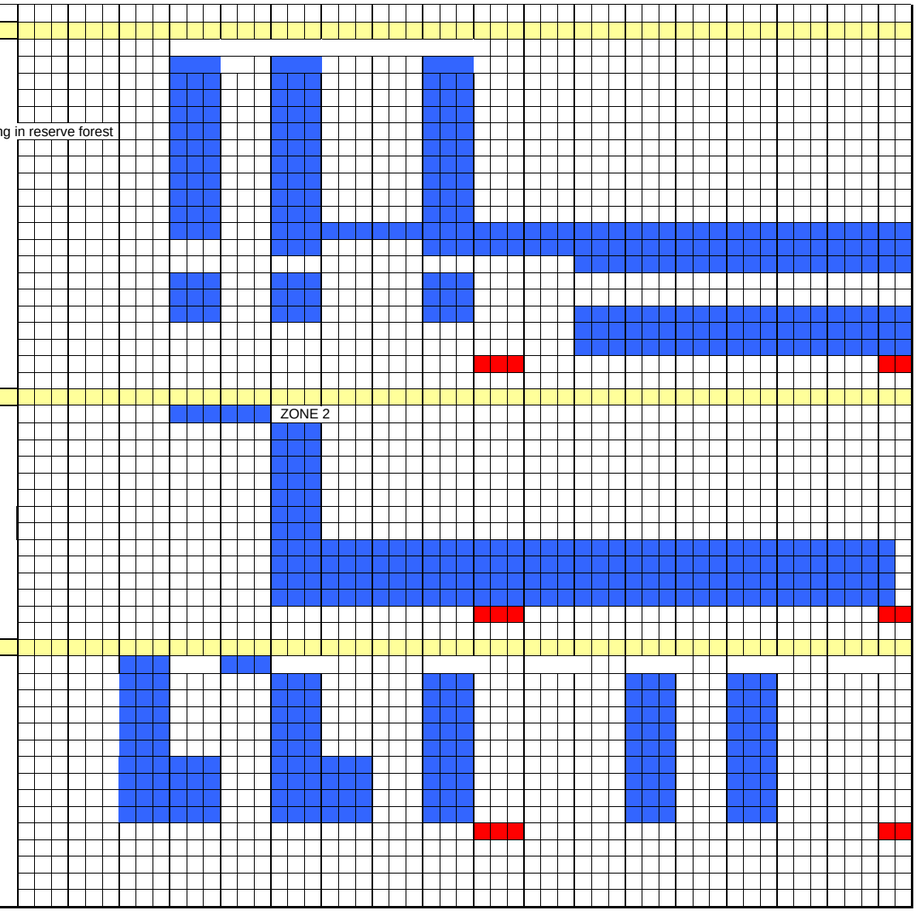
M&E Review activities

FAST TRACK WATERSHED MANAGEMENT PROJECT IN SUDAN

FTWP SUDAN - WORK PLAN FOR LOWER ATBARA PROJECT AREA

YEAR		2008				2009				2010				2011				2012	
COMPONENT	QUARTER	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
No.	ACTIVITY																		
COMPONENT 1	**Institutional Stengthening**																		
1.a	*Strengthening of Supporting Institutions*																		
Target	Local guidelines and procedures for integrated and participatory land use and environmental management at Locality																		
GIS based locality land use plan; ESMF institutionalized;																			
Participatory planning and implementation procedures;																			
Intersectoral planning procedures	Facilitation of sustained strategic and participatory land use planning processes																		
	Refined Locality and baseline mapping																		
10 courses on 10 days: 100 days	Development of land use plans																		
4 workshops : 50 pers	Enhancement of financial monitoring and accounting system																		
	Capacitity buildling (integrated land use planning; stakeholder participation and joint management; use of interactive maps and basic GIS; small dam																		
30 days of Field visits and exchange visit	design and supervision; financial accounting and management, micro-finance management, conflict resolution and gender sensitisatio																		
1.b	*Strengthening of Beneficiary Organisation and Community Participation*																		
Target	Mobilisation and awareness building																		
	Formation and capacity building of CBOs and interest groups,																		
6-10 CBOs: year 1	Sentisation of land use, environmental management and gender																		
30 Sub-committees: Year 2	Provide intensive re-training and capacity development,.																		
3 Business centres: Year 3	Provision of training in community-based project planning, implementation, monitoring and management including financial management.																		
CIF: Year 2	Development of community land use management plans and WM&D interventions																		
CBO management Training days: 150	Land registration, settlement of disputes																		
Population trained in business centres: 1000 (35 sessions 5 da	Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality																		
	Form Sub Management Committee																		
	Skills training as explained under each IWRM Interventions sub-component																		
	Awareness building of available Financial mechanisms for micro-finance, micro-loans and micro-grants systems																		
	Financial mechanisms for the CIF including micro-finance, micro-loans and micro-grants systems																		
	Development of business centres																		
	Assessment of CBOs and review of progress																		
COMPONENT 3	**Integrated Watershed Management and Development**																		
3.a	*Water Develoment*																		
Target	Survey study																		
	Detailed water resources assessment																		
6 -10 communities	Ground water mapping studies i.e geophysical investigations (geo-electric surveys)																		
	Training of extension officers in terms of setting clear criteria for siting, design and construction, adherence to cost recovery of O&M, water pricing and						Waterpoints pasture				Intake/ outtake Adarma				Waterpoints pasture				
Population with imroved access to water: 10 000 - 15 000	devolution of management of water facilities to communities																		
	Formation of Sub Committee and selection of chairpersor																		
Weir and river in-take and out lets for Adarma scheemes	Demarcate the land, settled contribution, ownership and O&M aspects.						Boreholes								Boreholes				
50 Shallow wells	Preparation of tripartite agreement between, beneficiary organisation, the project and the Localit																		
12 Deep boreholes	Feasibility studies, desigr						Shallow Wells						Shallow Wells						
Training: 25 sessions 2 days for 30 participants	Procurement of works etc																		
	Construction and supervisior																		
	Training of beneficiaries on O&M and health aspects																		
	Hand-over to communities or joint committees (Locality and communities)																		
	Infrastructure assessment and review of progress																		
3.b	*Agricultural intensification and diversification*																		
Targets	Capacity Builidng of Agricultural Extension Officers																		
6 -10 communities	Development of Intensive Agricultural Systems/technology packages																		
	Formation of Sub Committee and selection of chairpersons																		
Population with imroved irrigation: 10 000	Demarcation of land, settlement of disputes, land distribution and registration																		
Feddans per familiy: 5	Preparation of tripartite agreement between, beneficiary organisation, the project management and the Locality authorities																		
People trained: 3000	Undertake field surveys and design of the projects.																		
Cropland irrigated with improved agricultural technologies	Layout and construction of diversion canals, drilling of boreholes and other structures for water distribution.																		
Zone 2: 35,000 feddans Adarma scheme	Design of project management on commercial basis.																		
Zone 3: 15,000 feddans Lablala scheme	Design of cropping systems fully intensified and diversified with appropriate consideration of integration of livestock and forestry in the systems.																		
	Organization of extension programmes around demonstration plots in each community through the already existing "farmers schools" to disseminate t																		
	farmers the new agricultural systems and technological package for raising yields of crops. Tecknology packages include new type of crops and farming																		
100 sessions by 5 days for 30 attendants	techniques and inputs.																		
30 sessions per year	Provision of agricultural services and support (improved seeds, fertilizers, pest monitoring etc)																		
	Monitoring crops performances and follow-up of production systems.																		
	Improve harvesting, storage, processing, distribution and marketing of products at local and national levels.																		
	Crop assessment and review of progress																		
3.c	*Reseeding of wadis in Lower Atbara*																		
Targets																			
Population with improved dryland farming : 5000	Community mobilisation																		
Dryland per family: 10 feddans	Establishment of a Project Working Group -involve in the project implementation all the Directorates of the Ministry of Agriculture, Animal Health and Irrigation																		
50,000 feddans of dry land farming in wadis (10 feddans per fa	Preparation of tripartite agreement between, beneficiary organisations, the project management and the Locality authorities																		
	Demarcation of land.																		
Population with access to improved rangeland: 5 000-10 000	Local authorities to register lands, settle disputes, demarkate crop land and grazing land, and allocate them to beneficiaries.																		
50,000 feddans of improved pastures (for about 17,000 animal	Organize extension programmes through the already existing "farmers schools" to disseminate to farmers the new agricultural systems and technological package for raising yields of sorghum and other crops.																		
	Provide agricultural services (land preparation, improved seeds, fertilizers, pesticides etc.).																		
50 sessions by 5 days for 30 attendants	Monitor crops performances and follow-up of production systems.																		
	Improve harvesting, storage, processing, distribution and marketing of products at local and national levels.																		
	Provide Veterinary services (vaccines, artificial insemination etc.).																		
	Capacity Building of Livestock Extension Service																		
	Capacity Building and Training of Pastoralists																		
	Selection of areas for pasture imporvement																		
	Preparation of Exclosures and water harvesting structures																		
	Reseeding and protection of seedlings																		
	Development of Watering Points																		
	Veterinary Support																		
	Crop assessment and review of progress																		

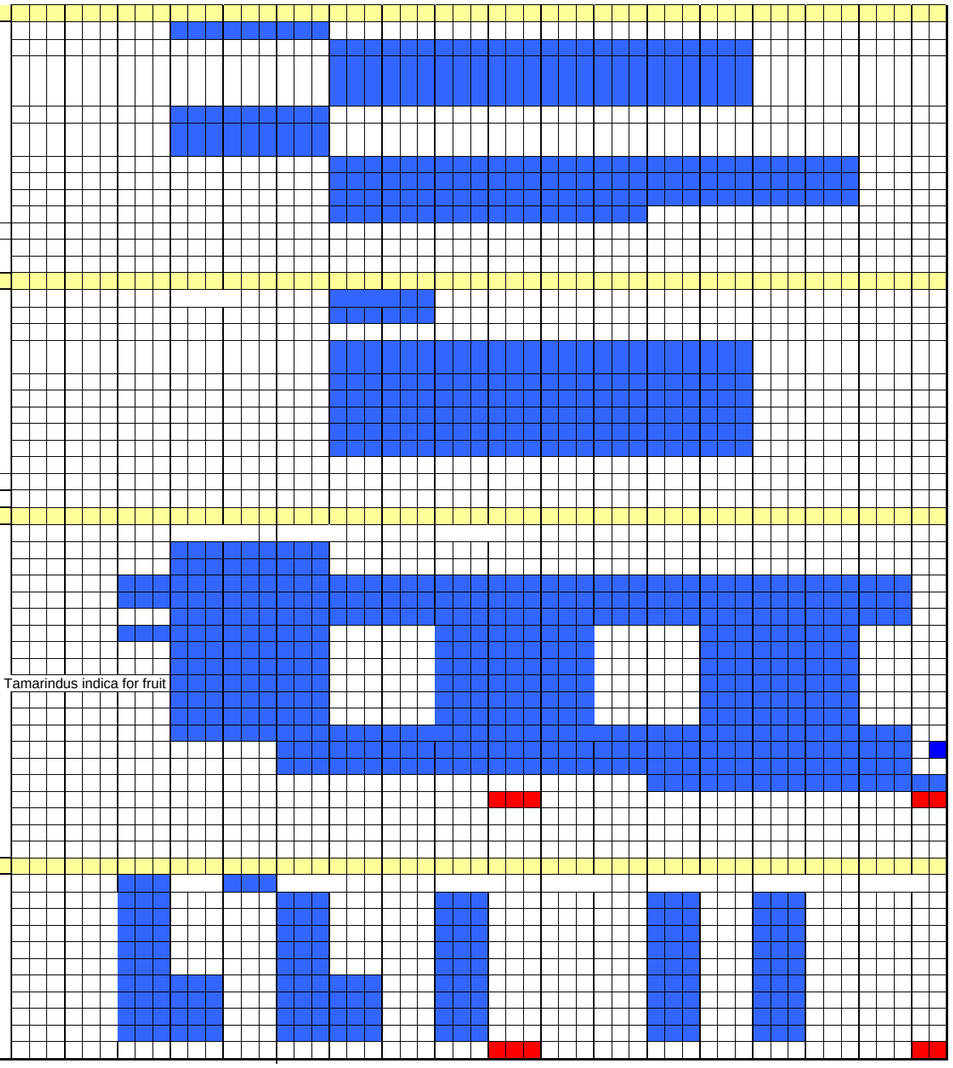
3.d.1	*Homestead plantations and shelterbeds in Lower Atbara*	
Target Households with homestead plantation: 400 Villages with Shelterbeds: 6 6 Community nurseries established 20 trees per household = 48 m2 Target total 400 household Total area in 2 ha in four years maximum Each village 1 km times 10 meter =1 ha per community per yea Total 25 ha shelter beds in 4 years	Formation of Sub Committee and selection of chairperson Conduct training in nursery, tree and shelterbed management to extension officers and Committee members Conduct training of community and women members in establishment, management and maintenance and income generating activities Promote collective marketing of products Supply superior quality seeds of indigenous trees of economic value for seedling production for homestead and shelterbelt plantations and broadcasting in reserve forest Supply seedlings and cuttings of improved exotic fruit trees (citrus and mangoes) for planting in homesteads Supply nursery and plantation tools Planning of annual plantation target Establish village nursery Raise seedlings for both homestead and shelterbelt plantations Planting of seedlings of the above indigenous trees and exotics fruits in private homesteads and institution compounds Tree protection and maintenance Managing harvesting of products from the trees and shrubs in homesteads Identification, mapping and demarcation of the location of the shelterbelt and design of shelterbelt plantation Installation of pump-well and pipe irrigation system Planting of seedlings of indigenous trees of economic value (in the long term supplied by the village women's nursery) Beating up of dead trees and shrubs Managing harvesting of products from shelterbelts Plantation assessment and review of progress	
3.d.2	*Reforestation and Joint forest management of reserve forest*	
Target Communities with Joint Forest Management: 3 30-35 ha per community Total 100 ha of protected area in 4 years	Production of legal document and/or improve enforcement mechanisms on regulations and restrictions Training of Committee members in reserve forest management and maintenance Training of community members in beekeeping and making modern beehives from locally available material to produce honey in the reserve forest Promotion of collective marketing of honey Inventory and mapping of the reserve forest Physical boundary and demarcation of the reserve forest Supply superior quality seedlings and cutting of indigenous tree species of high economic value Enrichment planting of degraded patches of the reserve forest by planting seedlings and cuttings of the above indigenous tree species Fire control and prevention Grazing control and prevention (regulation) Managing harvesting of products from the reserve forest Confiscation of illegal cuttings, arresting offenders and court proceedings Reserve forest assessment and review of progress	
3.e	*Alternative energy sources*	
Target Households using alternative energy sources: 600 households 150 households reached per year	Procurement of services from NGO and para-statal institutions Community mobilisation Conduct environmental awareness training to the community Assigning roles and responsibilities of the chairperson and Committee members of the above sub Committee Awareness raising of technology choises: capabilities, limitations, cost and maintenance requirements of systems Priorities set by beneficiaries in response to needs and linked with ongoing development, (preferably income -generating) activities Establish distribution channels, local availability of spare-parts and after sales services (trained manpower) Training and mobilising private companies Establish mechanisms for access to credits on suitable terms, especially by individuals Distribution and installation of unities Assessment of units and Review of progress	



FAST TRACK WATERSHED MANAGEMENT PROJECT IN SUDAN

FTWP SUDAN - WORK PLAN FOR DINDER PROJECT ACTIVITIES IN THE RHAD PROJECT AREA, GEDARIF STATE		YEAR																			
		2008				2009				2010				2011				2012			
COMPONENT	QUARTER	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2		
No.	ACTIVITY																				
COMPONENT 1	**Institutional Stengthening**																				
1.a	*Strengthening of Supporting Institutions*																				
Target 5 courses on 5 days: 25 days 30 days of Field visits and exchange visit 4 workshops : 50 pers	Local guidelines and procedures for integrated and participatory land use and environmental management in the cnext of DNP Facilitation of sustained strategic and participatory land use planning processes Capacitiy buildling (integrated land use planning; stakeholder participation and joint management; use of interactive maps and basic GIS; small dam design and supervision; financial accounting and management, micro-finance management, conflict resolution and gender sensitisation)																				
1.b	*Strengthening of Beneficiary Organisation and Community Participation*																				
Target 6-10 CBOs: year 1 30 Sub-committees: Year 2 3 Business centres: Year 3 CIF: Year 2 CBO management Training days: 150 Population trained in business centres: 1000 (35 sessions 5 day	Mobilisation and awareness building Formation and capacity building of CBOs and interest groups, Sensitisation of land use, environmental management and gender Provide intensive re-training and capacity development,. Provision of training in community-based project planning, implementation, monitoring and management including financial management. Development of community land use management plans and WM&D interventions Land registration, settlement of disputes Preparation of tripartite agreement between, beneficiary organisations, the project management and the Locality authorities Form Sub Management Committee Skills training as explained under each IWRM Interventions sub-component Awareness building of available Financial mechanisms for micro-finance, micro-loans and micro-grants systems Financial mechanisms for the CIF including micro-finance, micro-loans and micro-grants systems Development of business centres																				
COMPONENT 3	**Integrated Watershed Management and Development**																				
3.a	*Water Develoment*																				
Target 6 Communities along Rhad (3 on each side) Population with improved access to water: 3000 6 Dams* : 6000 people + irrigation 800 feddans Rehabilitation of 3 mayas	Training of extension officers in terms of setting clear criteria for siting, design and construction, adherence to cost recovery of O&M, water pricing and devolution of management of water facilities to communities Demarcate the land, settled contribution, ownership and O&M aspects. Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality Feasibility studies, design, Procurement of works and goods, Construction and supervision Training of beneficiaries on O&M Hand-over to communities or joint mgt committees (Locality and Community)																				
3.b	*Agricultural intensification and diversification*																				
Target 6 Communities along Rhad (3 on each side) Households with imroved irrigation: 160 Feddans per familiy: 5 400 ha (800 feddans) Cropland irrigated with improved agricultu People trained: 300 20 sessions by 5 days	Capacity Builidng of Agricultural Extension Officers Development of Intensive Agricultural Models/technology packages Formation of Sub Committee and selection of chairperson Demarcation of land, Land registration, settlement of disputes Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality Undertake field surveys and design of the projects. Layout and construction of diversion canals, drilling of boreholes and other structures for water distribution. Design of project management on commercial basis. Design of cropping system fully intensified and diversified with appropriate consideration of integration of livestock in the system. Organization of extension programmes through the already existing "farmers schools" to disseminate to farmers the new agricultural systems and technological package for raising yields of crops. Provision of agricultural services and support (improved seeds, pest monitoring etc) Monitoring crops performances and follow-up of production systems. Improve harvesting, storage, processing, distribution and marketing of products at local and national levels. Crop assessment and review of progress																				

3.c	*Improvement of rangelands and regulation of animal routes*	
Target 6 areas will be of 500ha (1000 feddans) each and be close to cattle watering points established by participating villages. Total 6000 feddans 2 new wateryards will be developed in land provided by each village for grazing total 12 water yards	Assist in reviewing and improving the animal migration routes. Promote planting trees along animal routes for shade and browse. (e.g trough the private forestry component) Assist in establishment of drinking water points, and camps for resting and veterinary services (vaccination and artificial insemination). Assist authorities in the elaboration of a land-use plan for the Gedrif State. Strengthen the capacity of relevant local institutions and supporting stakeholders to efficiently, effectively and sustainably utilize improved rangelands. Conduct training of pastoralists and their families to adopt technologies to help them process livestock products into value added products. Assist in organizing campaigns to eradicate livestock diseases and parasites. Assist in improving the carrying capacity of rangelands by reseeding them with high nutritive value leguminous fodder plants Protection of grazing area	
3.d.1	*Private forestry*	
Target Each large scale farmer to establish 10 % tree cover on plots	Conduct training in environmental awareness to mechanised farmers Formation of Mechanised Farmers Plantation Management Committee and selection of chairperson Assigning roles and responsibilities of the chairperson and Committee members Training of mechanised farmers or their representatives in tree planting, management and maintenance Supply of superior quality seedlings and cuttings of indigenous trees of economic value, recommended species are: Acacia senegal, A. seyal, etc Identification of locations for plantations on each mechanised farm Planning of annual plantation target Tree protection and maintenance Managing harvesting of products from plantations Plantation assessment and review of progress	
3.d.2	*Community forests*	
Target Total 150 ha of community forests in 4 years	Production of legal document on regulations and restrictions Set up a development fund for tree planting activities Training of Committee members in nursery and plantation management and maintenance Training farmers in improved methods of gum arabic tapping Support the Committee to establish strong direct links to high-value and export markets for non-timber products of indigenous tree species Identification of the location for the community forest plantation Physical boundary and demarcation of the area of the community forest plantation Planning of annual plantation target Supply superior quality seeds of indigenous trees of economic value, recommended species are Acacia senegal for gum, Balanites aegyptiaca for fruit and Tamarindus indica for fruit Supply nursery and plantation tools Village nursery establishment Raising seedlings of the above indigenous trees Planting of seedlings of the above indigenous trees Tree protection and maintenance Managing harvesting of products from plantations Plantation assessment and review of progress	
3.e	*Alternative energy sources*	
Target Households using alternative energy sources: 600 households) 150 households reached per year	Procurement of services from NGO and para-statal institutions Community mobilisation Conduct environmental awareness training to the community Assigning roles and responsibilities of the chairperson and Committee members of the above sub Committee Awareness raising of technology choises: capabilities, limitations, cost and maintenance requirements of systems Priorities set by beneficiaries in response to needs and linked with ongoing development, (preferably income -generating) activities Establish distribution channels, local availability of spare-parts and after sales services (trained manpower) Training and mobilising private companies Establish mechanisms for access to credits on suitable terms, especially by individuals Distribution and installation of unities	



Project

*The Dam should have the capacity to extend the growing season by at least three months on an area of 400ha. In addition they should supply water for 1000 LAU equivalent throughout the year as well as 50(

*It is estimated that each scheme will require 20km of irrigation pipe and that there should be 40 raised tanks per scheme

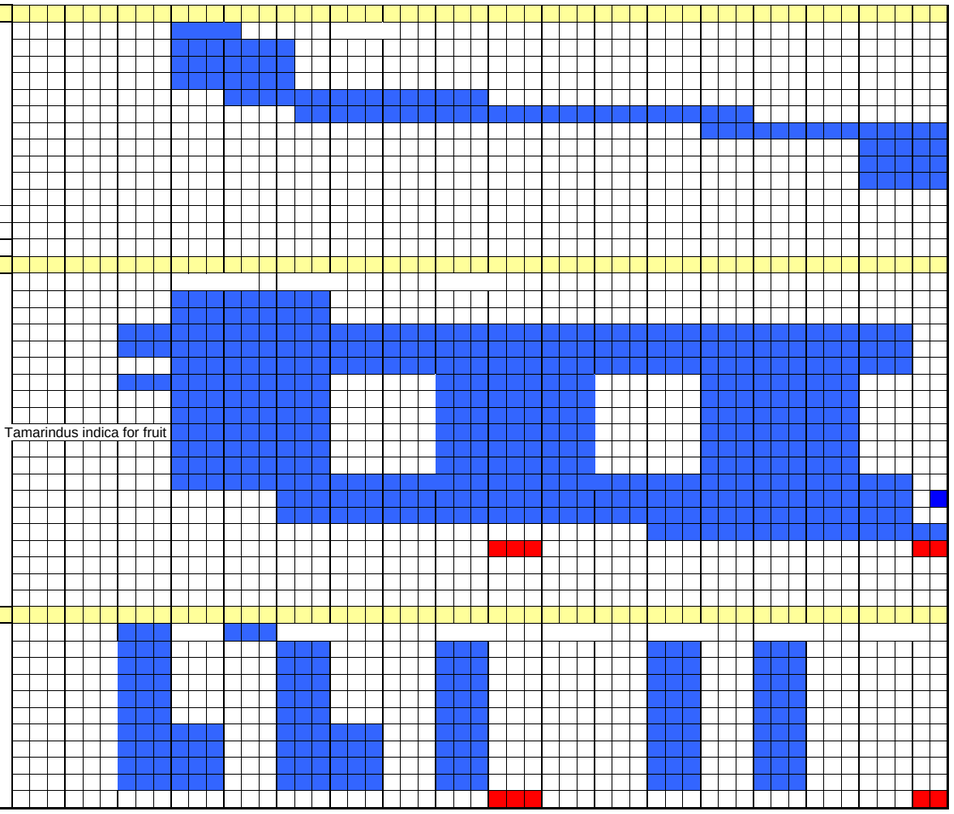
FAST TRACK WATERSHED MANAGEMENT PROJECT IN SUDAN

FTWP SUDAN - WORK PLAN FOR DINDER PROJECT ACTIVITIES IN THE NATIONAL PARK AND DINDER LOCALITY, SENNAR STATE

YEAR

COMPONENT	QUARTER	2008				2009				2010				2011				2012	
No.	ACTIVITY	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
COMPONENT 1	**Institutional Stengthening**																		
1.a	*Strengthening of Supporting Institutions*																		
Target 10 courses on 10 days: 100 days 4 workshops : 50 pers 30 days of Field visits and exchange visit	Capacity building for Dinder National Park, management systems will be strengthened and training will be provided in stakeholder dialogue, park administration, wildlife management, vegetation management, park security, tourism etc Capacitity buildling at Locality level (integrated land use planning; stakeholder participation and joint management; use of interactive maps and basic GIS; small dam design and supervision; financial accounting and management, micro-finance management, conflict resolution and gender sensitisation) Local guidelines and procedures for integrated and participatory land use and environmental management in the context of DNP																		
1.b	*Strengthening of Beneficiary Organisation and Community Participation*																		
Target 2 CBOs and 4-5 sub-committees: year 1 CIF: Year 2 CBO management Training days: 150	Mobilisation and awareness building Formation and capacity building of CBOs and interest groups, Sentisation of land use, environmental management and gender Provide intensive re-training and capacity development,. Provision of training in community-based project planning, implementation, monitoring and management including financial management. Development of community land use management plans and WM&D interventions Land registration, settlement of disputes Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality Form Sub Management Committee Skills training as explained under each IWRM Interventions sub-component Awareness building of available Financial mechanisms for micro-finance, micro-loans and micro-grants systems Financial mechanisms for the CIF including micro-finance, micro-loans and micro-grants systems Development of business centres																		
COMPONENT 3	**Integrated Watershed Management and Development**																		
3.a	*Water Develoment*																		
Target One hafir and 4 wateryards Rehabilitation of 3 mayas in the park itself	Training of extension officers in terms of setting clear criteria for siting, design and construction, adherence to cost recovery of O&M, water pricing and devolution of management of water facilities to communities Demarcate the land, settled contribution, ownership and O&M aspects. Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality Feasibility studies, design, Procurement of works and goods, Construction and supervision Training of beneficiaries on O&M Hand-over to communities or joint mgt committees (Locality and Community)																		
3.c	*Improvement of rangelands and regulation of animal routes*																		
Target 2000ha (4740 feddans) in Sennar State One hafir and 4 wateryards as described under the water component	Assist in reviewing and improving the animal migration routes. Promote planting trees along animal routes for shade and browse. (e.g through the private forestry component) Assist in establishment of drinking water points, and camps for resting and veterinary services (vaccination and artificial insemination). Assist authorities in the elaboration of a land-use plan for the Sennar State. Strengthen the capacity of relevant local institutions and supporting stakeholders to efficiently, effectively and sustainably utilize improved rangelands. Conduct training of pastoralists and their families to adopt technologies to help them process livestock products into value added products. Assist in organizing campaigns to eradicate livestock diseases and parasites. Assist in improving the carrying capacity of rangelands by reseeding them with high nutritive value leguminous fodder plants Protection of grazing area																		

3.d.1	*Reforestation and joint management of reserve forests: Sennar+ Dinder (+ possibly Gedrif)*	
Target Sennar 5000ha of reforestation on the park boundary area. Dinder 4000ha of reforestation (Gedaref 5000ha of reforestation)	Conduct training in forestry management (Park staff, Locality and communities) Framework agreement for forestry protection and management and demarcation Identification of locations for plantations within and outside the Park Planning of annual plantation target Aerial seeding for the acacia seyal and senegal Protect reseeded areas from grazing (jointly community+ locality) Tree protection and maintenance Training forest managers outside the park in improved methods of gum arabic tapping Managing harvesting of products from plantations Plantation assessment and review of progress	
3.d.2	*Community forests*	
Target Total 150 Ha of community forests in 4 years	Production of legal document on regulations and restrictions Set up a development fund for tree planting activities Training of Committee members in nursery and plantation management and maintenance Training farmers in improved methods of gum arabic tapping Support the Committee to establish strong direct links to high-value and export markets for non-timber products of indigenous tree species Identification of the location for the community forest plantation Physical boundary and demarcation of the area of the community forest plantation Planning of annual plantation target Supply superior quality seeds of indigenous trees of economic value, recommended species are Acacia senegal for gum, Balanites aegyptiaca for fruit and Tamarindus indica for fruit Supply nursery and plantation tools Village nursery establishment Raising seedlings of the above indigenous trees Planting of seedlings of the above indigenous trees Tree protection and maintenance Managing harvesting of products from plantations Plantation assessment and review of progress	
3.e	*Alternative energy sources*	
Target Households using alternative energy sources: 600 households) 150 households reached per year	Procurement of services from NGO and para-statal institutions Community mobilisation Conduct environmental awareness training to the community Assigning roles and responsibilities of the chairperson and Committee members of the above sub Committee Awareness raising of technology choises: capabilities, limitations, cost and maintenance requirements of systems Priorities set by beneficiaries in response to needs and linked with ongoing development, (preferably income -generating) activities Establish distribution channels, local availability of spare-parts and after sales services (trained manpower) Training and mobilising private companies Establish mechanisms for access to credits on suitable terms, especially by individuals Distribution and installation of unities	



Project

FAST TRACK WATERSHED MANAGEMENT PROJECT IN SUDAN

FTWP SUDAN - WORK PLAN FOR DINDER PROJECT ACTIVITIES IN THE ROSARIES LOCALITY, BLUE NILE STATE

YEAR

COMPONENT	QUARTER	2008				2009				2010				2011				2012	
No.	ACTIVITY	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
COMPONENT 1	**Institutional Stengthening**																		
1.a	*Strengthening of Supporting Institutions*																		
Target 5 courses on 5 days: 25 days 30 days of Field visits and exchange visit	Local guidelines and procedures for participatory land use planning in the conext of DNP Facilitation of sustained strategic and participatory land use planning processes Development of land use plans Capacitity buildling (integrated land use planning; stakeholder participation and joint management; use of interactive maps and basic GIS; small dam design and supervision; financial accounting and management, micro-finance management, conflict resolution and gender sensitisation)																		
1.b	*Strengthening of Beneficiary Organisation and Community Participation*																		
Target Magano and Kadalu CBOs strengthened	Mobilisation and awareness building Formation and capacity building of CBOs and interest groups, Sentisation of land use, environmental management and gender Provision of training in community-based project planning, implementation, monitoring and management including financial management. Development of community land use management plans and WM&D interventions Land registration, settlement of disputes Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality Form Sub Management Committee Awareness building of available Financial mechanisms for micro-finance, micro-loans and micro-grants systems																		
COMPONENT 3	**Integrated Watershed Management and Development**																		
3.a	*Water Develoment*																		
Target ***Magano*** Population with imroved access to water: 450 Rain water harvesting structures at Magano (collection surfaces, storage facilities, 3 pumps) for small village at the foot of rock outcrop	*Magano-water harvesting at the foot of the rock outcrop* Demarcate the land, settled contribution, ownership and O&M aspects. Preparation of tripartite agreement Feasibility studies, design Procurement of works and goods, Construction and supervision Training of beneficiaries on O&M and health aspects Hand-over to communities or joint committees (Locality and Community)																		
3.d	*Joint forest management of reserve forest*																		
Target ***Kadalu*** Population 10 000 Total 100 ha of joint forest management	Formation of Forest Management Committee and selection of chairperson Assigning roles and responsibilities of the chairperson and members of the Committee Production of legal document on regulations and restrictions Training of Committee members in reserve forest management and maintenance Training of local community members in Boswellia incense tapping Support the Committee to establish strong direct links to high-value and export markets for non-timber products of indigenous tree species Inventory and mapping of the reserve forest Physical boundary and demarcation of the reserve forest Supply superior quality seedlings and cutting of indigenous tree species of high economic value, recommended tree species are Adansonia digitata, Tamarindus indica, and Boswellia paperyfera Enrichment planting of degraded patches of the reserve forest by planting seedlings and cuttings of the above indigenous tree species Fire control and prevention Grazing control and prevention Managing harvesting of products from the reserve forest Confiscation of illegal cuttings, arresting offenders and court proceedings Reserve forest assessment and review of progress																		
3.e	*Alternative energy sources*																		
Target ***Magano and Kadalu*** Magano and Kadalu households using alternative energy sources	Procurement of services from NGO and para-statal institutions Community mobilisation Conduct environmental awareness training to the community Assigning roles and responsibilities of the chairperson and Committee members of the above sub Committee Awareness raising of technology choises: capabilities, limitations, cost and maintenance requirements of systems Priorities set by beneficiaries in response to needs and linked with ongoing development, (preferably income -generating) activities Establish distribution channels, local availability of spare-parts and after sales services (trained manpower) Training and mobilising private companies Establish mechanisms for access to credits on suitable terms, especially by individuals Distribution and installation of unities																		

FAST TRACK WATERSHED MANAGEMENT PROJECT IN SUDAN

FTWP SUDAN - WORK PLAN FOR BAU LOCALITY

YEAR

COMPONENT	QUARTER	2008				2009				2010				2011				2012	
No.	ACTIVITY	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
COMPONENT 1	**Institutional Stengthening**																		
1.a	*Strengthening of Supporting Institutions*																		
Target 10 courses on 10 days: 100 days 4 workshops : 50 pers 30 days of field visits and exchange visit	Local guidelines and procedures for integrated and participatory land use and environmental management at Locality Facilitation of sustained strategic and participatory land use planning processes Refined Locality and baseline mapping Development of land use plans Enhancement of financial monitoring and accounting system Capacitiy buildling (integrated land use planning; stakeholder participation and joint management; use of interactive maps and basic GIS; small dam design and supervision; financial accounting and management, micro-finance management, conflict resolution and gender sensitisation)																		
1.b	*Strengthening of Beneficiary Organisation and Community Participation*																		
Target 15 CBOs: year 1+2 50 Sub-committees: Year 2+3 3 Business centres: Year 3 CIF: Year 2 CBO management Training sessions: 300 days Population trained in business centres: 1000 (35 sessions 5 days 3	Mobilisation and awareness building Formation and capacity building of CBOs and interest groups, Sentisation of land use, environmental management and gender Provide intensive re-training and capacity development,. Provision of training in community-based project planning, implementation, monitoring and management including financial management. Development of community land use management plans and WM&D interventions Land registration, settlement of disputes Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality Form Sub Management Committee Skills training as explained under each IWRM Interventions sub-component Awareness building of available Financial mechanisms for micro-finance, micro-loans and micro-grants systems Financial mechanisms for the CIF including micro-finance, micro-loans and micro-grants systems Development of business centres																		
COMPONENT 3	**Integrated Watershed Management and Development**																		
3.a	*Water Develoment*																		
Target Population with improved access to water: 60 000 BAU 3 Small dams (<15m high, capacity 0,5-1M m3 each) including diversion structures (not canals) for 25 000 beneficiaries: Year 3-4 5 + 5 (at rangelands) Micro-dams/pans/'hafirs' construction/rehabilitation for 20 000 beneficiaries: Year 2-3 20 sub-units of Ground water dams/sand dams (sub-surface dams + 25 bore holes +small pumps) on One wadi for 7 000 6 Rain water harvesting structures (collection surfaces, storage facilities, 35 pumps) for small villages at the foot of rock outcrop for 8 000 beneficiaries: Year 1-2	Detailed water resources assessment Extended ground water mapping studies i.e geophysical investigations (geo-electric surveys) Training of extension officers in terms of setting clear criteria for siting, design and construction, adherence to cost recovery of O&M, water pricing and devolution of management of water facilities to communities Demarcate the land, settled contribution, ownership and O&M aspects. Preparation of tripartite agreement ***Bau water harvesting at the foot of the rock outcrop*** Feasibility studies, design Procurement of works and goods, Construction and supervision ***Ground water dams/sand dams*** Feasibility studies, design Procurement of works and goods, Construction and supervision ***Hafirs*** Feasibility studies, design Procurement of works and goods, Construction and supervision ***Small dams*** Feasibility studies, design Procurement of works and goods, Construction and supervision Training of beneficiaries on O&M and health aspects Hand-over to communities or joint committees (Locality and Community)																		
3.b	*Agricultural intensification and diversification*																		
Target Families with imroved irrigation: 10 000 Feddans per familiy: 5 50 000 Cropland irrigated with improved agricultural technologies Families with improved rain-fed farming : 10 000 Dryland feddans per family: 10 feddans 100,000 feddans with improved rainfed farming People trained: 5000 160 sessions by 5 days for 30-35 attendants	Capacity Builidng of Agricultural Extension Officers Development of Intensive Agricultural Systems/technology packages Formation of Sub Committees and selection of chairpersons Demarcation of land, land registration, settlement of disputes Preparation of tripartite agreement between, beneficiary organisation, the project managementand the Locality authorities Undertake field surveys and design of the projects. Layout and construction of diversion canals, drilling of boreholes and other structures for water distribution. Design of project management on commercial basis. Design of cropping system fully intensified and diversified with appropriate consideration of integration of livestock in the system. Organization of extension programmes around demonstration plots in each community through the already existing "farmers schools" to disseminate to farmers the new agricultural systems and technological package for raising yields of crops. Tecknology packages include new type of crops and farming techniques and inputs. Provision of agricultural services and support (improved seeds, fertilizers, pest monitoring etc) Monitoring crops performances and follow-up of production systems. Improve harvesting, storage, processing, distribution and marketing of products at local and national levels. Crop assessment and review of progress																		

3.c	*Improvement of rangelands and regulation of animal routes*	
Target 6,000 feddans of improved pastures 6 areas will be of 500ha (1000 feddans) each and be close to cattle watering points established by participating villages 2 new wateryards will be developed in land provided by each village for grazing total 12 water yards	Assist in reviewing and improving the animal migration routes. Promote planting trees along animal routes for shade and browse.(e.g trough the private forestry component) Assist in establishment of drinking water points, and camps for resting and veterinary services (vaccination and artificial insemination). Assist authorities in the elaboration of a land-use plan for the Bau/Blue Nile State. Strengthen the capacity of relevant local institutions and supporting stakeholders to efficiently, effectively and sustainably utilize improved rangelands. Conduct training of pastoralists and their families to adopt technologies to help them process livestock products into value added products. Assist in organizing campaigns to eradicate livestock diseases and parasites. Assist in improving the carrying capacity of rangelands by reseeding them with high nutritive value leguminous fodder plants	
3.d.1	*Private forestry*	
Target Each large scale farmer to establish 10 % tree cover on plots	Conduct training in environmental awareness to mechanised farmers Formation of sub Committee with Mechanised Farmers Union Training of mechanised farmers or their representatives in tree planting, management and maintenance Supply of superior quality seedlings and cuttings of indigenous trees of economic value, recommended species are: Acacia senegal, A. seyal, etc Identification of locations for plantations on each mechanised farm Planning of annual plantation target Tree protection and maintenance Managing harvesting of products from plantations Plantation assessment and review of progress	
3.d.2	*Community forests*	
Target Total 150 ha of community forests in 4 years	Production of legal document on regulations and restrictions Set up a development fund for tree planting activities Training of Committee members in nursery and plantation management and maintenance Training farmers in improved methods of gum arabic tapping Support the Committee to establish strong direct links to high-value and export markets for non-timber products of indigenous tree species Identification of the location for the community forest plantation Physical boundary and demarcation of the area of the community forest plantation Planning of annual plantation target Supply superior quality seeds of indigenous trees of economic value, recommended species are Acacia senegal for gum, Balanites aegyptiaca for fruit and Tamarindus indica for fruit Supply nursery and plantation tools Village nursery establishment Raising seedlings of the above indigenous trees Planting of seedlings of the above indigenous trees Tree protection and maintenance Managing harvesting of products from plantations Plantation assessment and review of progress	
3.d.3	*Joint forest management of reserve forest*	
Target Total 300 ha of protected area in 4 years	Formation of Forest Management Committee and selection of chairperson Assigning roles and responsibilities of the chairperson and members of the Committee Production of legal document on regulations and restrictions Training of Committee members in reserve forest management and maintenance Training of local community members in Boswellia incense tapping Support the Committee to establish strong direct links to high-value and export markets for non-timber products of indigenous tree species Inventory and mapping of the reserve forest Physical boundary and demarcation of the reserve forest Supply superior quality seedlings and cutting of indigenous tree species of high economic value, recommended tree species are Adansonia digitata, Tamarindus indica, and Boswellia paperyfera Enrichment planting of degraded patches of the reserve forest by planting seedlings and cuttings of the above indigenous tree species Fire control and prevention Grazing control and prevention Managing harvesting of products from the reserve forest Confiscation of illegal cuttings, arresting offenders and court proceedings Reserve forest assessment and review of progress	
3.e	*Alternative energy sources*	
Target Households using alternative energy sources: 800 200 households reached per year	Procurement of services from NGO and para-statal institutions Community mobilisation Conduct environmental awareness training to the community Assigning roles and responsibilities of the chairperson and Committee members of the above sub Committee Awareness raising of technology choises: capabilities, limitations, cost and maintenance requirements of systems Priorities set by beneficiaries in response to needs and linked with ongoing development, (preferably income -generating) activities Establish distribution channels, local availability of spare-parts and after sales services (trained manpower) Training and mobilising private companies Establish mechanisms for access to credits on suitable terms, especially by individuals Distribution and installation of unities	
3.f	*Small-holder mining management and mitigation*	
Target Target population is 1000 of Gugub Community	Establishing intersectoral Project Working Group to plan, monitor and manage relevant gold panning interventions in a coordinated way. Developing a Locality Strategy and Action Plan for Management and Mitigation of Gold Panning Formation, consolidation and training of small-scale miners committees or cooperatives Providing training for miners, local authorities, support agencies and enforcement personnel, in relevant legislation and policies, alternative technologies, aspects of environmental management and rehabilitation, health and social aspects, group mining practices, marketing and credit, and issuing and monitoring of licenses Promotion of alternative technologies for different mining activities Support for the development of alternative livelihood opportunities within forestry Identification of possible grant or micro financing opportunities	

18 MONTHS WORK PLAN

FTWP SUDAN - OVERALL PROJECT MANAGEMENT

	YEAR	2008				2009			
COMPONENT	QUARTER	1	2	3	4	1	2	3	4
No.	ACTIVITY								
PROJECT MANAGEMENT	**Project Start Up**								
	Recruitment of PC and LIU Managers by Lead Agency								
	Establish PSC								
	Project Implementation Agreement established between the Lead Agency and the State MAARIs								
	Initial staff orientation and training on project management and implementation procedures								
	PCU in collaboration with the LIUs will organize sensitization meetings of 2 days in each project area								
	Revise Operational Manual								
	Revise AWPB								
	Establish Financial Control System								
	Refine financial Instruments, loans, grants, large infrstructure finance systems								
	Refine ESMF								
	Draft Implementation Agreements and Project OM submitted for review to the Coordinating Agency								
	Local Project Management System Design And Recruitment								
	FTWP LIU established in Ed Damer Locality in River Nile State responsible for project implementation in Lower Atbara project area								
	FTWP LIU established in Bau Locality with responsibilities for project implementation in Bau								
	FTWP LIU established in DNP management unit with responsibilities to coordinate activities in the Park and in the three states surrounding the Dinder National Park								
	Establish LSCs								
	Project management and coordination of activities in conformity with AWPB, OM and ESMF								
	M&E Reporting								
	Preparation								
	Baseline study								
	Database design and development								
	Monitoring								
	Progress Reports Locality Level								
	Progress Reports national Project Level								
	Annual Work Plan and Budget Locality Level								
	Annual Work Plan and Budget National Poject Level								
	Annual Financial Reporting Locality Level								
	Annual Financial ReportingNational Project Level								
	Evaluation								
	Partcipatory impact assessment + workshops								
	Mid - term review								
	Project Completion Report								

Initial phase

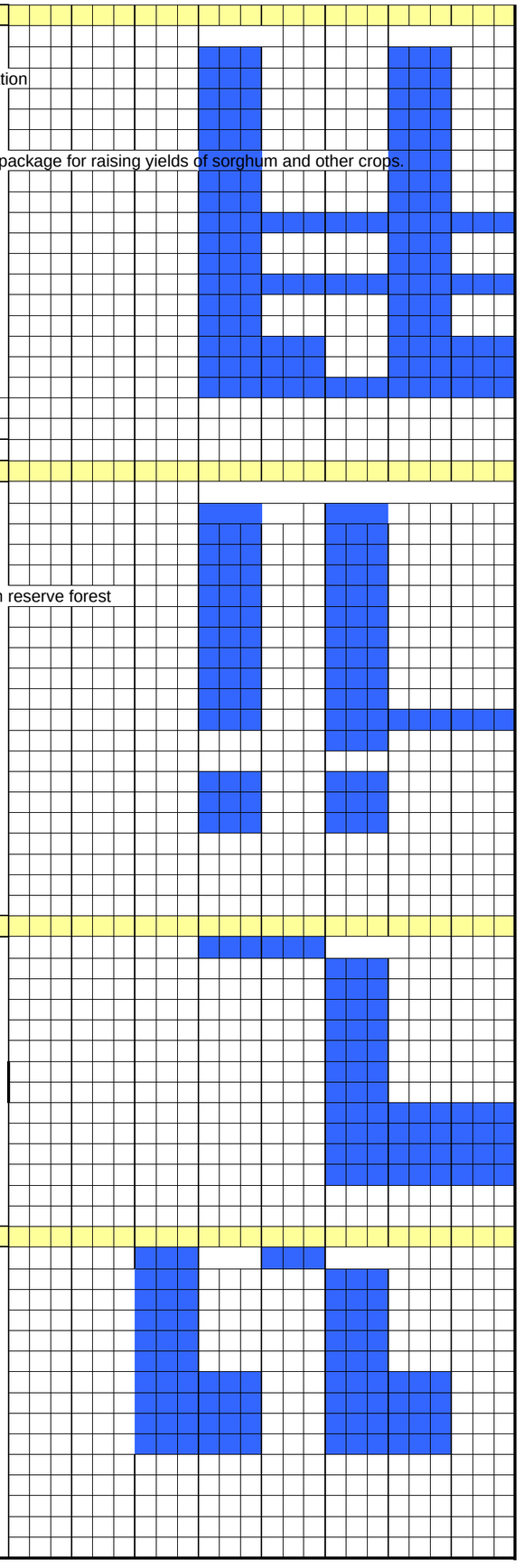
M&E Review activities

18 MONTHS WORK PLAN

FTWP SUDAN - WORK PLAN FOR LOWER ATBARA PROJECT AREA

		2008				2009			
COMPONENT	QUARTER	1	2	3	4	1	2	3	4
No.	ACTIVITY								
COMPONENT 1	**Institutional Stengthening**								
1.a	*Strengthening of Supporting Institutions*								
	Local guidelines and procedures for integrated and participatory land use and environmental management at Locality								
	Facilitation of sustained strategic and participatory land use planning processes								
	Refined Locality and baseline mapping								
	Development of land use plans								
	Enhancement of financial monitoring and accounting system								
	Capacitity buildling (integrated land use planning; stakeholder participation and joint management; use of interactive maps and basic GIS; small dam design and supervision; financial accounting and management, micro-finance management, conflict resolution and gender sensitisation)								
1.b	*Strengthening of Beneficiary Organisation and Community Participation*								
	Mobilisation and awareness building								
	Formation and capacity building of CBOs and interest groups,								
	Sentisation of land use, environmental management and gender								
	Provide intensive re-training and capacity development,.								
	Provision of training in community-based project planning, implementation, monitoring and management including financial management.								
	Development of community land use management plans and WM&D interventions								
	Land registration, settlement of disputes								
	Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality								
	Form Sub Management Committee								
	Skills training as explained under each IWRM Interventions sub-component								
	Awareness building of available Financial mechanisms for micro-finance, micro-loans and micro-grants systems								
	Financial mechanisms for the CIF including micro-finance, micro-loans and micro-grants systems								
	Development of business centres								
	Assessment of CBOs and review of progress								
COMPONENT 3	**Integrated Watershed Management and Development**								
3.a	*Water Develoment*								
	Survey study								
	Detailed water resources assessment								
	Ground water mapping studies i.e geophysical investigations (geo-electric surveys)								
	Training of extension officers in terms of setting clear criteria for siting, design and construction, adherence to cost recovery of O&M, water pricing and devolution of management of water facilities to communities						Waterpoints pasture		
	Formation of Sub Committee and selection of chairperson								
	Demarcate the land, settled contribution, ownership and O&M aspects.							Boreholes	
	Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality								
	Feasibility studies, design					Shallow Wells			
	Procurement of works etc								
	Construction and supervision								
	Training of beneficiaries on O&M and health aspects								
	Hand-over to communities or joint committees (Locality and communities)								
	Infrastructure assessment and review of progress								
3.b	*Agricultural intensification and diversification*								
	Capacity Builidng of Agricultural Extension Officers								
	Development of Intensive Agricultural Systems/technology packages								
	Formation of Sub Committee and selection of chairpersons								
	Demarcation of land, settlement of disputes, land distribution and registration								
	Preparation of tripartite agreement between, beneficiary organisation, the project management and the Locality authorities								
	Undertake field surveys and design of the projects.								
	Layout and construction of diversion canals, drilling of boreholes and other structures for water distribution.								
	Design of project management on commercial basis.								
	Design of cropping systems fully intensified and diversified with appropriate consideration of integration of livestock and forestry in the systems.								
	Organization of extension programmes around demonstration plots in each community through the already existing "farmers schools" to disseminate to farmers the new agricultural systems and technological package for raising yields of crops. Tecknology packages include new type of crops and farming techniques and inputs.								
	Provision of agricultural services and support (improved seeds, fertilizers, pest monitoring etc)								
	Monitoring crops performances and follow-up of production systems.								
	Improve harvesting, storage, processing, distribution and marketing of products at local and national levels.								
	Crop assessment and review of progress								

3.c	*Reseeding of wadis in Lower Atbara*
	Community mobilisation
	Establishment of a Project Working Group -involve in the project implementation all the Directorates of the Ministry of Agriculture, Animal Health and Irrigation
	Preparation of tripartite agreement between, beneficiary organisations, the project management and the Locality authorities
	Demarcation of land.
	Local authorities to register lands, settle disputes, demarkate crop land and grazing land, and allocate them to beneficiaries.
	Organize extension programmes through the already existing "farmers schools" to disseminate to farmers the new agricultural systems and technological package for raising yields of sorghum and other crops.
	Provide agricultural services (land preparation, improved seeds, fertilizers, pesticides etc.).
	Monitor crops performances and follow-up of production systems.
	Improve harvesting, storage, processing, distribution and marketing of products at local and national levels.
	Provide Veterinary services (vaccines, artificial insemination etc.).
	Capacity Building of Livestock Extension Service
	Capacity Building and Training of Pastoralists
	Selection of areas for pasture imporvement
	Preparation of Exclosures and water harvesting structures
	Reseeding and protection of seedlings
	Development of Watering Points
	Veterinary Support
	Crop assessment and review of progress
3.d	*Homestead plantations and shelterbeds in Lower Atbara*
	Formation of Sub Committee and selection of chairperson
	Conduct training in nursery, tree and shelterbed management to extension officers and Committee members
	Conduct training of community and women members in establishment, management and maintenance and income generating activities
	Promote collective marketing of products
	Supply superior quality seeds of indigenous trees of economic value for seedling production for homestead and shelterbelt plantations and broadcasting in reserve forest
	Supply seedlings and cuttings of improved exotic fruit trees (citrus and mangoes) for planting in homesteads
	Supply nursery and plantation tools
	Planning of annual plantation target
	Establish village nursery
	Raise seedlings for both homestead and shelterbelt plantations
	Planting of seedlings of the above indigenous trees and exotics fruits in private homesteads and institution compounds
	Tree protection and maintenance
	Managing harvesting of products from the trees and shrubs in homesteads
	Identification, mapping and demarcation of the location of the shelterbelt and design of shelterbelt plantation
	Installation of pump-well and pipe irrigation system
	Planting of seedlings of indigenous trees of economic value (in the long term supplied by the village women's nursery)
	Beating up of dead trees and shrubs
	Managing harvesting of products from shelterbelts
	Plantation assessment and review of progress
3.d.1	*Reforestation and Joint forest management of reserve forest*
	Production of legal document and/or improve enforcement mechanisms on regulations and restrictions
	Training of Committee members in reserve forest management and maintenance
	Training of community members in beekeeping and making modern beehives from locally available material to produce honey in the reserve forest
	Promotion of collective marketing of honey
	Inventory and mapping of the reserve forest
	Physical boundary and demarcation of the reserve forest
	Supply superior quality seedlings and cutting of indigenous tree species of high economic value
	Enrichment planting of degraded patches of the reserve forest by planting seedlings and cuttings of the above indigenous tree species
	Fire control and prevention
	Grazing control and prevention (regulation)
	Managing harvesting of products from the reserve forest
	Confiscation of illegal cuttings, arresting offenders and court proceedings
	Reserve forest assessment and review of progress
3.e	*Alternative energy sources*
	Procurement of services from NGO and para-statal institutions
	Community mobilisation
	Conduct environmental awareness training to the community
	Assigning roles and responsibilities of the chairperson and Committee members of the above sub Committee
	Awareness raising of technology choises: capabilities, limitations, cost and maintenance requirements of systems
	Priorities set by beneficiaries in response to needs and linked with ongoing development, (preferably income -generating) activities
	Establish distribution channels, local availability of spare-parts and after sales services (trained manpower)
	Training and mobilising private companies
	Establish mechanisms for access to credits on suitable terms, especially by individuals
	Distribution and installation of unities
	Assessment of units and Review of progress



18 MONTHS WORK PLAN

FTWP SUDAN - WORK PLAN FOR DINDER PROJECT ACTIVITIES IN THE RHAD PROJECT AREA, GEDARIF STATE

COMPONENT	QUARTER	YEAR 2008				2009			
No.	ACTIVITY	1	2	3	4	1	2	3	4
COMPONENT 1	**Institutional Stengthening**								
1.a	*Strengthening of Supporting Institutions*								
	Capacity building for Dinder National Park, management systems will be strengthened and training will be provided in stakeholder dialogue, park administration, wildlife management, vegetation management, park security, tourism etc				■	■	■	■	■
	Capacitity buildling at Locality level (integrated land use planning; stakeholder participation and joint management; use of interactive maps and basic GIS; small dam design and supervision; financial accounting and management, micro-finance management, conflict resolution and gender sensitisation				■	■	■	■	■
	Local guidelines and procedures for integrated and participatory land use and environmental management in the context of DNF				■	■	■	■	■
1.b	*Strengthening of Beneficiary Organisation and Community Participation*								
	Mobilisation and awareness building			■					
	Formation and capacity building of CBOs and interest groups,			■					
	Sensitisation of land use, environmental management and gender			■					
	Provide intensive re-training and capacity development,.			■					
	Provision of training in community-based project planning, implementation, monitoring and management including financial management.			■					
	Development of community land use management plans and WM&D interventions			■					
	Land registration, settlement of disputes			■					
	Preparation of tripartite agreement between, beneficiary organisations, the project management and the Locality authorities			■					
	Form Sub Management Committee			■					
	Skills training as explained under each IWRM Interventions sub-component				■	■	■	■	■
	Awareness building of available Financial mechanisms for micro-finance, micro-loans and micro-grants systems					■	■		
	Financial mechanisms for the CIF including micro-finance, micro-loans and micro-grants systems					■	■		
	Development of business centres							■	■
COMPONENT 3	**Integrated Watershed Management and Development**								
3.a	*Water Develoment*								
	Training of extension officers in terms of setting clear criteria for siting, design and construction, adherence to cost recovery of O&M, water pricing and devolution of management of water facilities to communities				■				
	Demarcate the land, settled contribution, ownership and O&M aspects.					■	■		
	Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality					■	■		
	Feasibility studies, design,					■	■	■	
	Procurement of works and goods, Construction and supervision							■	■
	Training of beneficiaries on O&M							■	■
	Hand-over to communities or joint mgt committees (Locality and Community)							■	■
3.b	*Agricultural intensification and diversification*								
	Capacity Builidng of Agricultural Extension Officers				■	■			
	Development of Intensive Agricultural Models/technology packages				■	■			
	Formation of Sub Committee and selection of chairperson				■	■	■	■	■
	Demarcation of land, Land registration, settlement of disputes					■	■	■	■
	Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality					■	■	■	■
	Undertake field surveys and design of the projects.					■	■	■	■
	Layout and construction of diversion canals, drilling of boreholes and other structures for water distribution.					■	■	■	■
	Design of project management on commercial basis.					■	■	■	■
	Design of cropping system fully intensified and diversified with appropriate consideration of integration of livestock in the system.					■	■	■	■
	Organization of extension programmes through the already existing "farmers schools" to disseminate to farmers the new agricultural systems and technological package for raising yields of crops.					■	■	■	■
	Provision of agricultural services and support (improved seeds, pest monitoring etc)					■	■	■	
	Monitoring crops performances and follow-up of production systems.							■	■
	Improve harvesting, storage, processing, distribution and marketing of products at local and national levels.							■	■
	Crop assessment and review of progress								
3.c	*Improvement of rangelands and regulation of animal routes*								
	Assist in reviewing and improving the animal migration routes.				■	■	■		
	Promote planting trees along animal routes for shade and browse. (e.g trough the private forestry component)							■	■

	Assist in establishment of drinking water points, and camps for resting and veterinary services (vaccination and artificial insemination).	
	Assist authorities in the elaboration of a land-use plan for the Gedrif State.	
	Strengthen the capacity of relevant local institutions and supporting stakeholders to efficiently, effectively and sustainably utilize improved rangelands.	
	Conduct training of pastoralists and their families to adopt technologies to help them process livestock products into value added products.	
	Assist in organizing campaigns to eradicate livestock diseases and parasites.	
	Assist in improving the carrying capacity of rangelands by reseeding them with high nutritive value leguminous fodder plants	
	Protection of grazing area	
3.d	*Private forestry*	
	Conduct training in environmental awareness to mechanised farmers	
	Formation of Mechanised Farmers Plantation Management Committee and selection of chairperson	
	Assigning roles and responsibilities of the chairperson and Committee members	
	Training of mechanised farmers or their representatives in tree planting, management and maintenance	
	Supply of superior quality seedlings and cuttings of indigenous trees of economic value, recommended species are: Acacia senegal, A. seyal, etc	
	Identification of locations for plantations on each mechanised farm	
	Planning of annual plantation target	
	Tree protection and maintenance	
	Managing harvesting of products from plantations	
	Plantation assessment and review of progress	
3.d.1	*Community forests*	
	Production of legal document on regulations and restrictions	
	Set up a development fund for tree planting activities	
	Training of Committee members in nursery and plantation management and maintenance	
	Training farmers in improved methods of gum arabic tapping	
	Support the Committee to establish strong direct links to high-value and export markets for non-timber products of indigenous tree species	
	Identification of the location for the community forest plantation	
	Physical boundary and demarcation of the area of the community forest plantation	
	Planning of annual plantation target	
	Supply superior quality seeds of indigenous trees of economic value, recommended species are Acacia senegal for gum, Balanites aegyptiaca for fruit and Tamarindus indica for fruit	
	Supply nursery and plantation tools	
	Village nursery establishment	
	Raising seedlings of the above indigenous trees	
	Planting of seedlings of the above indigenous trees	
	Tree protection and maintenance	
	Managing harvesting of products from plantations	
	Plantation assessment and review of progress	
3.e	*Alternative energy sources*	
	Procurement of services from NGO and para-statal institutions	
	Community mobilisation	
	Conduct environmental awareness training to the community	
	Assigning roles and responsibilities of the chairperson and Committee members of the above sub Committee	
	Awareness raising of technology choises: capabilities, limitations, cost and maintenance requirements of systems	
	Priorities set by beneficiaries in response to needs and linked with ongoing development, (preferably income -generating) activities	
	Establish distribution channels, local availability of spare-parts and after sales services (trained manpower)	
	Training and mobilising private companies	
	Establish mechanisms for access to credits on suitable terms, especially by individuals	
	Distribution and installation of unities	

*The Dam should have the capacity to extend the growing season by at least three months on an area of 400ha. In addition they should supply water for 1000 LAU equivalent throughout the year as well as 5(

*It is estimated that each scheme will require 20km of irrigation pipe and that there should be 40 raised tanks per scheme

18 MONTHS WORK PLAN

FTWP SUDAN - WORK PLAN FOR DINDER PROJECT ACTIVITIES IN THE NATIONAL PARK AND DINDER LOCALITY, SENNAR STATE

COMPONENT	QUARTER	YEAR 2008				2009			
No.	ACTIVITY	1	2	3	4	1	2	3	4
COMPONENT 1	**Institutional Stengthening**								
1.a	*Strengthening of Supporting Institutions*								
	Local guidelines and procedures for integrated and participatory land use and environmental management in the context of DNP				■	■			
	Facilitation of sustained strategic and participatory land use planning processes				■	■			
	Enhancement of financial monitoring and accounting system				■				
	Capacitity buildling at Locality level (integrated land use planning; stakeholder participation and joint management; use of interactive maps and basic GIS; small dam design and supervision; financial accounting and management, micro-finance management, conflict resolution and gender sensitisation				■	■	■	■	■
	Capacity building for Dinder National Park, management systems will be strengthened and training will be provided in park administration, wildlife management, vegetation management, park security, tourism etc				■	■	■	■	■
1.b	*Strengthening of Beneficiary Organisation and Community Participation*								
	Mobilisation and awareness building			■					
	Formation and capacity building of CBOs and interest groups,			■					
	Sentisation of land use, environmental management and gender			■					
	Provide intensive re-training and capacity development,.			■					
	Provision of training in community-based project planning, implementation, monitoring and management including financial management.			■					
	Development of community land use management plans and WM&D interventions			■					
	Land registration, settlement of disputes			■					
	Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality			■					
	Form Sub Management Committee			■					
	Skills training as explained under each IWRM Interventions sub-component				■	■	■	■	■
	Awareness building of available Financial mechanisms for micro-finance, micro-loans and micro-grants systems					■	■		
	Financial mechanisms for the CIF including micro-finance, micro-loans and micro-grants systems					■	■		
	Development of business centres							■	■
								■	■
								■	■
COMPONENT 3	**Integrated Watershed Management and Development**								
3.a	*Water Develoment*								
	Training of extension officers in terms of setting clear criteria for siting, design and construction, adherence to cost recovery of O&M, water pricing and devolution of management of water facilities to communities				■				
	Demarcate the land, settled contribution, ownership and O&M aspects.					■	■		
	Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality					■	■		
	Feasibility studies, design,					■	■	■	
	Procurement of works and goods, Construction and supervision						■	■	■
	Training of beneficiaries on O&M								■
	Hand-over to communities or joint mgt committees (Locality and Community)								■
3.c	*Improvement of rangelands and regulation of animal routes*								
	Assist in reviewing and improving the animal migration routes.				■	■	■	■	
	Promote planting trees along animal routes for shade and browse. (e.g through the private forestry component)							■	■
	Assist in establishment of drinking water points, and camps for resting and veterinary services (vaccination and artificial insemination).							■	■
	Assist authorities in the elaboration of a land-use plan for the Sennar State.				■	■	■	■	
	Strengthen the capacity of relevant local institutions and supporting stakeholders to efficiently, effectively and sustainably utilize improved rangelands.				■	■	■	■	
	Conduct training of pastoralists and their families to adopt technologies to help them process livestock products into value added products.							■	■
	Assist in organizing campaigns to eradicate livestock diseases and parasites.							■	■
	Assist in improving the carrying capacity of rangelands by reseeding them with high nutritive value leguminous fodder plants							■	■
	Protection of grazing area								
3.d	*Reforestation and joint management of reserve forests: Sennar+ Dinder (+ possibly Gedrif)*								
	Conduct training in forestry management (Park staff, Locality and communities)				■	■			
	Framework agreement for forestry protection and management and demarcation				■	■	■	■	
	Identification of locations for plantations within and outside the Park				■	■	■	■	
	Planning of annual plantation target				■	■	■	■	
	Aerial seeding for the acacia seyal and senegal					■	■	■	■
	Protect reseeded areas from grazing (jointly community+ locality)						■	■	■
	Tree protection and maintenance								

	Training forest managers outside the park in improved methods of gum arabic tapping	
	Managing harvesting of products from plantations	
	Plantation assessment and review of progress	
3.d.1	*Community forests*	
	Production of legal document on regulations and restrictions	
	Set up a development fund for tree planting activities	
	Training of Committee members in nursery and plantation management and maintenance	
	Training farmers in improved methods of gum arabic tapping	
	Support the Committee to establish strong direct links to high-value and export markets for non-timber products of indigenous tree species	
	Identification of the location for the community forest plantation	
	Physical boundary and demarcation of the area of the community forest plantation	
	Planning of annual plantation target	
	Supply superior quality seeds of indigenous trees of economic value, recommended species are Acacia senegal for gum, Balanites aegyptiaca for fruit and Tamarindus indica for fruit	
	Supply nursery and plantation tools	
	Village nursery establishment	
	Raising seedlings of the above indigenous trees	
	Planting of seedlings of the above indigenous trees	
	Tree protection and maintenance	
	Managing harvesting of products from plantations	
	Plantation assessment and review of progress	
3.e	*Alternative energy sources*	
	Procurement of services from NGO and para-statal institutions	
	Community mobilisation	
	Conduct environmental awareness training to the community	
	Assigning roles and responsibilities of the chairperson and Committee members of the above sub Committee	
	Awareness raising of technology choises: capabilities, limitations, cost and maintenance requirements of systems	
	Priorities set by beneficiaries in response to needs and linked with ongoing development, (preferably income -generating) activities	
	Establish distribution channels, local availability of spare-parts and after sales services (trained manpower)	
	Training and mobilising private companies	
	Establish mechanisms for access to credits on suitable terms, especially by individuals	
	Distribution and installation of unities	

18 MONTHS WORK PLAN												
FTWP SUDAN - WORK PLAN FOR DINDER PROJECT ACTIVITIES IN THE ROSARIES LOCALITY, BLUE NILE STATE												
YEAR		2008				2009						
COMPONENT	QUARTER	1	2	3	4	1	2	3	4			
No.	ACTIVITY											
COMPONENT 1	**Institutional Stengthening**											
1.a	*Strengthening of Supporting Institutions*											
	Local guidelines and procedures for participatory land use planning in the conext of DNP											
	Facilitation of sustained strategic and participatory land use planning processes											
	Development of land use plans											
	Capacitity buildling (integrated land use planning; stakeholder participation and joint management; use of interactive maps and basic GIS; small dam design and supervision; financial accounting and management, micro-finance management, conflict resolution and gender sensitisation)											
1.b	*Strengthening of Beneficiary Organisation and Community Participation*											
	Mobilisation and awareness building											
	Formation and capacity building of CBOs and interest groups,											
	Sentisation of land use, environmental management and gender											
	Provision of training in community-based project planning, implementation, monitoring and management including financial management.											
	Development of community land use management plans and WM&D interventions											
	Land registration, settlement of disputes											
	Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality											
	Form Sub Management Committee											
	Awareness building of available Financial mechanisms for micro-finance, micro-loans and micro-grants systems											
COMPONENT 3	**Integrated Watershed Management and Development**											
3.a	*Water Develoment*											
	Magano-water harvesting at the foot of the rock outcrop											
	Demarcate the land, settled contribution, ownership and O&M aspects.											
	Preparation of tripartite agreement											
	Feasibility studies, design											
	Procurement of works and goods, Construction and supervision											
	Training of beneficiaries on O&M and health aspects											
	Hand-over to communities or joint committees (Locality and Community)											

18 MONTHS WORK PLAN

FTWP SUDAN - WORK PLAN FOR BAU LOCALITY

YEAR

COMPONENT	QUARTER	2008 1	2	3	4	2009 1	2	3	4
No.	ACTIVITY								
COMPONENT 1	**Institutional Stengthening**								
1.a	*Strengthening of Supporting Institutions*								
	Local guidelines and procedures for integrated and participatory land use and environmental management at Locality				■	■			
	Facilitation of sustained strategic and participatory land use planning processes				■	■			
	Refined Locality and baseline mapping				■				
	Development of land use plans				■	■			
	Enhancement of financial monitoring and accounting system				■				
	Capacitity buildling (integrated land use planning; stakeholder participation and joint management; use of interactive maps and basic GIS; small dam design and supervision; financial accounting and management, micro-finance management, conflict resolution and gender sensitisation)				■	■	■	■	■
1.b	*Strengthening of Beneficiary Organisation and Community Participation*								
	Mobilisation and awareness building			■					
	Formation and capacity building of CBOs and interest groups,			■					
	Sentisation of land use, environmental management and gender			■					
	Provide intensive re-training and capacity development,.			■					
	Provision of training in community-based project planning, implementation, monitoring and management including financial management.			■					
	Development of community land use management plans and WM&D interventions			■					
	Land registration, settlement of disputes			■					
	Preparation of tripartite agreement between, beneficiary organisation, the project and the Locality			■					
	Form Sub Management Committee			■					
	Skills training as explained under each IWRM Interventions sub-component				■	■	■	■	■
	Awareness building of available Financial mechanisms for micro-finance, micro-loans and micro-grants systems					■			
	Financial mechanisms for the CIF including micro-finance, micro-loans and micro-grants systems					■			
	Development of business centres					■			
								■	■
COMPONENT 3	**Integrated Watershed Management and Development**								
3.a	*Water Develoment*								
	Detailed water resources assessment				■	■	■		
	Extended ground water mapping studies i.e geophysical investigations (geo-electric surveys)				■	■	■		
	Training of extension officers in terms of setting clear criteria for siting, design and construction, adherence to cost recovery of O&M, water pricing and devolution of management of water facilities to communities				■	■	■	■	■
	Demarcate the land, settled contribution, ownership and O&M aspects.			■	■	■	■	■	■
	Preparation of tripartite agreement				■	■	■	■	■
	Bau water harvesting at the foot of the rock outcrop								
	Feasibility studies, design				■				
	Procurement of works and goods, Construction and supervision					■	■	■	■
	Ground water dams/sand dams								
	Feasibility studies, design						■	■	■
	Procurement of works and goods, Construction and supervision								■
	Hafirs								
	Feasibility studies, design								■
	Procurement of works and goods, Construction and supervision								
	Small dams								
	Feasibility studies, design								
	Procurement of works and goods, Construction and supervision								
	Training of beneficiaries on O&M and health aspects				■	■	■	■	■
	Hand-over to communities or joint committees (Locality and Community)						■	■	■
3.b	*Agricultural intensification and diversification*								
	Capacity Builidng of Agricultural Extension Officers				■	■			
	Development of Intensive Agricultural Systems/technology packages				■	■			
	Formation of Sub Committees and selection of chairpersons				■	■	■		
	Demarcation of land, land registration, settlement of disputes					■	■	■	
	Preparation of tripartite agreement between, beneficiary organisation, the project managementand the Locality authorities					■	■	■	
	Undertake field surveys and design of the projects.					■	■	■	
	Layout and construction of diversion canals, drilling of boreholes and other structures for water distribution.					■	■	■	
	Design of project management on commercial basis.					■	■	■	
	Design of cropping system fully intensified and diversified with appropriate consideration of integration of livestock in the system.					■	■	■	
	Organization of extension programmes around demonstration plots in each community through the already existing "farmers schools" to disseminate to farmers the new agricultural systems and technological package for raising yields of crops. Tecknology packages include new type of crops and farming techniques and inputs					■	■	■	■
	Provision of agricultural services and support (improved seeds, fertilizers, pest monitoring etc)					■	■	■	
	Monitoring crops performances and follow-up of production systems.							■	■
	Improve harvesting, storage, processing, distribution and marketing of products at local and national levels.							■	■
	Crop assessment and review of progress								
3.c	*Improvement of rangelands and regulation of animal routes*								
	Assist in reviewing and improving the animal migration routes.				■	■	■		
	Promote planting trees along animal routes for shade and browse.(e.g trough the private forestry component)							■	■
	Assist in establishment of drinking water points, and camps for resting and veterinary services (vaccination and artificial insemination).							■	■
	Assist authorities in the elaboration of a land-use plan for the Bau/Blue Nile State.				■	■	■		

	Strengthen the capacity of relevant local institutions and supporting stakeholders to efficiently, effectively and sustainably utilize improved rangelands.
	Conduct training of pastoralists and their families to adopt technologies to help them process livestock products into value added products.
	Assist in organizing campaigns to eradicate livestock diseases and parasites.
	Assist in improving the carrying capacity of rangelands by reseeding them with high nutritive value leguminous fodder plants
3.d	*Private forestry*
	Conduct training in environmental awareness to mechanised farmers
	Formation of sub Committee with Mechanised Farmers Union
	Training of mechanised farmers or their representatives in tree planting, management and maintenance
	Supply of superior quality seedlings and cuttings of indigenous trees of economic value, recommended species are: Acacia senegal, A. seyal, etc
	Identification of locations for plantations on each mechanised farm
	Planning of annual plantation target
	Tree protection and maintenance
	Managing harvesting of products from plantations
	Plantation assessment and review of progress
3.d.1	*Community forests*
	Production of legal document on regulations and restrictions
	Set up a development fund for tree planting activities
	Training of Committee members in nursery and plantation management and maintenance
	Training farmers in improved methods of gum arabic tapping
	Support the Committee to establish strong direct links to high-value and export markets for non-timber products of indigenous tree species
	Identification of the location for the community forest plantation
	Physical boundary and demarcation of the area of the community forest plantation
	Planning of annual plantation target
	Supply superior quality seeds of indigenous trees of economic value, recommended species are Acacia senegal for gum, Balanites aegyptiaca for fruit and Tamarindus indica for fruit
	Supply nursery and plantation tools
	Village nursery establishment
	Raising seedlings of the above indigenous trees
	Planting of seedlings of the above indigenous trees
	Tree protection and maintenance
	Managing harvesting of products from plantations
	Plantation assessment and review of progress
3.d.2	*Joint forest management of reserve forest*
	Formation of Forest Management Committee and selection of chairperson
	Assigning roles and responsibilities of the chairperson and members of the Committee
	Production of legal document on regulations and restrictions
	Training of Committee members in reserve forest management and maintenance
	Training of local community members in Boswellia incense tapping
	Support the Committee to establish strong direct links to high-value and export markets for non-timber products of indigenous tree species
	Inventory and mapping of the reserve forest
	Physical boundary and demarcation of the reserve forest
	Supply superior quality seedlings and cutting of indigenous tree species of high economic value,
	Enrichment planting of degraded patches of the reserve forest by planting seedlings and cuttings of the above indigenous tree species
	Fire control and prevention
	Grazing control and prevention
	Managing harvesting of products from the reserve forest
	Confiscation of illegal cuttings, arresting offenders and court proceedings
	Reserve forest assessment and review of progress
3.e	*Alternative energy sources*
	Procurement of services from NGO and para-statal institutions
	Community mobilisation
	Conduct environmental awareness training to the community
	Assigning roles and responsibilities of the chairperson and Committee members of the above sub Committee
	Awareness raising of technology choises: capabilities, limitations, cost and maintenance requirements of systems
	Priorities set by beneficiaries in response to needs and linked with ongoing development, (preferably income -generating) activities
	Establish distribution channels, local availability of spare-parts and after sales services (trained manpower)
	Training and mobilising private companies
	Establish mechanisms for access to credits on suitable terms, especially by individuals
	Distribution and installation of unities
3.f	*Small-holder mining management and mitigation*
	Establishing intersectoral Project Working Group to plan, monitor and manage relevant gold panning interventions in a coordinated way
	Developing a Locality Strategy and Action Plan for Management and Mitigation of Gold Panning
	Formation, consolidation and training of small-scale miners committees or cooperatives
	Providing training for miners, local authorities, support agencies and enforcement personnel, in relevant legislation and policies, alternative technologies, aspects of environmental management and rehabilitation, health and social aspects, group mining practices, marketing and credit, and issuing and monitoring of licenses
	Promotion of alternative technologies for different mining activities
	Support for the development of alternative livelihood opportunities within forestry
	Identification of possible grant or micro financing opportunities

SWECO

Eastern Nile Technical Regional Office

FAST TRACK WATERSHED MANAGEMENT PROJECT IN SUDAN

ANNEX 4
RESULTS AND MONITORING FRAMEWORK

ra02e 2005-01-17

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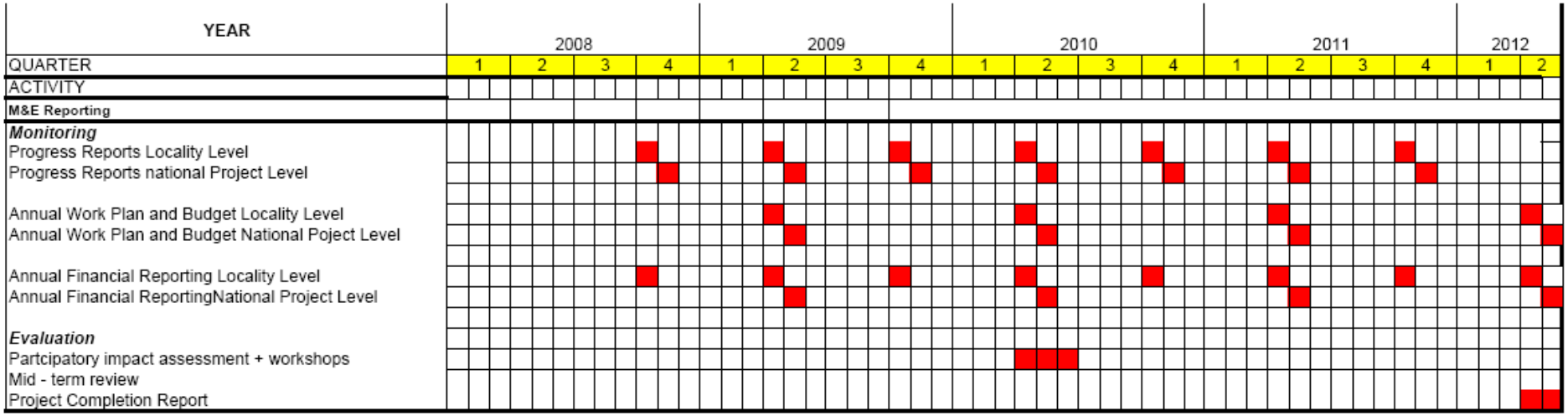
List of Content

1 Schedule for M&E activities and reporting

The schedule for the project monitoring and evaluation milestone activities is given overleaf.


YEAR
2008
2009
2010
2011
2012
QUARTER
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2
ACTIVITY
M&E Reporting
Monitoring
Progress Reports Locality Level
Progress Reports national Project Level
Annual Work Plan and Budget Locality Level
Annual Work Plan and Budget National Poject Level
Annual Financial Reporting Locality Level
Annual Financial ReportingNational Project Level
Evaluation
Partcipatory impact assessment + workshops
Mid - term review
Project Completion Report

2 Performance Indicators, Target Values and Reporting Format

2.1 Performance Indicators

The key objectively verifiable indicators for the FTWMP in Sudan are as follows:

- No of Locality interventions, elaborated and implemented on the basis of integrated and participatory plans for watershed management and local development.
- No. of environmental and livelihood improvement projects managed fully or partially by CBOs.
- Area of improved land use management in the participating Localities.

2.2 Target values

The area specific target values are detailed by sub-component and presented in Annex 3: FTWMP Workplan.

2.3 Reporting Format

Progress report should be prepared as indicated in the Schedule for M&E activities in Section 1. The progress reports should be prepared by each LIU and consolidated by the PCU. The format should be simple and concise as indicated in the below template.

Code	Output/Activities/Inputs	Unit	Target		Achievement	Comments and Issues
			Year	To Date	To Date	
COMPONENT *from* AWPB ACTIVITY AND RESOURCE SCHEDULE						
	Output *(From AWPB Activity and Resource Schedule by Code)* **Activities** *(Listed by Activity from AWPB Activity and Resource Schedule by Code)* **Inputs** (Listed from Inputs in Activity and Resources Schedule by Code) - Physical resources (investment, operations and maintenance) - Staff resources and time (LIU, PIU and Implementing Agencies)					

3 Impact Indicators and Reporting Format

3.1 Socio-economic and environmental impact indicators

The socio-economic/environmental benefits can be described and measured in various manners. Under the FTWMP socio-economic and environmental impacts are described from a watershed perspective in the following manner.

Benefits to the watershed:

- Improved resilience to chocks
- Reduced sediment loads
- Cleaner water
- More regulated flow
- Intact river channels
- Less wastage of water
- Improved biodiversity

Benefits from the watershed ecosystem:

- More reliable access to water of improved quality for health and productive uses
- Improved land quality to sustain livelihoods
- Improved biodiversity to sustain ecosystem service demands
- Desertification impacts mitigated

Beyond watershed benefits:

- Improved and diversified livelihoods
- Improved community resilience to chocks
- Improved equity
- Improved community capacity

3.2 Environmental indicators and reporting format

3.2.1 Atbara

3.2.1.1 Water availability

Regular (every 4 years) water resources assessments and demand analysis. Annual monitoring of water use and ground water extractions and ground water table. Annual monitoring of sediment load.

3.2.1.2 Sand Dune Encroachment

Annual Monitoring of the level of sand dune encroachment should be made at project sites. This can be done by ground observations and by the use of high resolution satellite imagery.
Area of shelter bed and homestead plantation

3.2.1.3 Agricultural Activity

Annual monitoring of the extent of different agricultural activity should be made by field visits to participating communities and interest groups.
% change in land use (to check whether horizontal expansion of crop production is reduced in favour of intensification)

3.2.1.4 Range Condition

Annual wet season monitoring of the composition and density of the grazing sward should be carried out for the project sites.

3.2.1.5 Biodiversity

Area of forestry reserves
Forest reserves impacted by the FTP should be monitored annually during the wet season to establish bird and butterfly diversity.

3.2.1.6 Invasive Alien Plants

The extent of the invasion of Prosopis and other invasive species should be monitored biannually in general and annually in the same forest reserves.

3.2.2 Dinder

3.2.2.1 Inside the Park

Inside the park it is important to monitor a variety of factors that relate to the success of the project.

3.2.2.2 Water availability

Regular (every 4 years) water resources assessments and demand analysis. Annual monitoring of water use and ground water extractions and ground water table. Annual monitoring of sediment load.

3.2.2.3 Cattle Incursions

Game guards should keep records of all encounters with cattle inside the park throughout the year. The number of encounters should be sufficient. Once or twice each year sample areas of the park should be surveyed using a light aircraft to estimate the number of herds in the park. Game guards should regularly visit the permitted use zone around the villages to the south of the Rahad river in order to verify that there have been no incursions from the agreed zone.

3.2.2.4 Poaching

Game guards should keep records of all instances of poaching in the park. These records should include all evidence of poaching encountered in the park.

3.2.2.5 Fire

Satellite images taken at the end of the dry season will make it possible to determine the extent of fires in the park. These images should be compared with the parks fire management plan in order to determine its effectiveness.

3.2.2.6 Range Condition

Annual wet season monitoring of the composition and density of the grazing sward should be carried out.

3.2.2.7 Animal Populations

Late Dry season counts of all antelope species visiting Mayas and other water sources along the Rahad and Dinder river should be made. A 24hr count should be made on a full moon day by a group of 4 observers at each Maya and water source simultaneously. In addition all chance encounters with flagship species (Tiang, Lion, Roan Antelope, Leopard) should be recorded and mapped in a GIS database.

3.2.2.8 Agricultural Activity

Annual monitoring of the extent of different agricultural activity should be made by field visits and by the use of satellite images.
% change in land use (to check whether horizontal expansion of crop production is reduced in favour of intensification)

3.2.2.9 Habitat Quality

Biannual (Wet Season & Dry Season) monitoring of bird communities should be used to determine changes in habitat quality. Butterflies should be used as an indicator on an annual basis.

3.2.2.10 Invasive Alien Plants

The extent of the invasion of alien species should be monitored annually in the transition zone and around the mayas. In other areas of the park this can occur triannually.

3.2.2.11 Outside the Park

3.2.2.12 Cattle Populations

Annual Estimates of the number and distribution of cattle herds using land outside the park should be made by an aerial survey using light aircraft.

3.2.2.13 Agricultural Activity

Annual monitoring of the extent of different types of agricultural activity in and around the target villages should be made by field visits and by the use of satellite images.
% change in land use (to check whether horizontal expansion of crop production is reduced in favour of intensification)

3.2.2.14 Range Condition

Annual wet season monitoring of the composition and density of the grazing sward should be carried out in and around target areas.

3.2.2.15 Forest Cover

Annual Monitoring of the extent of forest cover in the grazing zone should be made using satellite imagery and field visits

3.2.2.16 Poaching

Annual monitoring of the availability of bush meat in the villages bordering the park on all sides should be made using undercover investigators.

3.2.3 Bau

3.2.3.1 Water availability

Regular (every 4 years) water resources assessments and demand analysis. Annual monitoring of water use and ground water extractions and ground water table. Annual monitoring of sediment load in selected wadis.

3.2.3.2 Range Condition

Annual wet season monitoring of the composition and density of the grazing sward should be carried out in and around target areas.

3.2.3.3 Agricultural Activity

Annual monitoring of the extent of different agricultural activity in and around target areas should be made by field visits and by the use of satellite images.

% change in land use (to check whether horizontal expansion of crop production is reduced in favour of intesification)

3.2.3.4 Biodiversity

There should be annual monitoring of the plant biodiversity of the isolated rocky outcrops in the plains area. There should be annual sample monitoring of biodiversity in the Ingessana hills this could be done by monitoring of bird and butterfly communities to establish habitat condition.

3.2.3.5 Erosion

Erosion should be monitored in the Ingessana hills. This may be done by the use of satellite imagery and field visits. Erosion is best monitored from the air. It is recommended that erosion monitoring in this particular area is carried out based on either aerial photographs or satellite imagery. Which of the two methods should be chosen depends on cost, quality and availability. These details will be discussed with the Remote Sensing Authority in Khartoum. Interpretation for both options will need to be supplemented by a limited ground truthing exercise

3.2.3.6 Forest Cover

Area of forest cover in and around target communities

3.3 Socio-economic Indicators and Reporting format

3.3.1 Community level indicators

The following are some of indicators that will be measured annually to assess the improvements in the livelihoods of the beneficiaries in the participating communities:

Name of Locality:

Name of Administrative Unit:

Distance from Locality headquarters:

Latitude and Longitude:

Rainfall:

Farming System Zone:

Population:

- Total
- Male
- Female

Number of households:

Number of adults working outside the village or village cluster

Wealth Profile:

- Destitute Households
- Poor Households
- Rich Households

Women Headed Households:

Indicators:

(a) Government and Non Government services:

- Government services
- NGO services
- Other services

(b) Community organization and membership:

- Community Organization
- Farmers' Committee(s)
- Women's Committee(s)
- Forestry Committee(s)
- Rangeland/Livestock Committee(s)
- Other organizations
- Membership disaggregated by gender , cultural, socio-economic and livelihood group and type of benefits
- Performance of community organizations in terms of members (% poor, women, landless), financial management and responsibilities.

(c) Liaison and joint action between communities and local authorities:

- Community involvement in development planning
- Community Managed (owned) Services (water, forestry, environmental, marketing etc)
- Organization and performance (jointly with locality?)
- Improved extension services?

(d) Community services:

- Schools

- Health clinic/station
- Shops
- Markets
- Others

(e) Water sources and volume:
- Open wells
- Tube wells (,hand pump or solar powered)
- Motorized pump sets (water yards)
- Hafirs

(f) Volume and value of water purchased per month:

(g) Distribution of Water Use:
- Household
- Agricultural
- Livestock

(h) Sanitation:
- Types and locations

(i) Land Use:
- Cultivated area
- Uncultivated area
- Grazing range (km)

(j) Animal and mechanical means of agricultural production available:
- Hand tools
- Animal traction
- Tractor

(k) Means of Transporting Agricultural Product, and Quantity:
- Animals
- Tractor and trailer
- Lorries
- Other

(l) Total agricultural output (volumes):
- Cereals
- Oil seeds
- Gum Arabic
- Cotton
- Vegetables
- Others

(m) Livestock:

- Number of sheep/goats in community, and average per household
- Number of cattle in community, and average per household
- Number of donkeys/camels/horses in community, and average per household
- Number of chickens in community, and average per household

(n) Agricultural and livestock input costs and fees:
- Types
- Prices
- Value

(o) Implicit value of income derived from agriculture:

(p) Forestry activities:
- Type
- Uses
- Value

(q) Alternative energy sources:
- Types
- No of families
- Value

(r) Environmental awareness and action:
- Community Land Use Management and Development Plans
- Existing challenges and threats to sustainable livelihood
- Coping strategies
- Livelihood practices with negative environmental impacts

(s) Access to credit:
- Amount disbursed by community and by type of activity
- Ratio of community fund channelled to poor and disadvantaged men and women
- Ratio of community fund channelled to settled communities and pastoralists respectively

3.3.2 Sample Household Indicators

1. A sample of between 5-10% of households – depending on the size of each community – will be identified in each participating community during the mobilization phase. They will be stratified to ensure there is an even distribution of households fitting into each socio-economic group.

2. Information to be collected on an annual basis at the household level, which will be used as evaluation indicators, will include *inter alia*:

(a) Wealth ranking.

(b) Household head profile and household type.

(c) Number of adults in household (male and female).

(d) Number of children under 15 years in household (male and female).

(e) Weight for age of children under five years in household (male and female).

(f) Number of working adults (male and female), what do they do for living and for how long in the year.

(g) Number of active farmers (male and female) in the family.

(h) Education levels of members of household.

(i) Number of family members not living in the village (if so where are they and do they send money to the family).

(j) Primary[1] and secondary sources and level of cash income (what is it, and how much of total income it represents):
- Within village
- Outside village

(j) Types and purpose of animals kept:
- Cattle
- Sheep/goats
- Chickens
- Donkeys/camels/horses
- None

(k) Land-use:

[1] Income generated within the community and proportion produced for home consumption from sorghum, millet and sesame, cotton and other field crops, horticultural crops, cattle, sheep and goats, and other products and services.

- Fedans (Mukhamas) of land owned or leased by household (indicate on village map)
- Total land area actively used
- Area for rainfed field crops and yields
- Area of irrigated field crops and yields
- Area of cultivable land fallow at any one time
- Area for fruit trees or number of trees, by type
- Area owned or controlled or unused (except grazing), but suitable for agriculture or forestry

(l) Expenditures (proportion and amount) on:

- Food
- Clothing
- Drinking water
- Agricultural inputs
- Livestock inputs
- Health
- Education

(m) Savings:

- Any savings deposited at a bank and if so, what are the benefits
- What is money saved for

(n) Experience with banks:

- Distance from community
- Cheque account and/or savings account

(o) Experience with credit:

- Where the past and present loans come from (bank, merchant, community, family)
- Reason for borrowing
- Indicative terms and conditions (service charge, maturity, guarantees provided)
- Frequency of borrowing

(p) Housing:

- Size of the full extended family
- Number of houses (buildings) inhabited by extended family
- Number of nuclear families and number of persons in compound

(q) Access to safe water:

- Open well
- Tube wells (hand pump or solar powered)

- Motorized pump sets (water yards)
- Haffir
- Other

(r) Sanitation:

- Private pit latrine
- Public latrine
- None

(s) Needs assessment:

What would an extra SD 5 000 be spent on

(t) Membership in any Community organization:

- Is anyone in the family a member of a CBO committee
- Has anyone in the family befitted from a community driven project
- Who are members within your community and how ere they selected.
- How is the family involved in community planning and decision making

SWECO

Eastern Nile Technical Regional Office

FAST TRACK WATERSHED MANAGEMENT PROJECT IN SUDAN

ANNEX 5
ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

ra02e 2005-01-17

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List of Content

Abbreviations

DSR	Dam Safety Report
EA	Environmental Assessment
EMP	Environmental Management Plan
ESMF	Environmental and Social Management Framework
FTWMP	Fast Track Watershed Management Project
IP	Indigenous People
IPP	Indigenous Peoples Plan
IWMDI	Integrated Watershed Management Intervention
NGO	Non-Governmental Organization
OD	Operational Directive
OP	Operational Policy
PMP	Pest Management Plan
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
TNA	Training Needs Assessment
TOT	Training of Trainers

1 Introduction

This draft Environmental and Social Management Framework (ESMF) has been prepared for the Fast Track Watershed Management Project (FTWMP) in Sudan in order to guide project implementation on environmental and social aspects.

The objectives of the FTWMP ESMF are:

- to define the directives and methodologies for the screening of integrated watershed management and development interventions (IWMDIs) under Project Component 3: Integrated Watershed Management and Development Interventions (IWMDIs) to be financed under the proposed project;
- to ensure that relevant safeguard policies are addressed in the planning of IWMDIs;
- to provide guidelines on the development of supplementary planning documents to support the application to undertake the IWMDIs; and
- to identify monitoring, auditing and reporting procedures.

This document has been preceded by the environmental and social assessments (ESA) undertaken during Project Preparation and it is developed as part of the Project Implementation Plan (PIP). This document is based on the ESMF for the ENSAP Flood Preparedness and Early Warning Project with only minor modifications to address specific FTWMP conditions.

The document is in line with the requirements of the Environment and Social Management Framework for World Bank Projects with Multiple Small-Scale Sub-Projects – A Toolkit; Africa Region, The World Bank, February, 2005.

2 Project Summary

2.1.1 Project Development Goal

The long-term Project development goal of the Watershed FTP in Sudan is the same as the goal stated in the Project Identification Document (PID) for ENSAP regional cooperation on watershed management and approved by the Eastern Nile Council of Ministers in March 2001, namely:
"ensure efficient water management and optimal use of the resources through the equitable utilization and no significant harm; ensure cooperation and joint action between the Eastern Nile Countries seeking win-win goals; target poverty eradication and promote economic development; and to ensure that ENSAP results in a move from planning to action"[1].

2.1.2 Specific Project Objectives

The specific objective of the Watershed FTP in Sudan is to:

Stimulate, support and demonstrate alternative livelihood practises and local governance systems that contribute to poverty reduction and environmental sustainability.

Based on a participatory assessment of the local root causes, core problems and potential response interventions, three area specific project objectives have been identified. The assessment included the evaluation of linkages between "population – livelihood practices- environmental degradation- potential driving forces for change".

2.1.3 Area Specific Project Objectives

The additional area specific project objectives are as follows:

Lower Atbara Area – To combat desertification, improve environmental resilience and reduce people's vulnerability by promoting more reliable and environmentally sound livelihoods to the people dependent on the meager natural resources in the Lower Atbara.

Bau Area - To reduce the pressure on and conflicts over the natural resources, to capture the long-term development potential of the

[1] Eastern Nile Subsidiary Action Program (ENSAP) – Project Identification Document, Eastern Nile Council of Ministers, 2001.

area, and to build a foundation for sustained peace by promoting alternative, more reliable and environmentally friendly livelihood practices.

Dinder National Park (DNP) Area – To safeguard the natural resources and the biodiversity of the Dinder National Park by improving the Park management and enhance participatory planning and offering alternative livelihoods to target groups who at present depend on the park's natural resources.

2.1.4 Performance indicators

Progress towards the above outcomes would be measured and monitored based on the following key performance indicators:

a. No of local interventions, elaborated and implemented on the basis of integrated and participatory plans for watershed management and local development.
b. No. of environmental and livelihood improvement projects managed fully or partially by CBOs
c. Area of improved land use management in the participating Localities.

2.2 Key Framework Project Components

The key framework project components are divided into three general output areas (each with a number of sub-components):

Component 1: Institutional Strengthening in order to strengthen the capacity of relevant local institutions, supporting stakeholders and communities to efficiently, effectively and sustainably fulfil their defined roles and responsibilities within the field of economic development and environmental management.

Component 2: Project Management to ensure that the FTWMP activities are implemented smoothly and with technical and financial efficiency .

Component 3: Integrated Watershed Management and Development (IWM&D) Interventions with the objective to support local IWRM&D initiatives at local and community level with a strong poverty reduction and environmental focus that will simultaneously deepen local participatory IWRM processes.

2.3 Project Coverage

Fast track project sites selected are located in the Atbara Basin and Blue Nile Basin and include (i) Lower Atbara, (ii) Dinder National Park and surroundings and (iii) the Bau Locality. These were selected based on a variety of criteria including community interest and prior experience, impact on poverty, chances for demonstrating early results of improved land and water management, and government support.

Figure 2.1 Project Area Map

2.3.1 Selected sites and justification

The selection methodology entailed an iterative consensus building process among the stakeholders namely at federal, state and community levels. The specific general selection criteria for project sites have been:

- Extent of linkage between watershed degradation and prevailing livelihood practices.
- Extent of vulnerability/ resource dependency
- Importance/Influence
- Extent of willingness of the target groups to participate (i.e. those with present unsustainable livelihood practices should be committed to the called upon process of change).
- Extent of institutional capacity to support and implement projects at State and Locality levels.
- Extent of previous exposure to development support
- Extent of development potential for alternative livelihoods
- Extent and probability of external risks

The three areas have different characteristics and needs and are located within different ecological zones. Summary key characteristics are as follows:

Lower Atbara Area:

Key characteristics: Desert area with low rainfall and scare natural resources. Urban-Rural interaction pronounced. Limited Mechanised farming. Limited population pressure due limited livelihoods. Environmental carrying capacity low. Substantial previous experience with community participatory planning and development (Nomadic

and semi-nomadic pastoralists excepted). Project area located within one Locality.

Key target groups: Sedentary communities and small scale farmers along the Atbara river. Semi-nomadic and nomadic pastoralists. Women. Land less.

Atbara Environmental Key Issues and Root Causes:

The main concern among the stakeholders is the **poor access to water** for household and agricultural purposes since there is limited structure in place to capture and store from the short flooding period. Other key environmental concerns are **sand dune encroachment** and **desertification** which is aggravated by some of the current land use practices explicitly **deforestation** and **over-grazing**.

The area close to the river has become invaded by a number **weed** species both indigenous and exotic as a result of past disturbance.

Bau Locality:

Key characteristics: Remote and poorly connected area. War stricken area. One of three disputed areas. Influx of IDPs and land tenure distribution/management still on-going. Recent institutional restructuring and institution building still on-going. Precipitation and natural resources favourable. Area prone to drought and flooding. Very limited experience with community participatory planning. Project area within one Locality.

Key target groups: *Sedentary c*ommunities and small scale farmers. Semi-nomadic and nomadic pastoralists migrating through the area. Women. Landless. Mechanised farmers. Gold panners. Charcoal makers.

Bau Environmental Key Issues and Root Causes:
Bau locality depends on rain as its major water source and 70% of Bau Locality experience **seasonal water scarcity**.

Deforestation on the Ingessana hills causes considerable **erosion** which contributes to the downstream siltation problem in the Blue Nile and Roseries dam. It also destroys the fertile land at the foothills of Ingessana Hills.

One of the major sources of income to large number of local people in Bau Locality is **charcoal making**. As a result, the forests of Bau locality have been over-exploited and disappearing.

Mining is another major source of livelihood for a large number of community members in Ingessana Hills. Current chromite and gold mining practices have severe impacts on the forest resources of Ingessana Hills and are furthermore causing significant environmental health damages and water pollution from mercury etc.

The **expansion of mechanized rain-fed agricultural farms** is the most important factor for the deterioration of the natural resource base, adversely affecting grazing and traditional farming lands and increasing **conflict over the remaining natural resources**. The mechanised farming are not practicing long-term land husbandry but are instead **mining the soil from its nutrients and quality** and then abandoning the land.

Dinder National Park and Surroundings:

Key characteristics: Remote and poorly connected area. Poor access to and degraded natural resources around the Park resulting in encroachment on the Park for livelihoods. Area prone to drought and flooding. Pronounce conflicts between Park management and communities. Cases of conflicts between various populations groups over natural resources. Previous experience with community participatory planning and development. Some IDPs. Project area cover three states and five Localities (Rosaries Locality in the Blue Nile State; three localities in Gedaref State; and Dinder Locality in Sennar State)

Key target groups: Sedentary communities bordering the Dinder National Park. Communities within the National Park boundary (Magano and Kadalu). Semi-nomadic and nomadic pastoralists migrating through the area. Women. Landless. Mechanised farmers.

Dinder Environmental Key Issues and Root Causes:
The degradation of the Park is caused by both external and internal factors. The external factors include park encroachment for livelihoods, vulnerability to up-stream activities in Ethiopia and siltation of mayas etc. The internal factors include lack of efficient park management systems for instance there are lack of park managers with knowledge in wildlife and flora management.

- Cattle invasion

- Fire
- Poaching
- Drying out of the Mayas and reduced biodiversity
- Deforestation
- Ineffective Park management

2.4 Implementation Arrangements

2.5 Overview

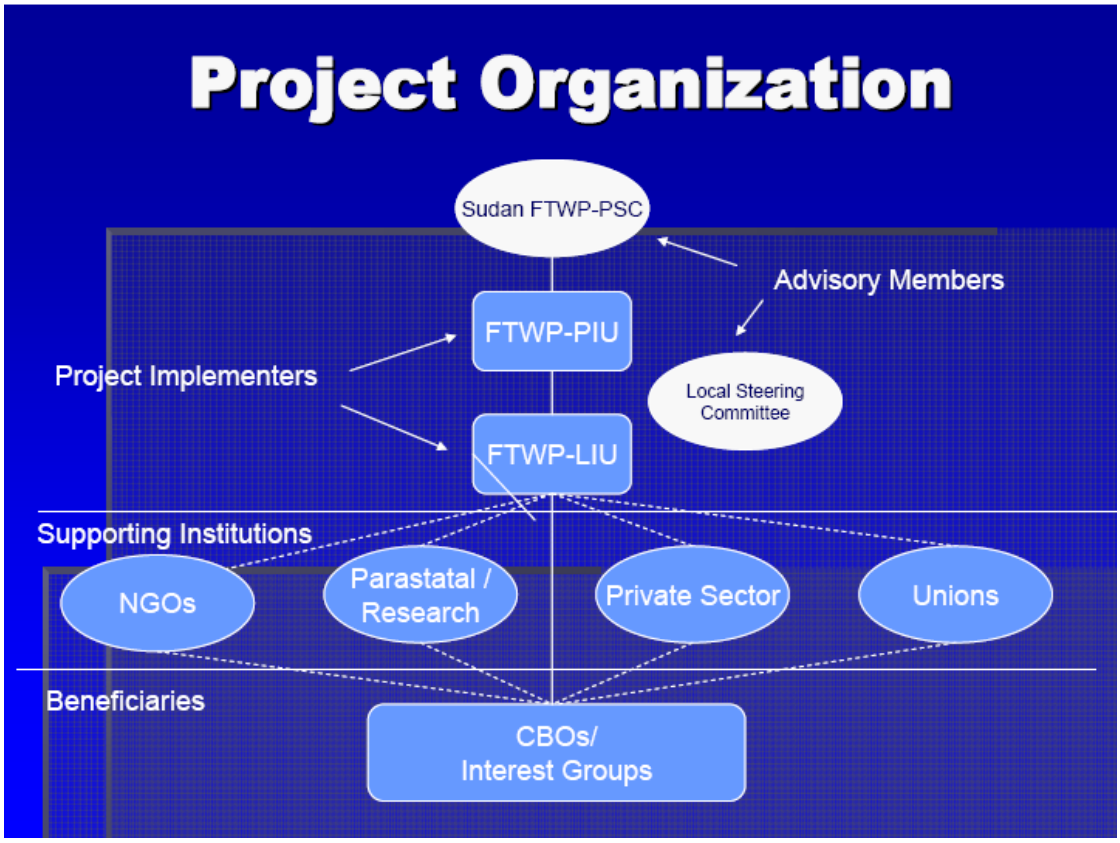
There are three levels of institutional authority in Sudan; national (federal) level, state level and locality level. Within the jurisdiction of localities, there are administrative units and village councils. All those levels have a stake in the FTWMP, however most of the activities will be carried out at community level. The FTWMP also has national coverage and is multi-sectoral in scope. These project features, have implications for the project management structure as explained below:

1. Apex of the management structure should be under the federal auspices
2. Lead Project Agency at national level is not evident, why a strong multi-sectoral national steering committee should be established
3. Key focal point institutions are the localities

The structure for project management, governance and implementation arrangements assumes a light project apex at national level which coordinates the interventions in the Localities as separate but interlinked sub-projects each one with its own specific implementation arrangement and time line etc.

The project will be implemented by strong Local Implementation Units (LIUs) in the field supported by a Project Coordination Unit (PCU) located at the Lead Project Agency in Khartoum.

The figure below illustrates the project implementation structure



2.6 Anticipated Watershed Management and Development Interventions

Integrated management of water resources necessarily requires appropriate legal and institutional frameworks and technical and management capacities amongst a range of formal national and basin-level institutions. However, much of the day-to-day responsibilities for – and various effects of – IWRM occur at local catchment and community levels. This is particularly evident when considering such threats to the basin's water resources posed by uncontrolled gold panning or environmentally damaging land use practices. That is why, in addition to coordination amongst relevant sector agencies, stakeholder participation at all appropriate levels, is such a critical aspect of IWRM&D. In order to deepen such participation and provide early concrete benefits to communities

within the basin, attention will be given to supporting and encouraging local, community-based IWM&D initiatives.

The menu of IWM&D interventions include concrete sub-projects which have been prioritised by stakeholders in each project area and which have undergone detailed multi-criteria analysis during the detailed preparation. While designed with a consideration for appropriate institutional capacity, stakeholder participation, and integration with relevant cross-cutting issues – all of which have implications for the efficiency, effectiveness and sustainability of investments – most of these projects include some degree of infrastructural or hardware development on the ground. A full list of interventions with infrastructural or hardware development on the ground is given below divided in thematic groups:

Water resources development, harvesting and storage

The water resource component will include demarcation of land and construction of the following types of water storage and supply infrastructure:

- Small dams
- Haffirs
- Construction and rehabilitation of mayas
- Shallow wells and deep boreholes
- Sub-units of ground water dams with shallow wells,
- Rainwater harvesting structures
- Infiltration in shallow aquifers close to rock outcrops in the foothill area
- Small purification plants
- Pumps and improved small-scale irrigation systems

Agriculture and Rangeland

Agriculture and rangeland interventions include in principal demarcation of land and provision of infrastructure and services for intensified and diversified agricultural systems and rehabilitated grazing areas.

Reforestration/Afforestration

Demarcation of land and provision of inputs and services for forestry activities such as shelterbeds homestead tree growing projects,

private forestry on agricultural fields, community forests and management of reserve forests.

Environmental management
The environmental management component comprises of capacity building and tools for improved land use management and development planning. Charcoal makers, large scale farmers and small scale gold-miners as well as semi-nomadic and nomadic pastoralists will in particular be targeted under this component through specific interventions e.g. promotion of alternative energy and gold panning methods as well as through various forestry activities.

3 Specific social and environmental requirements

3.1 WB Safe guards actions and project exclusions

Table 1: Safeguard policies that might apply

Safeguard Policies Triggered	Yes	No	Note
Environmental Assessment (OP/BP 4.01)	X		See below
Natural Habitats (OP/BP 4.04)		X	See below
Forests (OP/BP 4.36)		X	See below
Pest Management (OP 4.09)		X	See below
Cultural Property (OPN 11.03)		X	The FTWP will not finance interventions which would affect cultural property
Indigenous Peoples (OD 4.20)		X	Detailed assessment according to WB guidelines have found that this will not be triggered
Involuntary Resettlement (OP/BP 4.12)		X	The FTWP will not finance interventions which would trigger involuntary

[2] The Bank has no policy on Voluntary Resettlement. Consequently, persons who are "voluntarily" resettled have no procedural or substantive rights under the draft Bank policy (see: http://www.ciel.org/Ifi/volreslet.html)

Safeguard Policies Triggered	Yes	No	Note
			settlement[2].
Safety of Dams (OP/BP 4.37)		X	The FTWP will not finance construction of dams
Projects on International Waterways (OP/BP 7.50)	X		See below
Projects in Disputed Areas (OP/BP 7.60)		X	See below

3.1.1 OP 4.01 - Environmental Assessment

The above listed interventions have a component of actual on-ground works that will require, at least, an initial environmental examination. In some cases, such as where extensive levee construction is proposed (e.g. small dams), the works will require a full EA to be completed. These assessments will be carried out by EIA specialists, consistent with the requirements of OP4.01, and its annexes, and other safeguard policies, with national support and a counterpart from the MOIWR and any similar counterparts from state and local authorities.

Small dams (less than 15 meters in height) include weirs, haffirs, water yards and sub-surface dams. Small dams will be designed by qualified engineers, and will be built by qualified and adequately supervised contractors.

Construction of roads and other complementary development interventions as described in the Project Document are deemed necessary however will not be financed under the FTWP.

3.1.2 OP 4.04 - Natural Habitats

Rehabilitation of mayas will only be undertaken on existing mayas in Dinder National Park and hence interference will only take place during the actual construction period.

Magano village water supply will be constructed as rain water harvesting structures (collection surfaces, storage facilities, 3 pumps) at the foot of rock outcrop which is located in the middle of the village and hence will not increase interference with the natural habitats of the Dinder National Park.

3.1.3 OP 4.11 - Cultural Property

Operational Policy 4.11 of the World Bank defines Cultural Property as both remains left by previous human inhabitants (e.g. middens, shrines) and unique natural environmental features such as canyons and waterfalls. The FTWP project will not support projects that will significantly damage non-replicable cultural property and assists only those projects that are sited or designated so as to prevent such damage. According to Sudanese law, construction must be stopped if archaeological sites are found and the Antiquities Department must be contacted for their investigations.

3.1.4 OP 4.20 - Indigenous Peoples

With regard to Indigenous Peoples (OP 4.20), the detailed preparation mission has concluded based on a detailed assessment according to WB guidelines that the project will not involve any indigenous people.

3.1.5 OP 4.12 - Involuntary Resettlement

With regard to the involuntary settlement the FTWMP will exclude finance interventions resulting in involuntary settlement[3]. Instead, demarcation of land for IWM&D interventions will be undertaken jointly with the community. Consequently, resettlement plans and indigenous peoples' plans will not be required by the project. In case acquisition of land is required for a subproject, the LIU should apply the land acquisition tool prepared for the CDF project taking into consideration land tenure and customary rights in the area. This land acquisition tool reviewed and adapted to the conditions in the three areas during project start-up.

3.1.6 OP 4.36 - Forests

The FTWMP project will not support any IWMDIs involving degradation or clearance of forests.

3.1.7 OP 4.37 - Safety of Dams

The construction of large dams (15 meters or more in height) will not be financed under the FTWP.

[3] The Bank has no policy on Voluntary Resettlement. Consequently, persons who are "voluntarily" resettled have no procedural or substantive rights under the draft Bank policy (see: http://www.ciel.org/Ifi/volreslet.html)

3.1.8 OP 7.50 – International Waterways

Project activities are focused in the Atbara and the Blue Nile river basins in Sudan which constitute sub-basins of the Nile Basin. The Nile is an international waterway.

The project has been identified and prepared jointly by the three Eastern Nile sub-basin countries as part of the ENSAP a regional initiative of the Nile riparian countries under the umbrella of the Nile Basin Initiative (NBI). With the ongoing consultations, information sharing and transparency regarding the NBI, as indicated in minutes of the Eastern Nile Council of Ministers (ENCOM) and the Nile Council of Ministers (Nile-COM) the requirements of OP 7.50 are met.

The FTWP in Sudan has furthermore been agreed as a “fast track” project by ENCOM in the Project Identification Document (PID) for the ENSAP.

3.1.9 OP 7.60 – Disputed Areas

Bau locality is located within one out of three disputed areas between North and South Sudan. However, a peace agreement has been reached and restructuring and rehabilitation of infrastructure as well as other post-conflict and peace keeping interventions are in place. The area may thus be regarded as a post-conflict area. Hence, it is not anticipated this safeguard policy will be triggered, although minor local disputes of land and natural resources do exist, particularly at a local level.

Naturally, there are a number of post-conflict issues of concern in Bau locality such as a lack of government institutions, procedures, and legally defined rights; continuing conflicts in some areas; and grievances arising from perceived lack of inclusiveness and equity that have the potential to undermine project activities and affect the implementation of IWMDIs. However, these issues have been carefully assessed during the detailed preparation and specific project approached have been designed to deal with these issues if they arise.

3.2 Other safeguards actions

3.2.1 Environmental management issues

As presented in section 2.7, the types of interventions with potential environmental impacts are known however the exact number, scale and location of these interventions are only approximate at this stage. In general the interventions are expected to be small-scale where

communities provide significant in-kind contribution to the project. These projects are the focus of this ESMF.

Based upon available information, the impacts are likely to be minimal, local in extent and readily assessed, mitigated and managed.

FTWP will achieve sound environmental management through the adoption of the following actions: (a) application of the guidelines and procedures of this ESMF; (b) for the water supply component, precautions should be taken for assuring the hygiene at the water points (human and livestock) and that drawdown of the water table in the project areas will be monitored and (c) for the agriculture and forestry activities precautions should be taken for assuring the that pesticides and foreign species are not introduced (d) for the rangeland components the number of animal heads will be monitored.

3.2.2 Social management issues

Social risks largely arising from differential access to benefits, traditional rights and entitlements, adequacy of targeting mechanisms, and varying public perception of benefits will be addressed through continuous monitoring of agreed social indicators. These aspects have been identified and precautionary measures have been included in the project implementation plan.

The findings on social issues from the detailed preparation mission and the experience of other projects such as ADS, DNPP etc., have some implications for the FTWP's participatory approach:

- In the area around Dinder National Park and Bau Locality, there is a considerable potential for social and political conflict due to competition for land and water resources between different land user groups and the political divide caused by the civil war. It is therefore important that FTWP selection criteria and processes are as transparent as possible and based on local consent. The criteria for the selection of potential project sites and communities proposed in the Working Paper 1: Technical Report would thus be reconfirmed with local stakeholders and beneficiaries and if possible readjusted during the the community mobilisation phase. One of the first activities to be conducted in the initial phase of the FTWP would be an information campaign to sensitise the target groups on the objectives and modalities of the project and the rationale behind.

- For the same reason, the FTWP has to be prepared to deal with and mediate conflicts. The social facilitators should therefore have

skills in conflict management and conflict resolution and if necessary should be trained in the use of relevant tools. The social facilitator will play an important role in enabling the dialogue and mediate e.g. between the Kadalu People Development Committee and the Dinder National Park management staff.

- Due to Localities' poor managerial capacity and skills and experience in participatory planning, during the initial phase of the project implementation, substantial time and effort must be reserved for training of Locality officers and extension staff by NGOs and private sector in the following subjects: (i) participatory planning and participatory communication tools such as focus groups discussions and various PRA techniques for participatory problem identification, analysis and prioritisation, and development of IWMDIs and action plans, and (ii) the concepts of gender mainstreaming, gender equality and gender analysis during needs assessment, planning and monitoring.

- In view of the fact that in Bau Locality illiteracy is rampant and communities have not yet been exposed to bottom up development planning and gender mainstreaming, in the initial phase considerable time and effort would be invested to establish and train CBOs and sub-committees to develop basic understanding of the project philosophy and the skills necessary to fulfil their role in the FTWP. Women need separate organisational channels to be able to voice their interests and concerns and the FTWP would accommodate this.

- In Lower Atbara and Dinder National Park, the FTWP will most likely build on the already existing organisations of village development committees and women's groups established through ADS, SOS Sahel and the DNPP. As noted the detailed preparation missions, not all of these organisations are operational or adequately represent the different sections of the communities. During the initial phase of the FTWP an assessment would be conducted of their representativity and performance and if necessary they should be re-elected. Existing as well as new community based organisations would require comprehensive sensitisation and (re-)training in community based development and participatory approaches; gender equality; and managerial skills including financial management, business training, operation and maintenance, how to run an organisation etc.

- In the Blue Nile State, the "Kadalu People Development Society" should be used as entry point. It is however suggested that due to the prevailing disagreement with regard to the park boundary in this area, watershed activities focus on trust making, conflict management, and environmental awareness raising and as a

minimum they should have representation in the below mentioned "Local Stakeholder Committee for Dinder National Park".

- The land issues in the Kadalu area are complex. Basically households have some access to customary land for mixed small scale rain-fed agriculture and animal husbandry or rent land from the large scale mechanised farms. They supplement agriculture production with seasonal labour on these farms. They are squeezed between the extending large scale farms and the extended boundary of the park and without land title it is difficult for them to defend their right to use the land. This situation is exacerbated by the fact the Kadalu area has been affected by the civil war and many people had to flee. Upon returning, they realise that their land has disappeared. This call for a political solution. To this end, the project will support dialogue between the various parties.

- Transhumant pastoralists are represented by the VDCs as witnessed in the Rahad River area, but nomadic pastoralists are difficult to reach. They are to a certain degree represented by the "Pastoralist Union" and the Watershed Project should make use of the local representatives and facilitate their membership in the local "Local Stakeholder Committee for Dinder National Park" which will be established as proposed in the Dinder National Park Management Plan. The Committee is envisaged to include the DNP administration, village development committees, farmers' and pastoralists' unions, native administration representatives, representatives of the involved Localities and States.

- To the extent possible, training and meetings should be conducted in the villages and not outside to ensure that women and vulnerable groups can participate.

- In view of the mobile lifestyle of nomadic pastoralists, participatory approaches would have to be adjusted to this. To this end the social facilitators would temporarily move with these groups rather than asking them to participate in village meetings - in line with the idea of mobile schools. Nomadic pastoralists have no popular committees and village development committees but are more than others groups linked to and represented through the traditional administrative system which would thus be used as channel for communication for the FTWP.

- The notion of O&M (operation and maintenance) is not well understood and practised. Many water points and pumps in disrepair because they are not properly operated and maintained. Therefore, the FTWP would from the very beginning promote

O&M and train selected community representatives in the technical and managerial aspects of O&M of community assets constructed or rehabilitated under the FTWP. In the case of assets that primarily benefit women, female caretakers should be supported.

- In view of women's limited role in agricultural production in two of the project areas, the FTWP IWMDIs would have to go beyond the narrow realm of land and water interventions and for example address women's domestic work burden, for example through drinking water supply, alternative energy sources and intermediate means of transport (e.g. donkeys and carts). This could be a motivating factor for women to develop an interest in other activities such a tree nurseries, joint forest management, environmental training etc. where benefits are less direct.

- As most of the FTWP interventions target "land based" beneficiary groups, there is a risk that the landless people will be excluded. Therefore, the FTWP also has to offer relevant and suitable activities to improve the livelihood of this group to limit their dependency and use of natural resources (charcoal, wood cutting, park resources). The proposed forestry sub-projects could be a suitable entry point but activities that have a more direct benefit should also be promoted.

- The project planning would be participatory and the scheme organisation and ownership would have to be clear prior to construction. Hence, the project would be phased so that the ownership and organisation of operation and maintenance is clear (clearing of intake channels etc).

- For long term sustainable development of the area, institutional strengthening on integrated land and water planning, licensing procedures, mapping and registration and information collection and management of water resources availability and demand in order to ensure the water balance of the area are also required.

- Each project would be implemented through a three partite agreement between the PIU, the Local Government and the CBO or interest group.

- To reduce the human impact on the park, the FTP aims at a restructuring of the current land use and agricultural practices inside and outside the park. The idea is to decrease the areas under rain-fed agriculture to make room for pastures and to extend the irrigated land for production of high value crops through improved (water saving) irrigation systems and new crop varieties. This would require a major reallocation of land. It will be

a challenge to convince those with access to gerif land to share and those with rain-fed and to reduce. In addition, it will be difficult to identify the "owners" of the land as most of the land is customary and therefore not registered. So the FTP must make a major effort in designing good and convincing demonstration activities

- The landless men and women are also a vulnerable group as they solely depend on employment on large farms which only provides income for a short period. The landless are among the poorest people who use the park resources as their major coping strategy. They are therefore contributors to the environmental problems in and around the park. As most of the FTP proposals are land based there is a risk that this group is excluded. Therefore, the project also has to offer activities suitable for livelihood improvements of this group in the form of alternative income generation and environmental awareness raising.

3.3 Approach

In order to ensure that above environmental and social aspects will be appropriate managed during project implementation, the project will be closely supervised and will be implemented in cooperation with a Project Implementation Unit knowledgeable about World Bank procedures (including use of the WB Africa Region's Environmental and Social Guidelines[4]) and by UN agencies with environmental and social procedures and policies acceptable to the Bank.

Within the institutional support (Component 1) to enhance the capacity of a number of localities, the development of safeguard policies and procedures to handle social and environmental issues prudently, would be included.

The milestones for social and environmental screening process to be internalized in the project is presented in the below figure of the project cycle.

As a first step in order to raise awareness and for the purpose of identifying potential adverse environmental and social aspects community land use management and development plans (CLMP) would be developed jointly between the community and the locality. The CLMP would consider the outcomes of the technical, social and environmental assessments undertaken during the detailed

[4] As expressed in the *Environmental and Social Management Framework for World Bank Projects with Multiple Small-Scale Subprojects. A Tool kit. Africa Region. February 2005*

preparation and provided in enclosed working papers. The CLMP would include:

1. Review and consensus of livelihood practices causing environmental degradation
2. Definition of community priorities within the framework of environmental sound livelihood improvement and diversification e.i. identification of IWM&D interventions;
3. Participatory problem diagnosis highlighting the underlying issue that the proposed activity would address and enabling conditions for the activity to lead to positive end results and any other solutions that may address the underlying problem identified;
4. Participatory development of a community land use a management and development plan including demarcation and allocation of areas for IWM&D Interventions
5. Potential synergies or partners for the proposed activity; and,
6. Estimated cost and resources the community could contribute**.**

During the preparation of the CLMP and the IWMDIs, communities and LIU staff, will address environmental and social concerns. The support teams will comprise environmental experts and social facilitators who have been working with the communities to build awareness, knowledge and capacity to address environmental as well as social issues at a community level. The focus of the IWMDIs will be to develop alternative livelihood practices with reduced environmental impacts. The IWMDIs will be undertaken in line with safeguard policies of funding agencies and Federal and State local environmental and social policies, legislation and regulation.

A checklist is provided in appendix 1. This checklist provides communities and LIUs with some keys to identify potentially adverse environmental and social effects of the intervention.

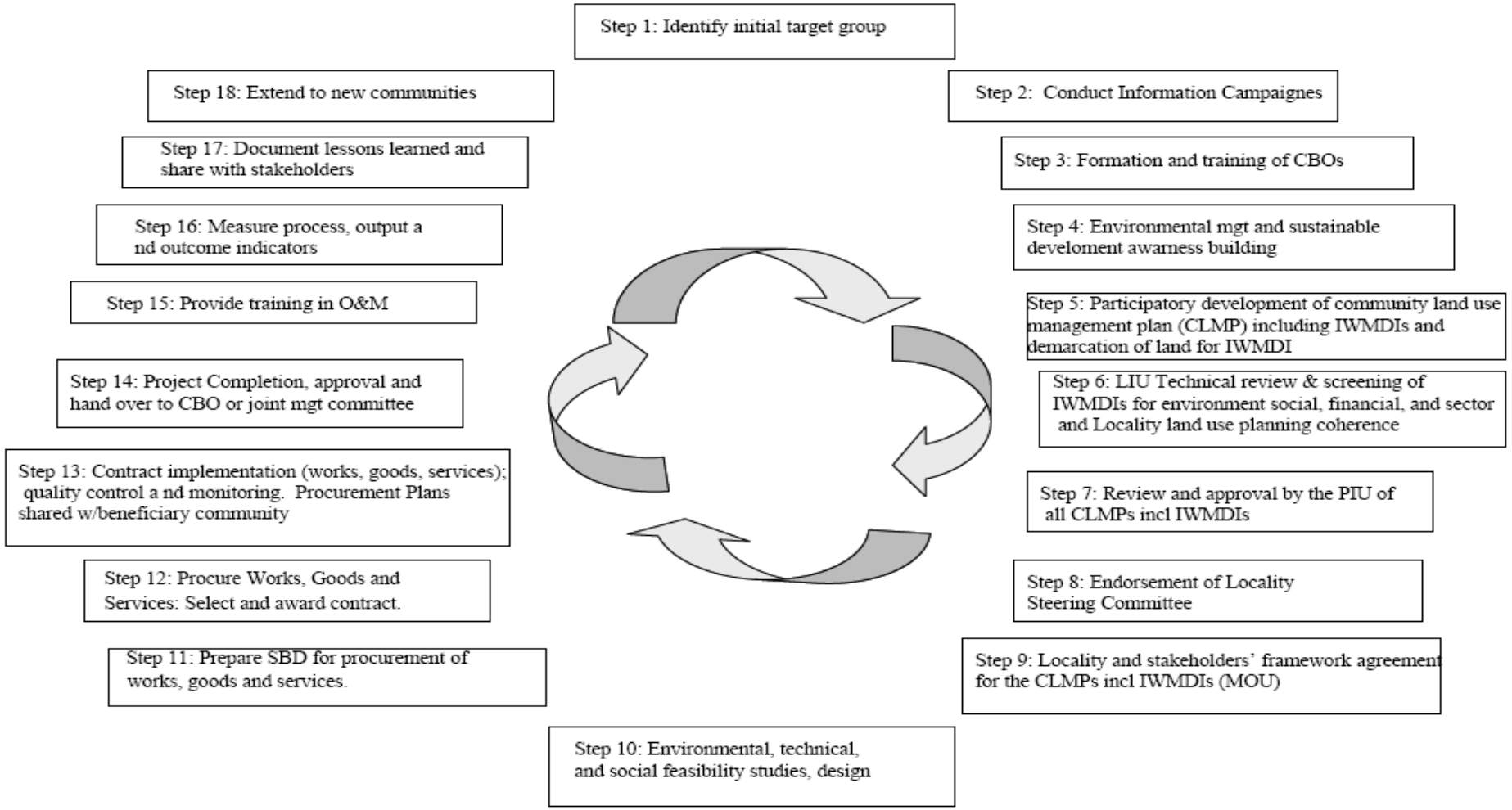
The role of the LIU is to facilitate the development of the EA for the IWMDIs and to provide the community with expert advice on mitigation of adverse environmental and social effects. The LIU will assist to prepare additional planning documents (i.e. EMP) to accompany the IWMDIs application.

The EA checklist and its accompanying documentation should be attached to the IWDMI proposal as an annex to the main document. Funding for the IWMDIs will not be provided until ALL planning documents are provided, approved and disclosed.

Where it is considered additional planning documents are required (following completion of the checklist), the community and the LIU

should consult with the PIU to confirm the need and secure resources to carry out the work. They should also confirm the process for approval of the planning document, as this may require involvement of other agencies at state/regional and national levels (e.g. for an EMP which triggers an issue of significance identified by the HCENRM.

Preparation of planning documents may require resource material and community participation in preparation of the documents.
There may be situations where project-funded technical assistance may be required.


Step 1: Identify initial target group
Step 2: Conduct Information Campaignes
Step 3: Formation and training of CBOs
Step 4: Environmental mgt and sustainable develoment awarness building
Step 5: Participatory development of community land use management plan (CLMP) including IWMDIs and demarcation of land for IWMDI
Step 6: LIU Technical review & screening of IWMDIs for environment social, financial, and sector and Locality land use planning coherence
Step 7: Review and approval by the PIU of all CLMPs incl IWMDIs
Step 8: Endorsement of Locality Steering Committee
Step 9: Locality and stakeholders' framework agreement for the CLMPs incl IWMDIs (MOU)
Step 10: Environmental, technical, and social feasibility studies, design
Step 11: Prepare SBD for procurement of works, goods and services.
Step 12: Procure Works, Goods and Services: Select and award contract.
Step 13: Contract implementation (works, goods, services); quality control a nd monitoring. Procurement Plans shared w/beneficiary community
Step 14: Project Completion, approval and hand over to CBO or joint mgt committee
Step 15: Provide training in O&M
Step 16: Measure process, output a nd outcome indicators
Step 17: Document lessons learned and share with stakeholders
Step 18: Extend to new communities

In these situations, funding may need to be multi-staged. Initially funds may be sought for specialist technical assistance. These situations would include:

- A IWMDI involves changing access to resources in a park or protected area (the involvement of affected people influenced sub-project planning and the benefits they derived);
- A sub-project may affect a protected area or a natural habitat (describe how the project will avoid causing adverse effects on the area/habitat);
- The use of pesticides is included in any intervention (PMP is required).

Interventions which would entail the following situations will not be financed by the FTWP:

- Where land must be acquired for the IWMDIs, or someone's access to resources they are accustomed to using is changed (the need for a RAP must be identified);

The appraisal of proposed IWMDIs will be undertaken by the LIU, and will be reviewed by the LSC that will include members of the local authority. The procedures used by the LSC need to take into account approval requirements by higher levels of authority, at regional and national levels, in relation to EA and planning approval/permitting procedures. These requirements will also be reviewed when the IWMDIs are aggregated at national level.

As a guide to the institutional interests that may have approval requirements for IWMDIs, a summary is provided in the Table 1.

To clear intervention for approval, the LIU should:

- Conduct a desk-top appraisal to ensure all the required information has been provided and that all the potentially adverse effects have been considered and that measures are provided to address them adequately;
- Refer any project for consideration to the LSC, which may in turn refer it to higher authorities where the project triggers an interest of those authorities (e.g. pesticides are proposed for use in disease control, or the projects is listed on the environmental protection agency list of trigger projects);

Table 1: Approval requirements

Institutional Interest Area	Referral for Approval
Agriculture, Animal resources	Pesticide Management Plan (agrochemicals); disease control
Communications	Telephone and radio communications
Cultural Affairs	Management of archeological sites
Environmental Protection	Environmental management plan Trigger items for EA provided in national/state guidelines for assessment, waste management
Health	Pesticide Management Plan (disease control), Management of small scale mining, water supply (purification) , waste and sanitary management
Land use planning at Locality and State levels	Master planning Land use planning Land use rights
Transport	Roads
Water resources	Water supply, stream and river bank erosion, levees, drainage
Wildlife conservation and national park management	Works in protected areas or in areas with threatened species, access to protected areas

Identify projects that require field appraisal before the application can be considered further (criteria for field appraisal are described in Table 2). Where projects trigger the interest of another authority, it is appropriate to include that authority in the field appraisal process.
Following review by the LSC and receipt of relevant external approvals from institutional interests, refer the IWMDIs proposals to the PIU.

Once completed, the prioritized list is forwarded through the PIU to PSC and Coordinating Agency (ENTRO) for review. Approved sub-projects are then funded through the PIU to the LIU and communities.

The IWMDIs funded will be based on the funding available for project component 3 and those projects with highest priority will be funded immediately.

Table 2: Criteria for field appraisal or exclusion

Criteria	Field Appraisal
Land must be acquired for a sub-project, an individual or community's access to land or available resources is restricted or lost, or any individual or family is displaced	Another site for demarcation to be proposed or Intervention to be excluded or a
A sub-project may restrict the use of resources in a park or protected area by people living inside of outside of it, and affect their livelihoods	A field appraisal determines if sub-project planning is adequate to ensure that the livelihoods of potentially affected people will not be adversely affected, as provided for in Section of the ESMF.
A sub-project may affect a protected area or a natural habitat	A field appraisal determines if the sub-project will adequately avoid adverse effects on the protected area or natural habitat, as provided for in Section of the ESMF.
A sub-project may have an impact on ecologically sensitive ecosystems (e.g. wetland or marshes)	A field appraisal determines the scale and level of impact. The application may need to be revised to describe how the sub-project will avoid or minimize adverse impacts to ecologically sensitive areas. This may require a distinct Environmental Management Plan (EMP) as outlined in Section of the ESMF.
Indigenous people may be adversely affected by a sub-project, or could benefit from it.	No indigenous people are located within the defined project sites.
A sub-project will involve or introduce the use of pesticides	A field appraisal determines the scale and level of the concerns. If needed, a Pest Management Plan is prepared according to the requirements of Section of the ESMF.
A sub-project may involve, or result in: • Diversion or use of surface waters; • Construction and/or rehabilitation of latrines, septic or sewage systems; • Production of waste • New or rebuilt irrigation or drainage systems; or • Small dams, weirs, reservoirs, wells, or water points.	A field appraisal determines the scale and level of potential impact. The application may need to be revised to avoid or minimize potential adverse effects, and may include an Environmental Management Plan as outlined in Section of the ESMF.

4 Environmental Management

4.1 Environmental assessment

The objective of the IWMDIs is to avoid creating adverse environmental and social effects and it can hence be anticipated that very few of the IWMDI applications will require specific management. However, the identification of potentially adverse effects can be aided through careful consideration of the questions asked in the Environmental Checklist and through consultation with members within the community and Locality preparing the IWMD sub-project application. Tools for engaging the community include:

- Community mapping;
- Action planning;
- Gender division of labor;
- Present and future goal setting
- Level of satisfaction matrices; and
- Selection and Ranking matrix

These tools enable the historical issues and community expectations to be established and also enable the identification of sensitivities within the community, particularly in relation to their environment and quality of life.
Where specific adverse effects are identified in completion of the Environmental Checklist, an EMP is required. The EMP should fit the needs of the intervention and be easy to use. There is no standard format or length. For many sub-projects, only a plan which specifically addresses the effects delineated is required. The EMP may be no more than a few paragraphs or a table. More significant concerns, such as waste management and pest management require a more substantial document due to the importance and complexity of the issues. A typical table layout is shown below.

The basic elements of an EMP are:

- A description of the possible adverse effects that the EMP is intended to deal with;
- A description of planned mitigation measures, and how and when they will be implemented;
- A program for monitoring the environmental effects of the project – both positive and negative;
- A description of who will be responsible for implementing the EMP; and
- A cost estimate and source of funds.

During preparation of the EMP reference should be made to more general checklists, samples of which are presented in Appendix 1.

The community will particpate in every step in the project cycle (in CLMP step, in EA and EMP, in monitoring), which is important since local knowledge is important in identifying, designing and planning the implementation of practical mitigation measures. It is especially important where the success of an EMP depends on community support and action, both in implementing mitigation measures and in monitoring their success.

4.2 Natural habitats

Natural habitats need to be conserved when planning and implementing subprojects. These are land and water areas whose ecological functions have not been essentially modified by human activities. They include natural forests.

Sub-projects can not be funded if they involve the significant conversion or degradation of natural habitats unless there are no feasible alternatives (including the sub-project site) and the overall benefits from the sub-project substantially outweigh the environmental costs. If a sub-project would significantly convert or degrade a natural habitat, the sub-project needs to incorporate acceptable mitigation measures, such as minimizing habitat loss and establishing and maintaining an ecologically similar area.

Significant conversion means eliminating or severely reducing the integrity of a natural habitat through long-term change in land or water use. It may include, for example, land clearing; replacement of natural vegetation; permanent flooding; and drainage, dredging, filling, or channelization of wetlands. It can occur as the result of severe pollution. And, it can result directly from sub-project activities or indirectly (e.g. through induced settlement along a road). Degradation means substantially reducing the ability of a natural habitat to maintain viable populations of its native species.

Moreover, sub-projects involving the significant conversion or degradation of critical natural habitats (including forests) cannot be funded. These are natural habitats that:

- Are protected by government (e.g. parks, World Heritage Sites) or by tradition (e.g. sacred groves); or
- Have known high suitability for biodiversity conservation; or
- Are critical for rare, vulnerable, migratory, or endangered species.

Sub-projects designed to support community-based forest management and development needs to take into account:

- The extent to which the livelihoods of local communities depend on and use trees in the sub-project and adjacent area;
- The participation of landless and poor people in the management of the trees and forests included in the sub-project area; and
- Forest product and forest service issues relevant to indigenous people and poor people living in or near forests in the sub-project area, as well as opportunities for promoting the involvement of women.

Sub-projects involving forest restoration or plantation development need to adress the following issues:

- The potential of forest restoration to improve biodiversity and ecosystem functions;
- The potential to establish plantations on non-forest lands that do not contain critical natural habitats;
- The need to avoid conversion or degradation of natural habitats; and
- The capacities of the government, nongovernmental organizations, and other private entities to cooperate in the forest restoration and plantation development.

These aspects have been considered in the FTWMP in Sudan.

5 Environmental Monitoring and Evaluation

5.1 Purpose of Environmental Monitoring

The overall objective of performance monitoring is to identify predicted and unanticipated changes to the physical, biological and social environment brought about by the project. This requires baseline information on predevelopment environmental and social conditions, against which development and post development impacts and mitigation measures can be measured and compared. Deviations from the baseline beyond predetermined limits should trigger corrective actions. In this respect monitoring is a dynamic activity as opposed to passive collection of data.

An effective environmental performance monitoring program should consist of the following elements:

- Monitoring objectives;
- Description of performance indicators which provide linkages to impacts and mitigation
- Measures identified in the EA;
- Description of parameters to be measured, methods to be employed, sampling locations, frequency of measurements, detection limits (where appropriate) and definition of thresholds that will signal the need for remedial actions;
- Institutional responsibilities, timing and timescales for monitoring;
- Reporting arrangements (to the regulatory authorities and the Bank); and
- Costs and financing provisions.

Monitoring objectives must clearly spell out the questions to be answered by measurement activities. Once the monitoring objectives have been established, both the immediate outcome of the project (for example, minimizing spray drift from application of pesticides in a disease control sub-project) and the longer term environmental impact (ambient concentrations of pesticides in a local lake) should be monitored.

The monitoring program provided in the EMP should clearly show the linkages between specific impacts identified in the EA and indicators to be measured. These linkages should be demonstrated in a way that can be readily understood by decision-makers.

It is not essential to have complete details of monitoring in the EA Report. In some cases further collection of baseline data may be necessary.

Nevertheless, the EMP should describe the process through which final monitoring arrangements will be agreed. Associated costs, funding and institutional needs (training, legislative or regulatory) required to complete the plan should be identified. The costs (including personnel, sampling and analytical charges) are integral to the project, and therefore will need to be factored into loan negotiations.

Any monitoring program requires allocation of responsibilities. The task of assigning roles can be aided by the use of the matrices developed to show linkages between impacts and monitoring. This can help establish the appropriate level of expertise for particular tasks, and in assigning functions to different organizations. Crosschecking can be facilitated by comparison of results from different monitoring sources, including local communities. For example, the effectiveness of bans on timber extraction by contractors can be verified using aerial photography supplemented by field observations.

The recipients, structure and intended usage of monitoring reports should be clearly identified. It is imperative that the reporting structure ensures that non-compliance is rapidly brought to the attention of the appropriate decision makers, to facilitate timely corrective actions. In addition, the structure, content and timing of reporting to the Bank should be designed to facilitate supervision and provide background for Bank missions.

Adherence to the monitoring and supervision schedule should ensure that the necessary mitigation measures are completed in a timely and satisfactory manner.

It should also assist personnel involved in monitoring and supervision (particularly where responsibilities change), by providing a succinct summary of the agreed environmental requirements. To reinforce effective meshing of environmental and other project requirements, financial disincentives can be utilized. Refusal to disburse funds unless work is done in compliance with environmental requirements is a standard sub-project condition that could also be elevated to the funding agreement level.

In addition to assessing predicted impacts, monitoring may also reveal unanticipated impacts. Effective supervision ensures that corrective action is taken commensurate with the scale of such impacts. This can significantly influence project costs, which underlines the importance of accurate and timely reporting. Redesign or mobilization of contingency funds may be required.

5.2 Participatory monitoring

The evaluation activities will provide analysis of the impact of the Project on the beneficiaries' livelihoods and environmental footprints and effects of the interventions on the economic activities and infrastructures. The information will be disaggregated by gender, socio-cultural group (nomadic pastoralists, IDPs etc) and socio-economic grouping (e.g. landless). As well as quantitative data taken from the Project MIS and formal evaluations, qualitative information will also be obtained that will address, through beneficiary participation, the expressed needs of the target groups and issues and problems requiring follow-up.

Participatory monitoring and evaluation is an important element of the Project and will be a valuable mechanism to gauge impacts. It will provide timely progress and impact reporting from the beneficiaries to Project management, thus enhancing bottom-up communication.

5.3 Bi-annual Evaluation

It is expected that evaluation reviews will be carried out by a third party (e.g. an independent local consultant, NGO or other service provider) that is not involved in the Project.
Annual reviews should be undertaken after annual reports have been produced and before WB supervision missions visit the Project.

The objectives of annual reviews of ESMF implementation are two-fold:

1. to assess Project performance in complying with ESMF procedures, learn lessons, and improve future performance; and
2. to assess the occurrence of, and potential for, cumulative impacts due to Project-funded and other development activities.

The annual reviews are intended to be used by Project management to improve procedures and capacity for integrating natural resources and environmental/social management into Project operations. They will also be a principal source of information to Bank supervision missions.

5.3.1 Scope of Work - ESMF Performance Assessment

The overall scope of the performance assessment work is to:

- Assess the adequacy of the sub-project approval process and procedures based on interviews with Project participants, Project records, and the environmental and social performance of a sample of approved sub-projects;
- Assess the adequacy of ESMF roles and responsibilities, procedures, forms, information resource materials, etc.;
- Assess the needs for further training and capacity building;
- Identify key risks to the environmental and social sustainability of sub-projects;
- and
- Recommend appropriate measures for improving ESMF performance.

The following tasks will be typical:

- Review federal and locality records of sub-project preparation and approval (e.g. applications; screening checklistsi.e. EMPs and PMPs; appraisal forms; approval documents), as well as related studies or reports on wider issues of natural resources and environmental management in the country.
- Undertake monitoring surveys to ensure the commitments and conditions specified in planning documents have been adhered to through sampling of no less than 20% of the total number of conditions and commitments, and analysis of the results to ensure all outcomes have been achieved.
- On the basis of this review, conduct field visits of a sample of approved subprojects to assess the completeness of planning and implementation work, the adequacy of environmental/social design, and compliance with proposed mitigation measures. The sample should be large enough to be representative and include a substantial proportion of sub-projects that had (or should have had) a field appraisal according to established ESMF criteria.
- Sub-projects in sensitive natural or social environments should especially be included.
- Interview LIU members and LSC officials responsible for subproject appraisal and approval to determine their experience with ESMF
- implementation, their views on the strengths and weaknesses of the ESMF process, and what should be done to improve performance. Improvements may concern, for example, the process itself, the available tools (e.g. guidelines, forms, information sheets), the extent and kind of training available, and the amount of financial resources available.
- Develop recommendations for improving ESMF performance.

5.3.2 Scope of Work - Cumulative Impacts Assessment

This part of the annual review assesses the actual or potential cumulative impacts of sub-projects with other sub-projects or development initiatives on the environment, natural resources and community groups. Cumulative impacts result from a number of individual small-scale activities that, on their own, have minimal impacts, but over time and in combination generate a significant impact.

For example:

- Decline in groundwater levels or quality due to the construction of numerous wells and the introduction of numerous small-scale irrigation works;
- Illegal poaching of wildlife due to expansion of land under cultivation or increased proximity and access to protected areas through construction of small access roads; and
- Increase in number of animal heads due to improved rangeland capacity and provision of watering points
- Attraction of large migrant populations to communities that have successfully introduced improved social infrastructure (such as schools, health centers or water sources) resulting in overcrowding, depletion of resources (e.g. space, supplies, water), etc.

The function of this assessment is primarily as an “early warning” system for potential cumulative impacts that might otherwise go undetected and unattended to.

It will be largely based on the observations of people interviewed during the field work, and trends that may be noticed by district or regional officials. Where cumulative impacts are detected or suspected, recommendations will be made to address the issue, perhaps through more detailed study to clarify matters and what should or can be done about them.

5.3.3 Qualifications for Undertaking External Reviews

The reviews should be undertaken by an individual or small team with training and experience relevant to the likely issues to be encountered (e.g. environmental and natural resources management). They should also be familiar with the methods and practices of effective community consultation, and with typical methods and processes for preparing, appraising, approving and implementing small-scale community development projects.

5.3.4 Outputs

The principal output is an annual review report that documents the review methodology, summarizes the results, and provides practical recommendations.

Distinct sections should address a) ESMF performance and b) cumulative impacts.

Annexes should provide the detailed results of the field work, and summarize the number of approved sub-projects by district and their characteristics according to the annual report format (see Sample 3 at Annex 3).

5.4 Reporting

LIUs are normally required to report annually on their sub-project activities during the preceding year. The content of these reports should include:

- A performance and compliance report which describes the performance and compliance with conditions placed on the project and implementation requirements prescribed. The report should include any monitoring reports, test results obtained and a discussion of lessons learned in project planning, implementation and operation;
- Level of community involvement and contribution to the project, both directly and in-kind;
- Level of technical assistance from outside the community required;
- Lessons learned regarding management of environmental and social issues;
- A record of sub-project transactions and expenditure;
- A dissertation of experience and issues on a year-by-year; and
- Information to assist the annual review process.

A typical annual review form is included at Sample 3 in Annex 3.

5.5 Public Disclosure

Public disclosure is a requirement of most funding agencies for all environmental and social documentation developed for a project. Before a sub-project is approved, EMPs are required to be made available for public review at a place accessible to local people (e.g. a district administration office) and in a form, manner and language that can be understood by local people. They are generally also forwarded to the funding agency for disclosure at information centers in the relevant country offices and through the agency's website. Disclosure requirements required by the World Bank are described in OP 4.01, 4.10 and 4.12.

However, it is also good practice to disclose information about the sub-project progressively through the planning of the sub-project. Thus, there is benefit in disclosing the intent of the project to the community early in its inception stage.

This enables feedback, not only about issues to be addressed in the required planning documents, which will assist in development of an improved project concept and plan with greater acceptance and ownership within the community.

The disclosure process should also provide adequate time for people to receive information about the project prior to any opportunity to input into the project development process, thus enabling people to present informed considered debate on issues that arise.

6 Capacity Building and Institutional Strengthening

6.1 Introduction

The environmental and social sustainability of Bank projects that involve funding multiple, small-scale subprojects is highly and unavoidably dependent on the capacity of communities and local and national authorities to carry out the associated design, planning, approval and implementation work. Thus, to ensure that capacity, it is vital that a Project allocates sufficient resources to training, capacity building and technical assistance, especially in the early years. These efforts will not only benefit this project, but will also build local capacity to undertake other development initiatives funded locally or by other donors.

6.2 Institutional capacity assessment

In Sudan the HCENRM is responsible to address environmental management and there is evolving legislation and regulations that are drafted awaiting parliamentary approval to enable their enactment.

However, there is only limited capacity below the national level of government to address environmental requirements, although there are often laws promulgated at state level to provide for local environmental protection requirements.

Resources dedicated to environmental protection are limited in all jurisdictions. As a consequence there is little capacity to monitor environmental performance at local levels. Thus there is a need to support institutional groups to implement the intent of this ESMF and to monitor the performance of the sub-projects.

Hence, the borrower's capacity for safeguard policies is limited. However, the project will be closely supervised and will be implemented in cooperation with a Project Implementation Unit knowledgeable about World Bank procedures (including use of the Africa Region's Environmental Guidelines for Community-Driven Development projects[5]) and by UN agencies with environmental and social procedures and policies acceptable to the Bank.

[5] As expressed in the *Environmental Guidelines for the Community*

Outside of government, there is capacity within NGOs, private consultants and academic institutions to assist the community to develop and monitor subprojects.

The requirement for the programs will be to co-ordinate those resources to make them available to the community. Within the overall Project budget, resources have been identified to meet this need.

Within the institutional support (Component 1) to enhance the capacity of a number of localities, the development of safeguard policies and procedures to handle social and environmental issues prudently, is included. Specific training of the LIU, CBOs and local contracts on the FTWMP ESMF guidelines and procedures will be conducted.

6.3 Development of Environmental Awareness and Knowledge

During the community mobilization period, extensive traing and awareness raising to participating communities will take place. Community land use management and development plans (CLMP) would be developed jointly between the community and the locality as part of the environmental awareness building and as a base for participatory development. Furthermore prior to the implementation of a specific IWMD intervention, further training will be provided to the community directly linked to the intervention whether it is forestry management or small scale mining mitigation measures.

The objective of the training is to:

- Support representatives and leaders of community groups and associations to prioritize their needs, and to identify, prepare, implement and manage the environmental and social aspects of their sub-projects;
- Ensure that local government officials have the capacity to assist communities in reviewing their subproject proposals, and in supervising the implementation of sub-projects; and
- Strengthen local NGOs and other service providers to act as extension teams to provide technical support (including basic EMPs and PMPs) to communities in preparing their sub-projects.

Environmental and Social Management Framework for World Bank Projects with Multiple Small-Scale Subprojects. A Tool kit. Africa Region. February 2005

The training is expected to result in:
Awareness-raising for participants who need to appreciate the significance or relevance of environmental and social issues.

Sensitization to the issues for participants who need to be familiar enough with the issues that they can make informed and specific requests for technical assistance;
and
Detailed technical training for participants who will need to analyze potentially adverse environmental and social impacts, to prescribe mitigation approaches and measures, and to prepare and supervise the implementation of management plans.

This training will address such matters as community participation methods; environmental analysis; using the ESMF checklist; preparing EMPs, PMPs,. etc.; ESMF reporting; and subproject supervision and monitoring.

6.4 Implementation Budget

A budget for implementation of this ESMF is included in the overall budget for the FTWMP in Sudan.

Appendix 1 ESMF Checklists

Note: These forms/checklists were taken directly from World Bank (2005); Environment and Social Management Framework for World Bank Projects with Multiple Small-Scale Sub-Projects – A Toolkit; Africa Region, The World Bank, February, 2005

C3. Example General ESMF Checklist

C4. Example Environmental and Social Field Appraisal Form

C5. Example Annual Report Form

C14. Common subproject types, potential impacts, and mitigation measures

C3: EXAMPLE GENERAL ESMF CHECKLIST

NAME OF PROJECT

Application Number

Subproject Name:

Subproject Location:

Community Representative and Address:

Extension Team Representative and Address:

Site Selection:

When considering the location of a subproject, rate the sensitivity of the proposed site in the following table according to the given criteria. Higher ratings do not necessarily mean that a site is unsuitable. They do indicate a real risk of causing undesirable adverse environmental and social effects, and that more substantial environmental and/or social planning may be required to adequately avoid, mitigate or manage potential effects.

Issues	Site Sensitivity			Rating
	Low	Medium	High	
Natural habitats	No natural habitats present of any kind	No critical natural habitats; other natural habitats occur	Critical natural habitats present	
Water quality and water resource availability and use	Water flows exceed any existing demand; low intensity of water use; potential water use conflicts expected to be low; no potential water quality issues	Medium intensity of water use; multiple water users; water quality issues are important	Intensive water use; multiple water users; potential for conflicts is high; water quality issues are important	
Natural hazards vulnerability, floods, soil stability/ erosion	Flat terrain; no potential stability/erosion problems; no known volcanic/seismic/ flood risks	Medium slopes; some erosion potential; medium risks from volcanic/seismic/ flood/ hurricanes	Mountainous terrain; steep slopes; unstable soils; high erosion potential; volcanic, seismic or flood risks	
Cultural property	No known or suspected cultural heritage sites	Suspected cultural heritage sites; known heritage sites in broader area of influence	Known heritage sites in project area	

Issues	Site Sensitivity			Rating
	Low	Medium	High	
Involuntary resettlement	Low population density; dispersed population; legal tenure is well-defined; well-defined water rights	Medium population density; mixed ownership and land tenure; well-defined water rights	High population density; major towns and villages; low-income families and/or illegal ownership of land; communal properties; unclear water rights	
Indigenous peoples	No indigenous population	Dispersed and mixed indigenous populations; highly acculturated indigenous populations	Indigenous territories, reserves and/or lands; vulnerable indigenous populations	

Completeness of Subproject Application:

Does the subproject application document contain, as appropriate, the following information?

	Yes	No	N/A
Description of the proposed project and where it is located			
Reasons for proposing the project			
The estimated cost of construction and operation			
Information about how the site was chosen, and what alternatives were considered			
A map or drawing showing the location and boundary of the project including any land required temporarily during construction			
The plan for any physical works (e.g. layout, buildings, other structures, construction materials)			
Any new access arrangements or changes to existing road layouts			
Any land that needs to be acquired, as well as who owns it, lives on it or has rights to use it			
A work program for construction, operation and decommissioning the physical works, as well as any site restoration needed afterwards			
Construction methods			
Resources used in construction and operation (e.g. materials, water, energy)			
Information about measures included in the subproject plan to avoid or minimize adverse environmental and social impacts			
Details of any permits required for the project			

Environmental and Social Checklist

		Yes	No	ESMF Guidance
A	**Type of activity – Will the subproject:**			
1	Support animal husbandry or processing?			C14.1
2	Involve the construction or rehabilitation of any small dams, weirs or reservoirs?			C14.2
3	Support irrigation schemes?			C14.3
4	Support rural water supply and sanitation schemes?			C14.4
5	Build or rehabilitate any rural roads?			C14.5
6	Involve solid waste management?			C14.6
7	Involve community forestry?			C14.7
8	Involve small-scale aquaculture?			C14.8
9	Involve leather processing?			C14.9
10	Involve food processing?			C14.10
11	Involve community heathcare facilities and the management of healthcare waste?			C14.11
12	Build or rehabilitate any structures or buildings?			C14.12
13	Support agricultural activities?			C14.13
14	Be located in or near an area where there is an important historical, archaeological or cultural heritage site?			B5.3
15	Be located within or adjacent to any areas that are or may be protected by government (e.g. national park, national reserve, world heritage site) or local tradition, or that might be a natural habitat?			B5.4
16	Depend on water supply from an existing dam, weir, or other water diversion structure?			B8
	If the answer to any of questions 1-16 is "Yes", please use the indicated Resource Sheets or sections(s) of the ESMF for guidance on how to avoid or minimize typical impacts and risks			
B	**Environment – Will the subproject:**			
17	Risk causing the contamination of drinking water?			
18	Cause poor water drainage and increase the risk of water-related diseases such as malaria or bilharzia?			
19	Harvest or exploit a significant amount of natural resources such as trees, fuel wood or water?			
20	Be located within or nearby environmentally sensitive areas (e.g. intact natural forests, mangroves, wetlands) or threatened species?			
21	Create a risk of increased soil degradation or erosion?			
22	Create a risk of increasing soil salinity?			
23	Produce, or increase the production of, solid or liquid wastes (e.g. water, medical, domestic or construction wastes)?			
24	Affect the quantity or quality of surface waters (e.g. rivers, streams, wetlands), or groundwater (e.g. wells)?			
25	Result in the production of solid or liquid waste, or result in an increase in waste production, during construction or operation?			

		Yes	No	ESMF Guidance
	If the answer to any of questions 17-25 is "Yes", please include an Environmental Management Plan (EMP) with the subproject application.			B5.1, C8
C	**Land acquisition and access to resources – Will the subproject:**			
26	Require that land (public or private) be acquired (temporarily or permanently) for its development?			
27	Use land that is currently occupied or regularly used for productive purposes (e.g. gardening, farming, pasture, fishing locations, forests)			
28	Displace individuals, families or businesses?			
29	Result in the temporary or permanent loss of crops, fruit trees or household infrastructure such as granaries, outside toilets and kitchens?			
30	Result in the involuntary restriction of access by people to legally designated parks and protected areas?			B6.4
	It the answer to any of the questions 26-29 is "Yes", please consult the ESMF and, if needed, prepare a Resettlement Action Plan (RAP)			B6.2, B6.3, C10
D	**Indigenous people – Are there:**			
31	Any indigenous groups living within the boundaries of, or nearby, the project?			
32	Members of these indigenous groups in the area who could benefit from the project?			
	If the answer to questions 31 or 32 is "Yes", please consult the ESMF and, if needed, prepare an Indigenous Peoples (IPP).			B7, C11
E	**Pesticides and agricultural chemicals – Will the subproject:**			
33	Involve the use of pesticides or other agricultural chemicals, or increase existing use?			
	If the answer to question 33 is "Yes", please consult the ESMF and, if needed, prepare a Pest Management Plan (PMP).			B5.2, C9
F	**Dam safety – Will the subproject:**			
34	Involve the construction of a dam or weir?			
35	Depend on water supplied from an existing dam or weir?			
	If the answer to question 34 or 35 is "Yes", please consult the ESMF and, if needed, prepare a Dam Safety Report (DSR).			B8, C12

CERTIFICATION

We certify that we have thoroughly examined all the potential adverse effects of this subproject. To the best of our knowledge, the subproject plan as described in the application and associated planning reports (e.g. EMP, RAP, IPP, PMP), if any, will be adequate to avoid or minimize all adverse environmental and social impacts.

Community representative (signature): ……..……

Extension team representative (signature): ……

Date: ……

FOR OFFICIAL USE ONLY

Desk Appraisal by Review Authority:

☐ **The subproject can be considered for approval.** The application is complete, all significant environmental and social issues are resolved, and no further subproject planning is required.

☐ **A field appraisal is required.**

Note: *A field appraisal must be carried out if the subproject:*

- *Needs to acquire land, or an individual or community's access to land or available resources is restricted or lost, or any individual or family is displaced*
- *May restrict the use of resources in a park or protected area by people living inside or outside of it*
- *May affect a protected area or a critical natural habitat*
- *May encroach onto an important natural habitat, or have an impact on ecologically sensitive ecosystems (e.g. rivers, streams, wetlands)*
- *May adversely affect or benefit an indigenous people*
- *Involves or introduces the use of pesticides*
- *Involves, or results in: a) diversion or use of surface waters; b) construction or rehabilitation of latrines, septic or sewage systems; c) production of waste (e.g. slaughterhouse waste, medical waste); d) new or rebuilt irrigation or drainage systems; or e) small dams, weirs, reservoirs or water points.*

The following issues need to be clarified at the subproject site:

……
……
……

A Field Appraisal report will be completed and added to the subproject file.

Name of desk appraisal officer (print): ……

Signature: …… Date: ……

C4: Example Environmental and Social Field Appraisal Form

NAME OF PROJECT
(E.G. MALAWI SOCIAL ACTION FUNI

Application Number:

Part 1: Identification

1. **Project Name:** (for example: "Kawala Primary School Rehabilitation")

2. **Project Location:** (for example: "Kilwa, Ngoro District, Western Kenya")

3. **Reason for Field Appraisal:** Summarize the issues from the ESMF Checklist that determined the need for a Field Appraisal.

4. **Date(s) of Field Appraisal:**

5. **Field Appraisal Officer and Address:**

6. **Extension Team Representative and Address:**

7. **Community Representative and Address:**

Part 2: Description of the Project

8. **Project Details:** Provide details that are not adequately presented in the subproject application. If needed to clarify subproject details, attach sketches of the subproject component(s) in relation to the community and to existing facilities

Part 3: Environmental and Social Issues

9. Will the project:
   - Need to acquire land?
   - Affect an individual or the community's access to land or available resources?
   - Displace or result in the involuntary resettlement of an individual or family?

Yes	No

If "Yes", tick one of the following boxes:

- ❑ The Resettlement Action Plan (RAP) included in the subproject application is adequate. No further action required.
- ❑ The RAP included in the subproject application must be improved before the application can be considered further.
- ❑ A RAP must be prepared and approved before the application can be considered further.

10. Will the project:	**Yes**	**No**
• Encroach onto an important natural habitat?		
• Negatively affect ecologically sensitive ecosystems?		

If "Yes", tick one of the following boxes:

- ❑ The Environmental Management Plan (EMP) included in the subproject application is adequate. No further action required.
- ❑ The EMP included in the subproject application must be improved before the application can be considered further.
- ❑ An EMP must be prepared and approved before the application can be considered further.

11. Are there indigenous people living in the subproject area who could benefit from, or be adversely affected by, the subproject?	**Yes**	**No**

If "Yes", tick one of the following boxes:

- ❑ The Indigenous Peoples Plan (IPP) included in the subproject application is adequate. No further action required.
- ❑ The IPP included in the subproject application must be improved before the application can be considered further.
- ❑ An IPP must be prepared and approved before the application can be considered further.

12. Will this project involve or introduce pesticides?	**Yes**	**No**

If "Yes", tick one of the following boxes:

- ❑ The Pest Management Plan (PMP) included in the subproject application is adequate. No further action is required.
- ❑ The PMP included in the subproject application must be improved before the application can be considered further.
- ❑ A PMP must be prepared and approved before the application can be considered further.

13. Will this project involve or result in:	**Yes**	**No**
• Diversion or use of surface waters?		
• Construction and/or rehabilitation of latrines, septic or sewage systems?		
• Production of waste (e.g. slaughterhouse waste, medical waste, etc.)?		
• New or rebuilt irrigation or drainage systems?		

If "Yes", tick one of the following boxes:

- ❑ The application describes suitable measures for managing the potential adverse environmental effects of these activities. No further action required.
- ❑ The application does not describe suitable measures for managing the potential adverse environmental effects of these activities. An Environmental Management Plan must be prepared and approved before the application is considered further.

14. Will this project require the construction of a small dam or weir?

Yes	No

If "Yes", tick one of the following boxes:

- ❑ The application demonstrates that the structure(s) will be designed by qualified engineers, and will be built by qualified and adequately supervised contractors. No further action is required.
- ❑ The application does not demonstrate that the structure(s) will be designed by qualified engineers, and will be built by qualified and adequately supervised contractors. The application needs to be amended before it can be considered further.

15. Will this project rely on water supplied from an existing dam or weir?

Yes	No

If "Yes", tick one of the following boxes:

- ❑ The application demonstrates that a dam safety report has been prepared, the dam is safe, and no remedial work is required. No further action is required.
- ❑ The application does not demonstrate that a dam safety report has been prepared, the dam is safe, and no remedial work is required. A dam safety report must be prepared and approved before the application is considered further.

16. Are there any other environmental or social issues that have not been adequately addressed?

Yes	No

If "Yes", summarize them:

_____

_____

___

_____

___

and tick one of the following boxes:

- ❑ Before it is considered further, the application needs to be amended to include suitable measures for addressing these environmental or social issues.
- ❑ An Environmental Management Plan needs to be prepared and approved before the application is considered further.

Part 4: Field Appraisal Decision

- ❑ **The subproject can be considered for approval.**
  Based on a site visit and consultations with both interested and affected parties, the field appraisal determined that the community and its proposed project adequately address environmental and/or social issues as required by the Project's ESMF.

- **Further subproject preparation work is required before the application can be considered further.**
  The field appraisal has identified environmental and/or social issues that have not been adequately addressed. The following work needs to be undertaken before further consideration of the application:

  _____
  _____
  _____

All required documentation such as an amended application, EMP, RAP, IPDP or PMP will be added to the subproject file before the subproject is considered further.

Name of field appraisal officer (print):
…….

Signature: …….. Date:
……..

C5: Example Annual Report Form

Application Number:

NAME OF PROJECT
(E.G. MALAWI SOCIAL ACTION FU

1. NAME OF DISTRICT OR LOCAL GOVERNMENT:

2. Name and Position of Review Authority Completing the Annual Report:

3. Reporting Year:

4. Date of Report:

5. Community Subprojects:

Please enter the numbers of subprojects ion the following table. *(Note: The types of sub projects should be the same as those listed in Section B2 of the ESMF.)*

TYPES OF ACTIVITIES	Approved this year	Application included an ESMF checklist	Number of Activities Requiring:						
			Field Appraisal	EMP	PMP	RAP	IPDP	DSR	Specific TA
Education									
Construction of classrooms									
Teacher housing									
Fencing									
School supplies and medical kits									
Classroom furnishings									
Laboratories									
Sports fields/recreation facilities									
Water Supply									
Water point rehabilitation									
Tertiary distribution piping									
Hand dug wells									
Spring protection									
Earth dam rehabilitation									

TYPES OF ACTIVITIES	Approved this year	Application included an ESMF checklist	Number of Activities Requiring:						
			Field Appraisal	EMP	PMP	RAP	IPDP	DSR	Specific TA
Community reservoirs									
Small dams									
Water harvesting facility									
Water treatment plant									
Hand pumps and mechanized boreholes									
Gravity water schemes									
Sanitation and Waste Management									
Washing facilities									
Public toilets / pit latrines									
Sewarage systems									
Sewage treatment facilities									
Soak-away pits / septic tanks									
Composting sites									
Waste disposal facility									
Health									
Health Centres									
Dispensaries									
Emergency rooms									
Maternity clinics									
HIV/AIDS centers									
Laboratories									
Transportation, Communication and Energy									
Tertiary/secondary roads									
Tertiary/secondary road culverts/bridges									
Primary road culverts/bridges									
Footpaths									
Rural telephone									
Rural electrical distribution									
Photovoltaic cells									
Biogas									
Windmills									
Agriculture and Markets									
Community dips									
Fish landing sites									
Community granaries									
Cattle watering facilities									
Livestock markets									
Slaughterhouses and yards									

TYPES OF ACTIVITIES	Approved this year	Application included an ESMF checklist	Number of Activities Requiring:						
			Field Appraisal	EMP	PMP	RAP	IPDP	DSR	Specific TA
Tick dips									
Vaccination yards									
Terracing									
Agro-processing facilities									
Post harvest handling facilities									
Market places									
Natural Resources Management									
Community tree nurseries									
Afforestation									
Anti-erosion interventions and soil fertility restoration									
Energy saving stoves									
Demonstration/nutrition gardens									
Stream and river bank protection									
Wetland development									
Rangeland improvements									
Eco-tourism and hunting areas									

6. Were there any **unforeseen environmental or social problems** associated with any subprojects approved and implemented this year? If so, please identify the subprojects and summarize the problem(s) and what was or will be done to solve the problem(s). Use a summary table like the one below.

Subproject	Problem(s)	Actions taken	Actions to be taken

7. Have any **other environmental or social analyses** been carried out by other public or private agencies in your district/province? If so, please describe them briefly.

……

……

…….

8. Have you noticed any particular **problems with implementing the ESMF** in the past year (e.g. administrative, communications, forms, capacity)? If so, please describe them briefly.

……

……

……

9. **Training:** Please summarize the training received in your district/province in the past year, as well as key areas of further training you think is needed.

Group	Training Received	Training Needed
Review Authority		
Approval Authority		
Extension Teams		
Communities		

C14: Resources Sheets

CONTENTS:

C14.1: SMALL-SCALE ANIMAL HUSBANDRY

Scope of Projects

Small-scale animal husbandry can be on a commercial basis using intensive stall-fed operations, extensive rangeland grazing, or a mixture of the two. It can also involve mixed farms, traditional pastoral systems or nomadic herding. A variety of animals may be included: cattle, sheep and goats for meat or milk; pigs, poultry and other farmyard animals; camels and draught animals. Land, a supply of feed and water, and often buildings and fencing are required. It can involve farming equipment that must be fueled, maintained and operated. Cultivating feed may entail the use of agro-chemicals (fertilizers, herbicides and pesticides), and drugs may be used in maintaining animal health. Products include meat, milk and hides as well as manure and liquid waste. Manure, liquid waste and agro-chemicals may be washed into ground or surface waters.

Environmental Concerns

HUMAN ENVIRONMENT

- Human settlements near the project
- Existing landuses to be displaced/converted (e.g. forestry reserves, recreational areas)
- Human health
  - Animal pests and diseases transmitted to humans in the water supply, insects, edible vegetation, and directly
  - Chicken, pigs and other animals close to households
- Animal production using wastes (crop by-products and residues)
- Sensitivity of local population
  - Land tenure system
  - Security of livelihoods
  - Traditional livelihoods (e.g. tribal people)
  - Cultural values
  - Gender division of labour

Natural Environment

- Forests and wilderness areas (areas relatively undisturbed by human development) proposed to be cleared to create grazing land
  - Habitats for indigenous animal species
  - Number and variety of plant and animal species
  - Important environmental services (e.g. control of erosion, recharge groundwater)
  - Livelihood of indigenous peoples
  - Vulnerable to the pressures of population growth, landlessness and economic development
  - Sustainability: cleared moist tropical lowland forest areas are likely unsustainable for animal production and susceptible to irreparable land degradation
- Vulnerability of arid and semi-arid (marginal) lands to overgrazing and soil erosion
- Areas supporting critical habitats or rare, ecologically or commercially/domestically important plants and animals
- Other areas of special concern, officially designated or recognized nationally and/or internationally
- Environments already significantly degraded
- Soil structure and productivity
  - Vulnerable to inappropriate stocking, stocking densities or extended grazing periods

  - Soil improvement with manure
- Wildlife
  - Competition for natural fodder
  - Persecution and hunting of wildlife by farmers
- Waterbodies and hydrology
  - Change in infiltration and runoff rates, overall volumes, and timing
  - Degradation of water quality through erosion and release of agro-chemicals

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
Human Environment	
• Human health hazards - Introduction of diseases to humans and contamination of water supplies for human use by animal manures and urine - Pollution and environmental disruption from inappropriate use of agro-chemicals	• Collect and store manure for composting and later application to fields • Keep manure and urine away from household areas and waterbodies • Consider using a bio-gas system • Provide protective clothes to minimize danger to field workers applying agro-chemicals • Avoid overuse of fertilizers • Apply herbicides and pesticides at recommended times and doses • Consider integrated pest management
• Transformation of indigenous (sometimes communal) tenure systems and organizations	• Comprehensive community participation and attention to rights and needs of all groups
Soil and Vegetation	
• Degradation of vegetation due to - Too many animals and overgrazing, possibly as a result of stock improvement measures - Excess harvesting of fodder and forage resources - Decrease in favoured fodder species and increase in inedible weedy species • Increased soil erosion due to - Clearing and degradation of vegetation - Trampling and loosening of soil - Animal paths scarring hillsides and triggering erosion, sediment-laden runoff and, possibly, gully formation	• Limit animal numbers • Control length of grazing time and succession of use on particular areas - Rotational grazing - Development of dry-season grazing areas and grazing reserves • Mix animal species to maximize use of vegetation resources • Reseed and produce fodder • Use cut-and-carry feed from elsewhere • Restrict animal access to unstable areas (e.g. by defining and fencing-off critical slopes) • Use soil erosion control measures (e.g.

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
• Increased rapid runoff due to - Vegetation clearing - Soil compaction diminishing infiltration capacity	reforestation, reseeding of grasses, land preparation, terracing)
• Deterioration of soil fertility and physical characteristics due to - Removal of vegetation - Increased erosion - Soil compaction	
Water Points	
• Degradation or depletion of vegetation and soil around water points • Too much use of surface and groundwater sources results in reductions in surface flow and the water table • Lowering of the immediate water table and degradation of local vegetation through drilling wells and use of boreholes • Aggravation of the effect of droughts through poor planning, placement, management and control of water points	• Place water points strategically to spread the effect • Develop many small-capacity water sources • Control use of water points (animal numbers and time of year) • Fence off permanent water sources when temporary pools and streams are available • Limit well capacity by choice of technologies (e.g. handpumps or buckets instead of motor pumps)
Water Quality	
• Increased muddiness of surface water courses due to soil disturbances from grazing and increased soil erosion • Contamination of surface and groundwaters -- and negative effects on wildlife, vegetation, crop yields, aquatic ecology and wildlife -- by agro-chemicals used to control pests and diseases • Contamination of water supplies from leaching or runoff of animal urine and manures	• Use biological pest controls before chemical controls to reduce adding toxic residues to the environment • Choose agro-chemicals that are species-specific, with short active period and low impact on other plants • Choose appropriate spraying measures and timing to minimize water pollution • Fence off waterbodies from grazing animals
Wildlife	
• Displacement or reduction of wildlife populations by loss of habitat • Disruption of migratory stop-over points • Competition for food and water resources • Increased poaching and killing of wildlife considered as pests or predators to animals,	• Plan and implement range management strategies (choice of species, animal numbers, grazing areas) that minimize adverse effects on wildlife and avoid excessive competition • Rehabilitate degraded areas nearby as wildlife habitat

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
or as human food sources • Introduction of diseases to wildlife	• Investigate management of wildlife ranching which will help protect wildlife resources • Consider wildlife ranching, tourism and controlled hunting as alternatives to animal production
Animal Processing • Degradation of surface waters by effluents with high biochemical oxygen demand (BOD), chemical oxygen demand (COD), and suspended and dissolved solids • Introduction of diseases to humans through bacteria in discharge effluent • Land degradation through inappropriate disposal of solid wastes on- or off-site • Damage to aquatic ecosystem and water supply quality from equipment washing detergents • Human health effects within the facility - Unhygienic work conditions - Spread of animal diseases to humans • Attraction of predators and scavengers	• Liquid and solid waste disposal or treatment to prevent contamination of water supplies by effluent from tanneries, abattoirs and other animal processing facilities • Proper management of animal processing facilities to reduce health impacts - Institute hygienic work practices - Ensure adequate refrigeration - Clean machinery - Implement an operational health and safety programme - Monitor for changes in human health and water quality

ENVIRONMENTAL STANDARDS	ENVIRONMENTAL QUALITY INDICATORS
• National environmental standards and controls concerning the use and application of agro-chemicals • Alternatively, internationally recognized standards (e.g. World Health Organization)	***POLLUTION*** • Concentrations of pollutants in air and surface and groundwaters • Concentrations of suspended sediments in surface waters • Noise levels ***Environmental Health*** • Variety and numbers of plant, animal and bird species (degree of biodiversity) • Extent of critical habitats ***HUMAN WELLBEING*** • Incidence of human and animal illness or disease • Poverty levels

Sources:
EC Sectoral Environmental Assessment Sourcebook (1993)
WORLD BANK ENVIRONMENTAL ASSESSMENT SOURCEBOOK (1991)

FIELD GUIDELINES FOR EA OF RURAL CREDIT LOANS IN VIET NAM (2000)

C14.2: Small Dams and Reservoirs

Scope of Projects

Small dams and reservoirs can have many purposes, for example to provide water for irrigation, water supply and aquaculture, to control erosion or floods, and to generate micro-hydro power. They may involve relatively low structures (weirs) to divert water to other uses without creating a reservoir. Higher structures raise water levels and flood land upstream, and can significantly alter the timing and perhaps temperature of downstream flows. The latter may require resettlement of people, land clearing, and the relocation of roads. Structures that divert water to other uses reduce downstream flows with consequent effects on surface and groundwater hydrology, aquatic habitats, and water users. New roads to access dam and reservoir sites can have their own environmental effects (see Rural Roads *resources sheet)*

Even small dams can have complex and significant environmental effects. Planning and design need to be comprehensive and thorough, and will likely involve specialists in a variety of fields (e.g. engineering, hydrology, aquatic ecology, soil and water conservation, sociology, economics).

ENVIRONMENTAL CONCERNS

HUMAN ENVIRONMENT

- Human settlements above, in and below the dam and reservoir area:
  - flooding of homes, agricultural land, roads, and areas of traditional or cultural importance
  - local livelihoods
  - downstream water uses such as irrigation, water supply and aquaculture
  - traditional or commercial fisheries
- Human health:
  - creating habitats for disease carriers such as mosquitoes and snails
  - increases in water-related diseases such as malaria, schistosomiasis (bilharzia), onchocerciasis (river blindness), dysenteries, fevers and worms
- Increases in farm animal diseases

Natural Environment

- Aquatic environments:
  - Blockage of fish migration and access to spawning areas; fish population decreases downstream
  - Altered timing, quantity, quality and temperature of downstream water flows, and thus the quantity and quality of aquatic habitats
  - Reduced nutrient-rich sediments in the released water
  - Altered rates and locations of bed and bank erosion and deposition downstream
- Reservoir area:
  - Conversion of aquatic species from those that require flowing water to those that need still water, and effects on dependent fisheries
  - Siltation of reservoir if erosion rates in the upstream watershed are high
  - Loss of important habitats and numbers and variety of aquatic species
- Terrestrial environments:
  - Raised water table and lowered agricultural productivity beside the reservoir

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
Human Environment	
• Loss of productive land (e.g. agriculture, grazing, forestry) • Displacement of people and families • Loss of local livelihoods	• Consider alternatives to a new dam and reservoir, for example: - Upgrading and renovating existing water supply and irrigation systems - Alternate locations and/or dispersed, smaller dams in less sensitive areas - Watershed improvement program to enhance retention of precipitation in soils (see below) • Compensate for taken land and structures, and resettlement (including re-housing, re-establishment of livelihood activities, water and sanitation, training)
• Reduction of water available to downstream water users	• Avoid areas of significant economic or cultural value to local people • Ensure that downstream water users (e.g. water supply, irrigation, livestock watering) are partners in planning the dam and mitigation/compensation measures
Human Health	
• Creating habitats for disease carriers such as mosquitoes and snails • Increases in water-related diseases such as malaria, schistosomiasis (bilharzia), onchocerciasis (river blindness), dysenteries, fevers and worms	• Assess the ecology of disease carriers in the watershed • Employ suitable prevention and mitigation measures, including education of local people and construction workers, e.g.: - Ensure all construction sites, borrow pits and quarries are properly drained - Finish and manage reservoir margins for proper drainage - Vary the reservoir water level - Proper design and operation of dam spillways and gates (timing and volume of discharges) • Monitor disease and public health indicators, during and after construction, and take corrective measures (e.g. education, medical)

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	as needed
Natural Environment (General)	
• Loss of natural areas, important habitats, and number and variety of species (biodiversity)	• Avoid: - Protected natural areas - Critical habitats or areas with significant biodiversity (e.g. wetlands)
• Threatened water source(s) for the reservoir (e.g. siltation, evaporation losses)	• Assess state of the watershed, and plan and implement appropriate water conservation program, perhaps including: - Watershed improvement measures (e.g. revegetation, reforestation, afforestation, controlled use) to reduce erosion and increase infiltration of precipitation - Training to ensure effective tending of improvement measures (e.g. watering, protection from grazing) - Agricultural methods that maximize soil moisture conservation (e.g. mulching, terracing, contour cropping, maintaining soil cover)
Aquatic Environment – River/Stream	
• Reduced or altered timing, quantity, quality and temperature of downstream water flows • Altered rates and locations of bed and bank erosion and deposition downstream • Reduction in quantity and quality of aquatic habitats and fish production • Reduction/loss of downstream subsistence or commercial fisheries	• Ensure thorough analysis and assessment of potential impacts to develop and plan, as part of the project, an acceptable combination of: - water releases required to sustain habitats and fish production - habitat improvements to sustain production and fisheries - development assistance to people dependent on reduced fisheries
• Blockage of fish migration and access to upstream spawning areas by dam; decreases in fish populations downstream	• Consider alternate dam locations and possibility of fishway around dam
Aquatic Environment - Reservoir	
• Conversion of aquatic species in reservoir from those that require flowing water to those that need still water, and resulting effects on fishing activities	• Assess fish production potential of reservoir, and implement feasible measures to enhance production (e.g. habitat design, stocking, aquaculture)

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	• Provide development assistance to local people to benefit from reservoir fisheries
• Deterioration of reservoir water quality	• Provide areas for bathing, laundering, and animal watering away from reservoir • Ensure local sanitation facilities do not release pollutants to surface or groundwaters reaching the reservoir • Prevent livestock access to reservoir
• Deterioration of reservoir water from: - Decomposition of flooded vegetation - Nutrients in eroded soils and agricultural fertilizers	• Clear vegetation from reservoir area before flooding • Train farmers in soil and water conservation, and in appropriate use of fertilizers
Terrestrial Environment	
• Raised water table around the reservoir, waterlogging and salinization of soils, and lowered agricultural productivity	• Project support to improve agricultural land drainage and production around reservoir • Develop tolerant fodder and crop species around reservoir

ENVIRONMENTAL STANDARDS	ENVIRONMENTAL QUALITY INDICATORS
• National legislation on protected areas (natural, cultural and built environments) • National legislation on protecting natural resources (e.g. fish, wildlife, forest cover) • International environmental conventions (e.g. heritage, wetlands) • National water quality standards and controls • National controls on use of fertilizers, pesticides and herbicides • Health and safety standards for construction activities	***POLLUTION*** • Fish deaths • Concentrations of suspended sediments and contaminants (e.g. pesticides) in surface waters and reservoir • Reservoir oxygen levels ***Environmental Health*** • Degree of biodiversity (numbers of plant, fish, animal, and bird species) in the watershed • Extent of critical habitats ***HUMAN WELLBEING*** • Incidence of human and animal illness or disease • Poverty levels

SOURCES:

ENVIRONMENTAL SCREENING OF NGO DEVELOPMENT PROJECTS FOR SMALL DAMS / RESERVOIRS (CCIC 1990/91)
EC Sectoral Environmental Assessment Sourcebook (1993)

C14.3: SMALL IRRIGATION SCHEMES

SCOPE OF PROJECTS

Small irrigation schemes can serve a few families or an entire community. They can involve new irrigation for existing rain-fed agriculture, the development of uncultivated areas, and changes or expansions to existing schemes. Water may be pumped from lakes, ponds or underground, or be diverted from streams or rivers[1]*. Pipes, channels or ditches carry the water to farmers' fields where it is distributed to crops by gravity on the soil surface, by hand, or by other means.*

Irrigated agriculture involves complex soil-water-plant relationships, and should not be undertaken without thorough, informed planning, even at a small scale. While the benefits of irrigation can be obvious and impressive, the adverse environmental effects can be significant, long-term, and perhaps permanent.

The most significant environmental issues with small irrigation schemes concern threats to human health and soil productivity. Health effects arise from stagnant water in canals, ditches or fields that provide habitats for water-borne disease carriers. Losses of soil productivity result from over-irrigation or poor soil drainage. These lead to waterlogging and salinization of the soils, and a reduction or complete loss of their usefulness for cropping. Salinization is the build-up of mineral salts in the soil as water evaporates from the soil surface.

ENVIRONMENTAL CONCERNS

HUMAN ENVIRONMENT

- Concerns about:
  - Community management relationships
  - Land tenure system
  - Security of livelihoods
  - Gender division of labour
- Health effects of water-borne diseases and infections, and agro-chemicals
- Conflicting demands on surface or groundwater supplies

Natural Environment

- Groundwater supply for other crops and vegetation
- Quality of surface and groundwaters receiving excess irrigation water; or drainage carrying nutrients, agro-chemicals, salts and minerals
- Soils:
  - Waterlogging
  - Salinization
  - Erosion
- Wetlands affected by irrigation or drainage, and threats to their environmental services, biodiversity, and ecological productivity

[1] For diversions, see *Small Dams and Reservoirs* resources sheet

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
Human Environment	
• Upsetting existing social and economic community management relationships, land tenure system, security of livelihoods, and gender division of labour	• Avoid sites that require: - Resettlement - Displacement of other important land uses, or - Encroachment on historical, cultural, or traditional use areas
• Conflicting demands on surface or groundwater supplies	• Locate and size irrigation schemes: - Where water supplies are adequate and the scheme will not conflict with existing human, livestock, wildlife or aquatic water uses, especially during dry seasons - So that withdrawals do not exceed "safe yield" from groundwater resources • Encourage crops with lower water demands • Ensure effective community organization for equitable distribution of water
Human Health	
• Creating habitats in canals and ditches for disease carriers such as mosquitoes and snails responsible for spreading diseases such as malaria and schistosomiasis (bilharzia) • Spreading infection and disease through the inappropriate use of irrigation canals for water supply, bathing or human waste disposal • Health effects from improper storage, handling, use or disposal of agro-chemicals (pesticides, herbicides)	• Assess ecology of disease carriers in the project area, and employ suitable prevention and mitigation measures, e.g.: - Site and orient water works, fields and furrows to ensure adequate natural drainage of surface water - Use lined canals and pipes to discourage vectors - Avoid unsuitable gradients, and creating stagnant or slowly moving water - Construct straight or only slightly curved canals - Install gates at canal ends to allow complete flushing - Ensure adequate sub-surface drainage of fields - Avoid over-irrigation - Maintain water works, and clear sediment and weeds, regularly • Provide/ensure alternate facilities for domestic water supply, bathing and human waste disposal • Provide education and training for farmers and other community members on:

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	- Irrigation health risks - Efficient use of irrigation water - Maintenance of irrigation and drainage works - Proper storage, handling, use and disposal of agro-chemicals - Integrated pest management • Monitor disease/infection occurrence and public health indicators, and take corrective measures (e.g. physical changes to irrigation scheme, education, medical) as needed
Soils	
• Waterlogging	• Thoroughly assess project soils and their management needs under irrigated agriculture • Apply water efficiently. Consider drip or dawn/evening sprinkler irrigation. • Install and maintain adequate surface and sub-surface drainage • Use lined canals or pipes to prevent seepage
• Salinization	• Avoid waterlogging (above) • Mulch exposed soil surfaces to reduce evaporation • Flush irrigated land regularly • Cultivate crops having high tolerance to salinity
• Erosion	• Design and layout of furrows appropriately • Avoid unsuitable gradients • Avoid over-irrigation • Install sediment traps in fields and canals to capture sediment for return to fields • Minimum tillage, contour cropping, terracing and other methods of conserving soil moisture
Water Bodies and Aquatic Ecosystems	
• Loss or damage to wetlands and their environmental services, biodiversity, and ecological productivity	• Avoid - Locating irrigation schemes on or near important wetlands - Developing irrigation water sources that may reduce wetland water supply - Draining irrigated fields into wetlands
• Reduced quality of surface and	• Follow *Soils* mitigation measures (above) to

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
groundwaters receiving excess irrigation water or drainage (nutrients, agro-chemicals, salts and minerals)	minimize risks of waterlogging and salinization • Use agro-chemicals appropriately (see *Human Health* above) • Prevent surface drainage of fields into nearby water bodies (streams, ponds, etc.)

ENVIRONMENTAL STANDARDS	ENVIRONMENTAL QUALITY INDICATORS
• National legislation on protected areas (natural, cultural and built environments) • National legislation on protecting natural resources (e.g. fish, wildlife, forest cover) • International environmental protection conventions (e.g. heritage, wetlands) • National water quality standards and controls • National controls on storage, handling, use and disposal of agro-chemicals	***POLLUTION*** • Water quality (nutrients, agro-chemicals, salinity) in water supply and drainage canals, and wells • Physical and chemical properties of irrigated soils ***Environmental Health*** • Water table levels in project area • Rate of occurrence of disease carriers ***HUMAN WELLBEING*** • Incidence of human and animal illness or disease • Poverty levels

Sources:
Environmental Screening of NGO Development Projects for Irrigation (CCIC 1990/91)
EC Sectoral Environmental Assessment Sourcebook (1993)

C14.4: RURAL WATER SUPPLY AND SANITATION

Scope of Projects

Small rural water supply projects provide a safe, reliable and convenient water supply for several families or an entire village. To ensure maximum health benefits, such projects also need to include any needed improvements to human waste disposal systems. Attention to sanitation as well as water supply is vital to prevent the contamination of water sources and to minimize the spread of illness and disease.

Groundwater sources such as wells, infiltration galleries and springs usually provide the most reliable supply. They are the easiest to protect from contamination. Streams, rivers and lakes may be subject to competing water demands or uncontrollable contamination that make them less safe and reliable water sources. They also generally require small diversion structures or dams that create their own environmental problems. See the Small Dams and Reservoirs *resources sheet if surface water sources are being considered.*

Water is supplied to people at the source, or is piped (by gravity or pumped) or otherwise transported to public distribution points or users' homes. For human waste disposal, rural communities may depend on household latrines, collection tanks that are pumped out periodically, or septic tanks. Household wastewater may be simply dumped or drained into soak-away pits.

Larger and more sophisticated water supply and sanitation systems require much more planning, design, operation and maintenance than those described above. They are beyond the scope of this resources sheet.

ENVIRONMENTAL CONCERNS

HUMAN ENVIRONMENT

- Community water management practices and relationships
- Human health concerns for water-borne diseases and infections
- Conflicting demands on surface or groundwater supplies

Natural Environment

- Surface aquatic environments, including wetlands, used as water supply sources
- Groundwater supply for other uses
- Surface and groundwater quality

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES

Human Environment

- Negative social and economic effects on existing community water management practices and relationships

- Consider water conservation measures instead of or in addition to a new water supply project, for example:
  - Upgrade or renovate existing systems

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	(e.g. deepen and clean existing wells, reduce leakage, evaporation and seepage losses) – Water recycling and reuse
• Landuse conflicts	• Avoid locating project works to require: – Resettlement – Displacement of other important land uses, or – Encroachment on historical, cultural, or traditional use areas
• Conflicting demands on surface or groundwater supplies	• Ensure sufficient community participation and organization for effective planning and management of the water supply system, and for equitable water distribution • Develop supply sources: – Where water quantities are adequate and the project will not conflict with existing human, livestock, wildlife or aquatic water uses, especially during dry seasons – So that withdrawals do not exceed "safe yield" from groundwater resources
Human Health	
• Illness or disease due to: – poor source water quality – contaminants entering water supply system	• Ensure water source is fit for drinking, and make regular testing a part of the project • Assess present and future source / supply contamination risks and minimize them (see *Water Quality* below) through: – Adequate planning, design and installation of water supply *and* sanitation works – Community education, training and capacity building to properly operate and maintain project works, and to improve hygiene attitudes and behaviour
– contaminated soils from disposal of inadequately decomposed waste waters – poor maintenance, wrong use, or abandonment of supply or sanitation works	• Ensure planning, design and maintenance of supply, sanitation and wastewater works is appropriate to local: – Needs, traditions, culture and desires – Soil and water table conditions
• Creating habitats for disease carriers such	

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
as mosquitoes and snails, and increasing the occurrence of water-related diseases such as malaria and schistosomiasis (bilharzia)	• Assess ecology of disease carriers in the project area • Employ suitable prevention and mitigation measures, including education of local people, e.g.: – Good drainage around water supply points – Properly designed and maintained pit latrines • Monitor disease occurrence and other public health indicators, and take corrective measures as needed (e.g. physical changes to water supply and sanitation works, education, medical)
Water Quality	
• Contamination of water source / supply	• Protect groundwater sources from surface water runoff (i.e. rainwater, spillage around wells, wastewater from latrines or homes) that may enter as drainage from above or as seepage from below • Locate source well away from latrines, septic systems, traditional defecating areas, and animal pens • Protect surface water sources from contamination from: – Runoff from nearby agricultural areas (e.g. silt, agro-chemicals, animal waste) – Other uses such as bathing, laundering, and animal watering – Garbage and vegetative debris • Maintain source works and pipes to prevent deterioration/damage that could allow entry of contaminants from people, animals, debris, runoff water and soil (especially common around springs, unlined wells and river banks)
• Groundwater contamination	• Ensure adequate design, installation and maintenance of latrines, holding tanks, septic systems and wastewater soak-aways. This is especially important where the water table is high or soils have a high clay or sand content • Ensure adequate spacing between latrines and soak-aways
• Surface water contamination	• Locate latrines, septic systems and soak-

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	aways at least 30m from any waterbody (e.g. stream, river, lake, pond)

ENVIRONMENTAL STANDARDS

- National legislation on protected areas (natural, cultural and built environments)
- National legislation on protecting natural resources (e.g. fish, wildlife, forest cover)
- International environmental protection conventions (e.g. heritage, wetlands)
- National water quality standards and controls
- National controls on storage, handling, use and disposal of agro-chemicals

ENVIRONMENTAL QUALITY INDICATORS

POLLUTION

- Quality (nutrients, agro-chemicals, salinity) of water in supply sources and drainage canals, and wells
- Physical and chemical properties of irrigated soils

Environmental Health

- Water table levels in project area
- Incidence of disease vectors

HUMAN WELLBEING

- Amount of human and animal illness or disease
- Poverty levels

Sources:
ENVIRONMENTAL SCREENING OF NGO DEVELOPMENT PROJECTS FOR DOMESTIC WATER SUPPLY AND SANITATION

(CCIC 1990/91)

EC Sectoral Environmental Assessment Sourcebook (1993)

C14.5: Rural Roads

Scope of Projects

Rural roads can have substantial economic and social benefits. They can also have significant negative and long-term impacts. Many of these impacts can be avoided or minimized through careful and comprehensive planning and design. Roads that involve relocation of existing routes, or new access into previously inaccessible areas, can create particularly difficult impacts on communities and land use, both directly and indirectly. Indirect impacts include the economic, social and environmental effects, whether planned or spontaneous, induced by the improved access and lower transportation costs a road creates. Such new roads and relocations are large projects beyond the scope of this resources sheet.

CIDA-supported rural roads generally involve upgrading existing roads or tracks to improve access to markets, or to services such as health care or schools. They are usually built with local labour, are unpaved, and are narrower and can have tighter curves and steeper grades than highways. They may be all-weather or seasonal, and often include fords or ferries rather than bridges. Close management of construction work is important to avoiding most construction impacts. Adequate road maintenance is essential to avoid environmental problems, and is often inadequate due to lack of funds or well-trained personnel.

The most important direct impact of rural roads is typically erosion -- during construction and then operation. Because traffic intensity is low, air and water pollution and noise are generally not significant problems. Indirect impacts need to be considered, but are unlikely to be as significant as those caused by new roads or relocations.

ENVIRONMENTAL CONCERNS

HUMAN ENVIRONMENT

- Human settlements near the road
- Existing land uses (e.g. agriculture, grazing, forestry, recreation)
- Sites of cultural, religious or historical importance
- Sensitivity of local people to:
  - Induced development and resource exploitation along the road
  - Public health consequences during construction and use of the road (e.g. STDs, TB)
  - Capacity of local public infrastructure and services to support increased traffic, travelers and induced development
  - Security of local and traditional livelihoods, and cash income generation

Natural Environment

- Protected areas (e.g. nature reserves, parks)
- Areas supporting:
  - Critical habitats for rare or ecologically important species, or significant biodiversity (e.g. wetlands)
  - Commercially or domestically important species (e.g. fish, locally hunted wildlife)
- Wilderness areas (habitats for indigenous animal species)
- Soil structure, stability, susceptibility to erosion
- Surface water quality (e.g. rivers, ponds)

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
Human Environment	
• Negative social and economic effects on local people and communities, such as: – Unplanned commercial development – Demand for local public infrastructure and services increases beyond existing capacities – Disruption of traditional lifestyles	• Work with affected communities to anticipate and plan for enhanced access to and demand on local public infrastructure and services • Provide project funds to strengthen local public infrastructure and services (e.g. health clinics, markets, schools)
• Induced population movements and natural resource exploitation activities, due to improved access (e.g. conversion of forest to pasture, or of sustainable land use to unsustainable, short-cycle cropping; illegal or unsustainable hunting)	• Avoid creating congested and unsafe road conditions at intersections, and in villages and towns
Human Health	
• Social disruption during construction (e.g. enhanced transmission of STDs and TB)	• Comprehensive community participation in construction planning and management • Education on avoiding communicable diseases
• Creation of stagnant water in construction borrow pits and quarries, and on road sides, that breed disease carriers	• Assess ecology of disease carriers in road corridor, and employ suitable mitigation measures (e.g. proper drainage of construction areas and road sides, effective road maintenance)
• Health risks during road use due to herbicides used to control road-side weeds	• Minimize use of road-side herbicides
Soil and Vegetation	
• Loss of natural areas, important habitats, biodiversity	• Avoid infringing on: – Protected natural sites and wilderness areas – Critical habitats or areas with significant biodiversity (e.g. wetlands)
• Landslides, slumps and slips	• Avoid: – Areas of soil, slope or geological instability – Unstable river crossing sites

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
• Increased soil erosion leading to sediment in runoff and, possibly, gully formation from: – Construction activities such as grading, excavations, and borrowing/quarrying – Inadequate design of culverts and drainage controls – Inadequate maintenance of road surface, ditches, borrow/quarry sites, and drainage and erosion control measures	• Design: – Use surface drainage controls and mulch on vulnerable surfaces and slopes – Size and locate roadside drainage and culverts to handle maximum anticipated flows – Line receiving surfaces with stones or concrete – Locate and design borrow/quarry sites for erosion control during road construction *and* future maintenance operations • Construction: – Limit earth movement and soil exposure to the dry season – Balance cut and fill for minimum deposition of earth – Provide sedimentation basins – Resurface and revegetate exposed surfaces • Ensure proper and timely maintenance of erosion control and drainage measures along the road *and* at borrow/quarry sites
Surface and Groundwater	
• Disruption of natural surface and subsoil drainage patterns, especially in flood-prone or wetland areas • Increased runoff from road surface	• Minimize soil compaction and time that soil surfaces are exposed • Provide adequate surface drainage control for both construction and operation • Size and place culverts and bridges correctly
• Contamination by spills oil, fuels and lubricants from construction equipment	• Collect and recycle used lubricants • Establish measures to avoid accidental spills, and contain them if they do happen
Aquatic Environments	
• Soil erosion leading to: – Increase in the turbidity of surface water courses – Temporary or permanent covering of riverbed organisms and habitats	• Follow *Soil and Vegetation* and *Surface and Groundwater* mitigation measures above • Install culverts and bridges in dry season
• Watercourse and drainage blockages at culverts and bridges • Erosion of embankments and roadside slopes	• Ensure adequate maintenance of: – Culverts and bridges – Roadside slopes, drainage control measures and vegetation

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	– Road surface
Animals and Wildlife	
• Blocked animal and wildlife movements • Animal/wildlife road kills	• Avoid fencing across known animal and wildlife movement routes • Animal/wildlife crossing warnings, nighttime speed limitations or perhaps closures

ENVIRONMENTAL STANDARDS	ENVIRONMENTAL QUALITY INDICATORS
• National legislation on protected areas (natural, cultural and built environments) • International environmental protection conventions (e.g. heritage, wetlands) • National water quality standards and controls • Health and safety standards for road construction and use	***POLLUTION*** • Concentrations of suspended sediments in surface waters ***Environmental Health*** • Degree of biodiversity (numbers of plant, fish, animal and bird species) in road vicinities • Extent of critical habitats ***HUMAN WELLBEING*** • Occurrence of illness or disease • Frequency of traffic accidents involving vehicles or pedestrians • Poverty levels

Sources:
EC Sectoral Environmental Assessment Sourcebook (1993)
World Bank EA Sourcebook, Volume II (1991)
CIDA HANDBOOK ON EA OF NGO PROGRAMS AND PROJECTS, RURAL ROADS CHECKLIST (1997)

USAID ENVIRONMENTAL GUIDELINES FOR SMALL-SCALE ACTIVITIES IN AFRICA, 2ND EDITION (DRAFT) (2001)

C14.6: SOLID WASTE MANAGEMENT

Scope of Projects

Community-based solid waste management projects address the needs for collecting and safely disposing of solid waste from households and home-based or small-scale enterprises. They can include reduction of wastes at source, composting, recycling, collection, landfill, and incineration.

In planning such projects, an important initial task is to determine the nature and quantities of the wastes to be managed-- by category (e.g. organics, hazardous materials, burnables, recyclables, etc.). This information is vital to designing the waste management system to deal with each waste category separately as required. It is also important to generate increased community awareness of the importance of a healthy environment, and of the values of waste reduction, recovery and recycling to reduce waste disposal requirements.

Waste management from small-scale healthcare activities (e.g. rural health posts and clinics, mobile healthcare programs) is *not* covered in this resources sheet. Healthcare waste is dangerous. If it is handled, treated or disposed of incorrectly, it can spread disease and poison people, animals and plants. Projects that may include healthcare waste management require special care and treatment.[2]

ENVIRONMENTAL CONCERNS

HUMAN ENVIRONMENT

- Human settlements and land uses (e.g. agriculture, grazing, forestry, recreation) near project site(s)
- Sites of cultural, religious or historical importance
- Public health
- Disruption of local incomes derived from sorting, selling and reusing waste

Natural Environment

- Protected areas (e.g. nature reserves, parks)
- Areas supporting:
  - Critical habitats for rare or ecologically important species, or significant biodiversity (e.g. wetlands)
  - Commercially or domestically important species (e.g. fish, locally hunted wildlife)
- Wilderness areas (habitats for indigenous animal species)
- Surface water (e.g. streams, rivers, ponds) and groundwater quality

[2] See, for example, the healthcare waste guidelines in USAID's *Environmental Guidelines for Small-Scale Activities in Africa.*

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
General Measures	
• Overall planning and design approaches and measures can address a number of different potential environmental effects	• Determine the volumes of waste materials by category (e.g. organics, hazardous materials, burnables, recyclables, etc.), and design the management system to deal with each waste category separately as required • Consider a community awareness program on the importance of a healthy environment and on the principles and values of waste reduction, recovery and recycling to reduce waste disposal requirements and extend the life of disposal site(s) • Assess nature and quantity of hazardous wastes, and provide for separate collection and disposal • Encourage home composting of organic wastes • Where recycling is practicable, have households separate recyclables from other waste *before* collection • Site selection is critical. Locate project site(s) (e.g. landfill, incinerator) with buffer zones from other land uses and waterbodies to minimize land and water resource impacts, aesthetic impacts, and health risks • Minimize handling of waste, and maximize containment • Provide enclosed refuse collection vehicles, or tarpaulin covers for open vehicles • Enclose vehicle unloading and refuse sorting (for recovery and recycling) areas, as well as good ventilation and dust suppression
Human Environment	
• Displaced land uses • Disruption or destruction of sites of cultural, religious or historical importance • Human settlements and land uses near landfill, incineration and composting sites – Wind-blown garbage, dust and smoke – Increased traffic to/from the site	• Involve community in: – Locating project site(s) and access route(s) – Developing practices and responsibilities for managing project activities and site(s) • Ensure that site layout(s) and management practices, including worker training, are

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
– Odours	adequate • Landfills – Spread and compact incoming refuse, and cover with soil, daily – Provide for safe ventilation of decomposition gases – Prevent access to site by domestic animals and wildlife to avoid spread of disease and contaminants – Pave access roads, or use water spraying, to reduce dust • Incinerators – Install appropriate, effective incineration equipment for complete combustion and control of air pollution – Locate away from and downwind of human settlements and sensitive land uses
• Disruption of local incomes derived from sorting, selling and reusing waste	• Design project to provide alternatives for affected individuals and families (e.g. employment in project operation, training for alternate livelihoods)
Human Health	
• Contamination of water sources	• See *Water Quality* below
• Creation of stagnant water in project site(s) that breed disease carriers	• Assess ecology of disease carriers in project area, and employ suitable mitigation measures (e.g. proper drainage of site(s))
Terrestrial Environment	
• Loss of natural areas, important habitats, biodiversity	• Avoid infringing on: – Protected natural sites and wilderness areas – Critical habitats or areas with significant biodiversity (e.g. wetlands)
• Soil erosion	• During preparation of landfill site – Minimize time of exposure of areas cleared, graded or excavated – Stabilize and revegetate disturbed areas – Install adequate surface drainage control measures • Maintain erosion and surface drainage control

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	measures during operations
Water Quality	
• Contamination of surface and groundwaters with landfill runoff and leachate	• Protect water resources by locating landfills: – Where the underlying soils are relatively impermeable, and have a high capability for containing chemical contaminants (e.g. clays) – So that the bottom of the landfill is above the water table – Away and down gradient from surface waters, and groundwater recharge areas or sources, whose use could be affected by contamination -- unless the distance to the receiving water is adequate to dilute and disperse potential contamination • Use a landfill liner (e.g. clay, synthetic) if there is a risk of leachate entering groundwater • Collect surface runoff and discharge to safe area • Install test well(s) at landfill perimeter, and monitor water quality during operations, for early identification and mitigation of emerging adverse effects

ENVIRONMENTAL STANDARDS	ENVIRONMENTAL QUALITY INDICATORS
• National standards and guidelines for the handling or toxic and other hazardous wastes, and for the design and operation of solid waste treatment facilities (e.g. landfills, incinerators, composting operations) • National water quality standards and controls • Alternatively, internationally recognized standards (e.g. WHO, UNEP) • International environmental protection conventions (e.g. heritage, wetlands)	***POLLUTION*** • Concentrations of pollutants in air and surface and groundwaters around project site(s) • Noise and dust levels ***Environmental Health*** • Numbers of disease carriers (e.g. mosquitoes) ***HUMAN WELLBEING*** • Amount of human and animal illness or disease

Sources:
EC Sectoral Environmental Assessment Sourcebook (1993)
CIDA HANDBOOK ON EA OF NGO PROGRAMS AND PROJECTS, WASTE MANAGEMENT CHECKLIST (1997)

C14.7: COMMUNITY FORESTRY

Scope of Projects

Community forestry projects may be undertaken for a variety of reasons including timber and fuelwood production, soil and water conservation, and micro-watershed protection. They may also include tree nurseries or elements of agro-forestry that yield forest products besides wood (e.g fruits, nuts). They typically involve afforestation and not existing forests. Reforestation, upgrading and management of existing forests and forestry operations are not considered in this resources sheet.

Clearly, such projects can provide substantial economic and environmental benefits. At the same time, if they are not planned and carried out sensitively, they can also create environmental problems, particularly soil erosion and conflicts over land use and the distribution of project benefits.

ENVIRONMENTAL CONCERNS

HUMAN ENVIRONMENT

- Human settlements in or near project site
- Existing land tenure and uses (legal or illegal) (e.g. agriculture, grazing, recreation)
- Common lands
- Sites of cultural, religious or historical importance
- Security of local and traditional livelihoods, and cash income generation

Natural Environment

- Protected species
- Protected areas (e.g. watersheds or water basins, nature reserves, parks)
- Areas supporting:
  - Critical habitats for rare or ecologically important species, or significant biodiversity (e.g. wetlands)
  - Commercially or domestically important species (e.g. fish, locally hunted wildlife)
- Wilderness areas (habitats for indigenous animal species)
- Soil structure, stability, susceptibility to erosion
- Surface water quantity and quality (e.g. streams, rivers, ponds, lakes)

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
Human Environment	
• Displaced human settlements	• Avoid areas that require significant or involuntary resettlement

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	• Provide compensation for resettled families and lost livelihood opportunities (e.g. cash, in-kind, employment, training)
• Conflicts over: – Land tenure and use (legal or illegal) – Security of local and traditional livelihoods, and cash income generation	• Avoid existing land use areas that are economically productive or important for subsistence or traditional livelihoods • Consider use of already cleared or barren lands for tree planting • Consider sites currently used unsustainably (e.g. agriculture, grazing) • Plan and operate the forest to ensure an equitable distribution of benefits to all community members, and to not exacerbate economic disparities within the community • Account for differing tree product needs between women and men • Provide for intercropping, agro-forestry and other measures that will accelerate the flow of benefits to, and support of, a range of local people • Train and use local labour in the development and operation of the forest
• Disruption of sites of cultural, religious or historical importance	• Avoid such sites, or incorporate them in the project sensitively and to local people's satisfaction
Terrestrial Environment	
• Loss of natural areas, important habitats, biodiversity	• Avoid infringing on: – Protected natural sites, watersheds and wilderness areas – Critical wildlife habitats or areas with significant biodiversity (e.g. wetlands)
• Unsustainable forest production	• As much as possible, use a variety of multipurpose and fast-growing indigenous tree species to enhance: – Effective use of site micro-climates and soil conditions – The diversity and flow of benefits to local people – Soil and water conservation – Resistance to significant outbreaks of disease and pests – Wildlife habitat and species diversity

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	• Draw upon local cultural knowledge and values in planning and operating the forest • Adapt imported technology (e.g. erosion control, forest management and harvesting) to local conditions, rather just adopt it • Use low impact equipment and methods for forest management and harvesting, and minimize skid trail distances • Select sites where the benefits from the new forest can help reduce illegal or unsustainable uses of nearby forests • If a heavy reliance on cash crops is anticipated, ensure that a thorough market analysis is carried out during project planning
• Soil erosion	• Avoid areas of fragile or unstable soils/slopes • Avoid any project activities within 20-40 metres of streams, ponds, etc. unless they are for rehabilitation and conservation of the riparian zones • Leave existing grass/shrub cover on lands that are very steep or have shallow soils • Use techniques such as bunding to strengthen control of surface water flows and erosion, and enhance infiltration • Harvest trees in small, unconnected blocks to minimize exposed soils and enhance opportunities for natural regeneration from adjacent forest • Road and track development (also see *Rural Roads* resources sheet): – Construct during the dry season – Keep gradients low but sufficient for natural drainage – Locate as far away from waterbodies as possible – Leave vegetated strips along roadsides, and reseed disturbed areas – Coordinate development schedule with overall plan for forest development and operation
Water Quantity and Quality	
• Reductions in down-slope water supplies	• Avoid watercourses • Retain existing tree and grass/shrub cover, and harvest selectively, sustainably and

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	carefully, where down-slope water supply is a critical concern
• Pollution of groundwater, and of surface waters and habitats	• Avoid overusing fertilizers, herbicides and pesticides • Avoid any use near waterbodies

ENVIRONMENTAL STANDARDS

- National and local planning regulations (e.g. land use, forestry, watersheds)
- National legislation on protected areas (natural, cultural and built environments)
- National legislation on protecting natural resources (e.g. fish, wildlife, forest cover)
- International protection conventions (e.g. heritage, wetlands)
- National water quality standards and controls
- National controls on use of fertilizers, pesticides and herbicides
- Alternatively, internationally recognized standards (e.g. World Health Organization, United Nations Environment Programme)

ENVIRONMENTAL QUALITY INDICATORS

POLLUTION

- Concentrations of suspended sediments and contaminants (e.g. pesticides) in surface waters

Environmental Health

- Degree of biodiversity (numbers of plant, fish, animal, and bird species) in the watershed
- Extent of critical habitats

HUMAN WELLBEING

- Poverty levels

Sources:
ADB ENVIRONMENTAL GUIDELINES FOR SELECTED AGRICULTURAL AND NATURAL RESOURCES DEVELOPMENT

PROJECTS (1991)

EC Sectoral Environmental Assessment Sourcebook (1993)
CIDA HANDBOOK ON EA OF NGO PROGRAMS AND PROJECTS, FORESTRY CHECKLIST (1997)

C14.8: SMALL-SCALE AQUACULTURE

Scope of Projects

Aquaculture projects raise aquatic organisms in fresh, brackish or salt marine waters for part or all of their life, and then harvest them for human consumption. The organisms may be fish (e.g. trout, salmon, carp, tilapia), crustaceans (e.g. fresh water crayfish, shrimp, prawns), or molluscs (e.g. oysters, mussels, clams).

Culture methods vary considerably. Intensive methods raise high-value organisms in large numbers in man-made structures. With ponds, fresh or seawater is channelled or pumped in, and old water is discharged through ditches or canals. Use of groundwater may lower water tables. Artificially produced seed, specially made feed, antibiotics to control disease, chemicals to inhibit plant growth, and high initial costs are typical. Waste water and bottom sludge can become toxic and, if not properly treated and managed, can contaminate soil, water and marine resources.

At the other end of the scale are extensive methods that tend to use traditional, low-technology cultivation methods, wild seed stock and naturally available feed. Input and output levels, and start-up costs, are much lower than with intensive methods. Extensive aquaculture is frequently developed to satisfy local fish protein needs rather than commercial markets, and is the focus of this resources sheet. The products may be distributed fresh or dried.

Environmental Concerns

HUMAN ENVIRONMENT

- Existing or planned land uses (legal and illegal)
- Community water management practices and relationships
- Conflicting demands on surface or groundwater supplies
- Human health concerns for water-borne diseases and infections

Natural Environment

- Quality of surface and groundwater supplies
- Natural aquatic environments, especially wetlands and mangrove forests

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
Human Environment	
• Land use conflicts	• Avoid project sites that require: – Resettlement – Displacement of other important land uses, or – Encroachment on historical, cultural, or traditional use areas • Encourage use of existing depressions, hollows and ditches • Limit areas converted to ponds

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
• Water supply conflicts: – Social and economic disruptions to existing community water management practices and relationships – Conflicting demands on surface or groundwater supplies	• Good pond design, construction and maintenance to avoid premature abandonment and digging of new ponds • Ensure adequate community participation in the planning and operation of the project • Site ponds to avoid disrupting existing/traditional uses of water (e.g. drinking, washing, animal watering) • Develop ponds with other activities to combine water uses (e.g. pond water used for irrigation of crops) • Develop supply sources: – Where water quantities are adequate and the project will not conflict with existing human, livestock, wildlife or aquatic water uses, especially during dry seasons – So that withdrawals do not exceed "safe yield" from groundwater resources
Human Health	
• Illness or disease due to pollution of water sources from aquaculture wastes	• See *Water Quality* below
• Creating habitats for disease carriers such as mosquitoes and snails, and increasing the prevalence of water-related diseases such as malaria and schistosomiasis (bilharzia)	• Assess ecology of disease carriers in the project area • Employ suitable prevention and mitigation measures, including education of local people, e.g.: – Good surface drainage around project water supply, ponds and drainage works – Use fish species that feed on disease carriers • Monitor disease occurrence and public health indicators, and take corrective measures as needed (e.g. change project works, improve maintenance, education, medical)
Terrestrial Environment	
• Loss of ground cover and erosion at project site	• Restrict area cleared for ponds • Construct ponds during dry season • Stabilize exposed soil with grasses and other ground cover • Ensure good drainage and erosion control around ponds

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
• Depletion of local fuelwood to dry fish	• Careful project planning and management to ensure sustainable source of fuelwood • Consider the need for a small, complementary forestry project (see *Community Forestry* resources sheet)
Water Quality	
• Pollution of surface waters with aquaculture wastes	• Keep fish densities at moderate levels to reduce disease risk and need for antibiotics • Pump air through the water to speed up decomposition • Release pond water into water body with adequate dilution and dispersal capability • Dilute pond water prior to release • Time releases with period of high water levels or flows • Use shorter retention time of water in ponds – i.e. more frequent exchange and flushing of pond water • Consider using pond bottom sludge as agricultural fertilizer if properly decomposed and non-toxic
Aquatic Environments	
• Deterioration of water quality from aquaculture discharges causes contamination or decline of aquatic habitats and resident species	• Ensure adequate pollution control (see *Water Quality* above)
• Loss of wetlands, especially mangrove forests	• Site project well away from wetlands • Design project features to prevent disturbing water flows to and from wetlands (e.g. flow regulating works, access road crossings on trestles or pilings) • Enhance or protect other nearby wetlands to offset losses at project site
• Accidental or deliberate release of aquaculture stock leads to decline in wild species important for local food supply or restocking and improvement of domestic stock	• Use local, wild species rather than introduced species as seed stock • Ensure aquaculture stock is kept healthy

POTENTIAL ENVIRONMENTAL EFFECTS

Effects of the Environment on the Project

- Contamination of aquaculture operations, and deterioration of culture environment, from poor source water quality due to:
  - Pollution (e.g. pesticides, heavy metals)
  - Suspended sediments from upstream erosion
  - Nutrients from agricultural run-off and livestock, detergents, sewage

MITIGATION MEASURES

- Analysis of source water quality and threats
- Careful location of the project within the community and watershed

ENVIRONMENTAL STANDARDS

- National legislation on protected areas (natural, cultural and built environments)
- National legislation on protecting natural resources (e.g. fish, wildlife, forest cover)
- International environmental protection conventions (e.g. heritage, wetlands)
- National water quality standards and controls

ENVIRONMENTAL QUALITY INDICATORS

POLLUTION

- Water quality (nutrients, chemicals, salinity) in pond drainage

Environmental Health

- Surface water flows and groundwater table levels in project area
- Incidence of disease carriers

HUMAN WELLBEING

- Amount of human and animal illness or disease
- Poverty levels

Sources:
UNEP ENVIRONMENTAL GUIDELINES FOR FISH FARMING (1990)

EC Sectoral Environmental Assessment Sourcebook (1993)
Field Guidelines for the Environmental Assessment of Rural Credit Loans in Viet Nam (CIDA 2000)

C14.9: LEATHER PROCESSING

Scope of Projects

The processing of hides (tanning) from domestic animals such as cattle, pigs and goats is often associated with meat processing operations. Though it is often illegal, skins from wild animals may also be processed.

Leather processing involves several steps from initial soaking of the raw hides through removing hair, chrome tanning and finishing. It can produce highly unpleasant odours. It also requires large amounts of water that becomes contaminated and perhaps toxic with high concentrations of chemicals and organic matter. If disposed of on land, liquid wastes can contaminate soils and groundwater. When released to watercourses, the wastes can deplete oxygen levels, poison and disrupt aquatic ecosystems, and cause fish kills. They can also lead to serious health problems for workers and local people.

Tanneries can evidently place a quite heavy burden on the environment if not developed properly. Sensitive plant location and effective management of water use and liquid and solid wastes are key to mitigating adverse environmental effects. Sound waste management and pollution control methods at tanneries can require strong technical knowledge not covered in this resources sheet[3]*. The sheet does give direction on the kind of environmental effects that need to be considered, and approaches to addressing them.*

Environmental Concerns

HUMAN ENVIRONMENT

- Existing or planned land uses (legal and illegal)
- Community water management practices and relationships
- Conflicting demands on surface or groundwater supplies
- Worker sensitivities to chemicals
- Human health sensitivities to:
  - Polluted water
  - Odours
  - Water-borne diseases and infections

Natural Environment

- Quality of surface and groundwater supplies
- Natural aquatic environments

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES

General Measures

- Overall planning, design and management approaches and measures can address a number of different potential
- Locate tannery well away from:
  - Residential and commercial areas to minimize odour complaints

[3] See, for example, UNIDO publications for information on cleaner production in tanneries

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
environmental effects. These include:	– Water courses to minimize water pollution risks
– Minimize *water use* (and processing costs)	• Reuse water from "cleaner" stages of the process in "dirtier" stages (e.g. use final rinse water for initial soaking or washing of next batch of raw hides) • Turn off water between batches, or while transferring hides between baths • Install nozzles on hoses to increase spraying efficiency • Prevent baths from overflowing (e.g. monitor levels closely, use automatic shut-offs) • Use dry cleanup methods (cloth wipes, brooms, shovels, etc.) before water rinsing
– Minimize *odours,* and *solid and liquid wastes*	• Operate tannery within its design capacity • Minimize water use (see above) • Separate liquid from solid waste • Screen liquids to remove coarse solids • Install grease traps and skim tanks • Drain liquid wastes into a settling tank. Air dry sludge and dispose as solid waste • Separate and sell uncontaminated wastes to farmers as fertilizer • Avoid dumping solid waste. Use a proper landfill or bury it in a pit (away from water sources) • Do not let sludge stagnate in or around tannery site. Collect, dry and dispose of as solid waste • Provide good drainage around the tannery to avoid standing pools of liquid (and potential habitat for disease carriers) • If several tanneries are located close to each other, consider common treatment facilities for both solid and liquid wastes
– Minimize *chemical use* (and processing costs)	• Processing methods that increase the efficient use of chemicals (e.g. higher bath temperatures, good measuring equipment) • Good storage and handling to reduce waste and spills (e.g. sturdy and easily secured containers) • Consider alternative and less hazardous chemicals (e.g. vegetable-based chemicals and dyes) • Filter and reuse chemical bath solutions

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	• Train workers to use correct chemical amounts, and provide measuring equipment
Human Environment	
• Land use conflicts due to odours	• Follow *General Measures* above to minimize potential for odours
• Water supply conflicts: – Negative social and economic effects on existing community water management practices and relationships – Conflicting demands on surface or groundwater supplies	• Minimize water use (see *General Measures* above) • Develop supply sources: – Where water quantities are adequate and the project will not conflict with existing human, livestock, wildlife or aquatic water uses, especially during dry seasons – So that withdrawals do not exceed "safe yield" from groundwater resources
Human Health	
• Illness or disease due to pollution of water sources from tannery wastes	• Follow *General Measures* above to minimize water use and provide good management of solid and liquid wastes
• Damaging worker health	• Provide safety equipment (e.g. face masks, rubber gloves, boots) • Ventilate processing areas well • Train workers in safe chemical storage, handling, use and disposal
Aquatic Environments	
• Deterioration and contamination of aquatic habitats and resident species from tannery discharges	• Ensure adequate pollution control (see *General Measures* above)

ENVIRONMENTAL STANDARDS	ENVIRONMENTAL QUALITY INDICATORS
• National/local standards and regulations for the discharge of industrial wastewater to i) sewers and ii) streams and rivers • National water quality standards and controls • Workplace health and safety regulations	***POLLUTION*** • Quality (nutrients, chemicals, salinity) of tannery effluent and receiving waters ***Environmental Health*** • Surface water flows and groundwater table

- Regulations on the storage, handling, use and disposal of toxic chemicals

levels in project area

HUMAN WELLBEING

- Incidence of human illness or disease

Sources:
Field Guidelines for the Environmental Assessment of Rural Credit Loans in Viet Nam (CIDA 2000)
USAID Environmental Guidelines for Small-Scale Activities in Africa, 2nd Edition (Draft) (2001)

C14.10: FOOD PROCESSING

Scope of Projects

Small-scale food processing may be home-based or small enterprises that use a wide variety of processes and technologies to convert animal and plant products into human food.

Food processing of all kinds can create environmental problems if not managed properly. Solid and/or liquid wastes can be highly polluting and create offensive odours. Water use can place excessive demands on local supplies. Wastewater containing organic and other wastes can degrade streams and rivers, and contaminate groundwater. Stagnant pools of polluted water can be highly odorous and provide breeding grounds for mosquitoes.

ENVIRONMENTAL CONCERNS

HUMAN ENVIRONMENT

- Existing or planned land uses (legal and illegal)
- Community water management practices and relationships
- Conflicting demands on surface or groundwater supplies
- Human health concerns sensitivities to:
  - Polluted water
  - Odours
  - Water-borne diseases and infections
- Worker health and safety due to:
  - Dust
  - Machinery noise and vibration
  - Exposed wires and overheating of electric equipment

Natural Environment

- Quality of surface and groundwater supplies
- Natural aquatic environments

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES

General Measures

- Good overall planning, design and management can address a number of potential environmental effects[4]:
  - Minimize *water use* (and processing costs)
    - Use "dry cleanup" (e.g. sweeping, wiping down) of solid wastes before washing
    - Regulate water flows (e.g. valves, high pressure nozzles)
    - Reuse water

[4] See also *Rural Water Supply and Sanitation* and *Solid Waste Management* resource sheets.

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
– Minimize *liquid waste*	• Minimize water use (see above) • Separate fats, grease and other solids from wastewater before reuse or disposal (e.g. use oil separators/traps) • Drain stagnant pools of liquid or water from holding pens and working areas • Consider treatment ponds to decompose waste and reduce disposal costs. Ensure ponds are large enough for effective decomposition and odour control
– Minimize *solid waste* (and lost product)	• Improve processing methods to recover more product and reduce waste (e.g. better meat trimming and food cutting) • Reuse organic wastes (e.g. as animal fodder or fuel) • Compost organic waste for fertilizer • Air dry waste in controlled area then dispose in approved landfill or safe burial • Minimize product spoilage by using secure, screened, and well-ventilated storage areas
Human Environment	
• Water supply conflicts: – Negative social and economic effects on existing community water management practices and relationships – Conflicting demands on surface or groundwater supplies	• Minimize water use (see above) • Develop supply sources: – Where water quantities are adequate and the project will not conflict with existing human, livestock, wildlife or aquatic water uses, especially during dry seasons – So that withdrawals do not exceed "safe yield" from groundwater resources
Human Health	
• Illness or disease due to pollution of water sources from food processing wastes	• Follow *General Measures* above to minimize water use and provide good management of solid and liquid wastes
• Damaging worker health	• Provide/strengthen health and safety training, accident prevention and equipment (e.g. face masks, rubber gloves, boots, ear plugs, good ventilation)

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
	• Practice good housekeeping (e.g. clean floors regularly, install drip trays) • Repair and maintain machinery for safe and quiet operation
Water Quality • Degradation of groundwater, streams and rivers from solid and liquid wastes, and consequent • Deterioration and contamination of aquatic habitats and resident species from waste discharges	• Follow *General Measures* above to minimize water use and solid and liquid wastes • Screen waste liquids to remove solids • Install grease traps and skim tanks • Locate waste disposal sites away from surface and groundwater sources, watercourses, housing and town centres • Ensure receiving waters for liquid wastes are able to absorb and naturally decompose the effluent • Ensure waste that is stored before transport to treatment facility or landfill cannot leak into the ground

ENVIRONMENTAL STANDARDS	ENVIRONMENTAL QUALITY INDICATORS
• National/local standards and regulations for the discharge of industrial wastewater to i) sewers and ii) streams and rivers • National water quality standards and controls • Workplace health and safety regulations	***POLLUTION*** • Quality (nutrients, chemicals, salinity) of liquid effluent and receiving waters ***Environmental Health*** • Surface water flows and groundwater table levels in project area • Productivity of aquatic environments receiving liquid waste ***HUMAN WELLBEING*** • Incidence of human illness or disease

Sources:
Field Guidelines for the Environmental Assessment of Rural Credit Loans in Viet Nam (CIDA 2000)
Environmental Sourcebook for Micro-Finance Institutions (CIDA 1997)
USAID ENVIRONMENTAL GUIDELINES FOR SMALL-SCALE ACTIVITIES IN AFRICA, 2ND EDITION (DRAFT) (2001)

C14.11: COMMUNITY HEALTHCARE FACILITIES

Scope of Projects

Community healthcare facilities can include small hospitals, health centres, clinics, surgeries, dentists, veterinary practices, laboratories and nursing/residential homes. These facilities can have the same environmental concerns as any structure or building (see Section C14.12). By far the most significant concern is the hazardous nature of many types of healthcare waste, and this resource sheet focuses on this issue alone. Types of healthwaste can include:

- Human tissue and blood;
- Soiled surgical dressings and swabs;
- Discarded syringe needles;
- Other contaminated sharp instruments;
- Microbiological cultures and potentially infected wastes from laboratories;
- Excretions; and
- Drugs and other pharmaceutical products.

Radioactive wastes need to be managed and treated separately from other healthcare wastes, and are not covered here.

The many different potential sources and types of healthcare wastes make it important to carefully plan healthcare projects to improve waste management, and thus minimize human exposure to the wastes and risks to public health. In particular, the sources and types of waste need to be identified, and the current waste management methods identified and assessed. In most cases, the risks of hazardous healthcare waste in communities can be greatly reduced through low-cost, affordable operational measures such as improved handling, segregation and safe storage. These measures minimize the risks of exposure. A key aspect of these measures is to carry out extensive training and awareness raising.

ENVIRONMENTAL CONCERNS

Human Environment

- Worker and public health and safety
- Visual impacts of waste management transport, treatment and disposal practices
- Odors from waste degradation
- Human settlements and land uses (e.g. agriculture, grazing, forestry, recreation) near project site(s), as well as sites of cultural, religious or historical importance

Natural Environment

- Potential contamination of surface water (e.g. streams, rivers, ponds) and groundwater
- Impacts of facilities on important natural environments
- Smoke/air pollutants and toxic ash residues from open burning

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
General Measures • Overall planning and design approaches and measures can address a variety of environmental concerns	• Determine the approximate **volumes of waste materials by category** (e.g. sharps, body tissues, dressings, pharmaceutical products, non-hazardous healthcare wastes, etc.), and design the management system to deal with each waste category separately as required • **Assess current practices and address the priority gaps and risks**, building on any successful aspects of the current system. All measures and facilities should be planned within an overall strategy for hazardous healthcare waste management. This overall strategy will ensure consistent and efficient methods, and sharing of good practices. • Provide specialized, clearly labeled **containers** for hazardous healthcare wastes to separate them at source, manage the risks of exposure, and secure the wastes before removal for treatment or storage. • Plan, design, construct and operate a **shared treatment facility** (see below). Types of facilities include heat treatment disinfection, incineration, chemical and biological treatment. • Until a shared treatment facility is established, employ **interim measures** to ensure the safe and secure storage of wastes. In some cases, an appropriate interim measure will be to bury the waste in deep (e.g. >2m) trenches in municipal disposal sites, and ensure the trenches are immediately covered with other municipal solid waste (MSW). • Design and implement a **training programme** for healthcare workers so that they implement improved operational practices (e.g. identification of waste types, segregation, safe handling and storage). Provide printed guidance notes on procedures and methods to control health and safety risks. • Design and implement a wider **community awareness program** on the importance of safe management practices, particularly for healthcare wastes. This program should also focus on reducing poor practices such as indiscriminate dumping in open spaces or near to water sources, open burning, etc.

POTENTIAL ENVIRONMENTAL EFFECTS	MITIGATION MEASURES
Human Environment	
• Cuts and infections from used needles and other sharp instruments in the facility or due to inadequate handling and disposal • Environmental contamination and public health impacts from infected wastes such as human tissue and surgical dressings • Polluted drinking water • Longer-term health impacts from exposure to toxic substances • Odours from waste degradation • Smoke / air pollutants and toxic ash residues from open burning • Visual impacts of waste management transport, treatment and disposal practices	• Provide containers and personnel protective equipment for workers, plus detailed training in operational procedures that minimize risks of exposure to hazardous wastes. • Conduct a wider awareness program to a range of stakeholders on the potential risks and impacts of hazardous healthcare waste. (See General Measures above). • Where interim measures are used, ensure worker training is adequate. Store hazardous healthcare waste in containers and transport it to a municipal disposal site.
Water Quality	
• Potential contamination of surface water (e.g. streams, rivers, ponds) and groundwater quality.	• Wider awareness programmes to a range of stakeholders to raise awareness of the potential risks and impacts of hazardous healthcare waste. These campaigns should also focus on reducing poor practices, such as dumping near to water sources. • Ensure appropriate covering, drainage control and run-off management for storage areas to reduce contamination of surface and ground water. • Assess ecology of disease carriers in area of planned facility, and employ suitable mitigation measures (e.g. proper drainage of site)
Natural Environment	
• Impacts of the project on protected areas (e.g. nature reserves, parks); critical habitats for rare or ecologically important species, or significant biodiversity (e.g. wetlands); areas supporting commercially or domestically important species (e.g. fish, locally hunted wildlife); and wilderness areas (habitats for indigenous animal species)	• Wider awareness programmes (see General Measures above). • Careful planning and selection of sites of new treatment /disposal facilities, with appropriate mitigation measures included in the design and operational plan, to minimize potential impacts on the natural environment.
Shared Treatment Facilities	
• Contamination of surface and groundwaters • Air pollution	• Involve community in: - Locating facility site(s) and access route(s) - Developing practices and responsibilities

POTENTIAL ENVIRONMENTAL EFFECTS

- Adverse land use, health and visual impacts on nearby community as well as on sites of cultural, religious or historical importance

MITIGATION MEASURES

for managing facility activities and site(s)

- Locate away from, and downwind of, human settlements and sensitive land uses
- Site treatment facilities with buffer zones from other land uses and water bodies to minimize land and water resource impacts, aesthetic impacts, and health risks.
- A dedicated collection vehicle for hazardous healthcare waste is highly desirable.
- Install appropriate, effective equipment for complete combustion / sterilization and control of air pollution
- Dispose hazardous ash from incineration in appropriate facility (see interim measures above)
- Ensure that operational practices, including detailed worker training, are adequate
- Ensure safe handling, segregation and storage into appropriate containers that are clearly labeled

ENVIRONMENTAL STANDARDS

- National standards and guidelines for the handling of hazardous and non-hazardous healthcare wastes, and for the design and operation of healthcare waste treatment and disposal facilities (e.g. landfills, incinerators, sterilization facilities, etc)
- National water and environment quality standards and controls
- Alternatively, internationally recognized standards (e.g. WHO, UNEP)
- International environmental protection conventions (e.g. heritage, wetlands)

ENVIRONMENTAL QUALITY INDICATORS

Pollution

- Concentrations of pollutants in air and surface and ground waters around project site(s)

Environmental Health

- Numbers of disease carriers (e.g. mosquitoes)

Human Wellbeing

- Amount of human and animal illness or disease
- Incidents of illegal dumping / number of illegal dump sites
- Community complaints
- Numbers (or proportion of workers) participating in training courses

Sources:

HSC (Health and Safety Commission) UK (1999). Safe Disposal of Clinical Waste (Health Services Advisory Committee) ISBN 0 7176 2492 7

Institute of Waste Management, UK (IWM) (2000) – Healthcare Waste Management and Minimisation. ISBN 0 902944 56 8

WHO (World Health Organisation) (1999) – Safe Management from Healthcare Activities. WHO Geneva ISBN 92 4 154525 9

WHO (World Health Organisation) (2000) – Starting Healthcare Waste Management in Medical Institutions – A Practical Approach (WHO Regional Office for Europe, Copenhagen) (Ref EUR/00/5021817 00719)

Institute of Occupational Safety and Health, UK (www.iosh.co.uk)

Association of Societies forOccupational Safety and Health (www.asosh.org)

WHO on waste management (health care waste) (www.who.int/health_topics/waste_management)

Appendix 2: Guidelines for Land Acquisition and Access to Resources

The guidelines provided below are drawn from the Environment and Social Management Framework for World Bank Projects with Multiple Small-Scale Sub-Projects – A Toolkit; Africa Region, The World Bank, February, 2005

A Resettlement Policy Framework (RPF) should be prepared using the following major sections:

1. Principles and Objectives

Describe the basic principles and objectives for resettlement under the Project. State that the resettlement objectives are to move (or deprive from resources) as few people as possible consistent with the requirements of subprojects, and that the general principles of doing no harm, and of avoiding or minimizing resettlement, are to be followed in all subprojects. Show why acquisition of land or resources may be needed, and resettlement cannot be avoided in every case. Demonstrate that the commitment is to ensure that affected people are meaningfully consulted, compensated fully and fairly for their losses, and assisted in their efforts to improve their livelihoods and standards of living or at least to restore them. Describe any particular conditions in the Project and subprojects that may present special problems or opportunities, and show how the resettlement will be done, in principle, so as to overcome risks or take advantage of such opportunities.

2. Legal Frameworks

Review the national laws governing the taking of land or other assets. Because such legal instruments may come from many sources – land and water law, customary law or sharia, land tenure legislation, urban construction regulations, constitutional guarantees of compensation for takings for public utility, and so on – make this section as extensive as is warranted by the case in question. Set out the requirements of the process for taking land or changing access to resources. Discuss discrepancies among the various legal instruments, if found. Summarize what laws and regulations may apply to different categories of affected people. Next, set out any requirements of the Bank for resettlement that apply to the types of cases that may arise in the project. Analyze all gaps between national and Bank requirements, and say how such gaps may be bridged.

3. Estimated Population Displacement and Categories of Affected People

Every effort should be made to estimate eventual displacement, in part to estimate budgets and to evaluate consultation requirements and potential challenges to Project staff.
Different categories of those displaced may include, for example, those losing legal title and those without it, those losing lands or those losing housing or those losing both, those losing temporary access or those losing permanent rights, business or residential property.
Describe the unit of analysis, whether “cases” (such as properties or fields), or households or individuals. Describe whether uniform approaches will be taken across all subprojects, and how records will be kept.

4. Eligibility Criteria for Various Categories of Affected People

Determine the method for setting a cut-off date for eligibility for compensation. Demonstrating that compensation will be paid only to those established in an area, or with certain kinds of assets, early in the Project will help to avoid a “rush” into areas that may come into the Project list of subprojects later. Such opportunistic invasions of possible subproject sites constitutes to be a major risk to Projects, especially where subprojects may be chosen from a very limited set of alternatives that become known publicly. Therefore, depending on the number, sequencing, and magnitude of subprojects, one or several rolling cut-off dates may be advisable.
Set out the different categories of people that may be affected by subprojects, and show the types of losses such people may suffer, whether to land, income, rights of access, housing, water sources, proximity to work, and others, and including combinations (house and land, for example). Define the criteria that will be used to identify the eligibility for compensation for each category of affected people. These criteria may include, for example, whether losses are partial or total, whether people have their own land or also rent land, and what happens when buildings are occupied by more than one business tenant or household. Make the criteria user-friendly, so that those applying the principles to subprojects “on the ground” will be able to quickly identify whether people affected are eligible for compensation, and how. Describe who will judge eligibility in difficult cases, for example by the use of neighborhood or village committees, or outside experts, and how such processes will work.

It may be necessary for country approval to define categories of people eligible under national law, and, separately, any others who must be compensated because of the requirements of World Bank policy. The unit of compensation may also need to be defined – individuals, families, collectivities (or all three, because some losses may be sustained by individuals, others by the community as a whole or by associations within it such as religious or farmers’ groups). Some impacts may be defined as non-compensable, or as compensable with a generic payment – minor strips of land of a meter or two along a road to be widened in a non-farmed area, for example. Finally, cash payments may be more acceptable when losses constitute a very small fraction of incomes, than when the income

source (or residence plot) is so compromised that the entire holding or structure should be replaced. Defining the treatment to be applied to the major variations of all the main types of impacts eliminates the need to negotiate these issues for each subproject.

5. Valuing Affected Assets

Describe the borrower country's methods of valuing those assets that it deems eligible for compensation, and those that must be compensated under the principles that meet the World Bank's policy requirements. Explain the methods for inventorying assets, assigning values to each type of asset, and coming to agreements with each affected person or group on the total profile of losses and compensation. Present, to the degree possible, an "entitlement matrix" (example below) which shows the types of affected people, the types of losses, and the forms and amounts of compensatory actions that will be taken for each type.

Example: Procedure for Valuing Compensation Entitlement
A compensation committee including elders, government representatives, a project staff member, and two villagers will be organized by the appropriate government agency or kebele/village administrator, and will visit the affected area. Each asset will be enumerated and inscribed on a register. Values for each types of asset will be preprinted, shown to the affected person, and set against the type and number of such losses that the individual will sustain. The total compensation for that category of loss will be shown, and the total of all losses shown as well. The inventory and evaluation will be signed and a copy given on the spot to the affected person. The form will say, and the affected person will be notified, that the inventory will not be official until a second signed copy, verified by project supervisory staff, is returned to the affected person. At that time, a copy of the grievance procedure will also be given to the affected person.

6. Organization, Procedures and Responsibilities

Describe the process by which individual Resettlement Action Plans (RAPs) for subprojects will be prepared and submitted to Project authorities, considered and approved, and how entitlements will be delivered. This process must be integrated into the institutional arrangements and procedures used by the Project for managing the identification, preparation, approval and implementation of subprojects. It is expected that extension teams, with Project training, will be able to adequately assist communities in preparing any required RAPs before submitting their application, though specialized technical assistance may be required early in Project implementation or in more complex cases. Refer to more detailed guidance on preparing RAPs. Specify whether some or all RAPs should be reviewed by the Bank, and how this will happen.

Specify that RAPs must be:
• approved and disclosed to the public before overall subproject approval can be considered;and
• implemented before other subproject activities can begin.

State who in the overall Project organization will be responsible for resettlement, and what facilities the overall resettlement officials will have available to them. If there is no unit or officer(s) with the training and job description to oversee resettlement issues, describe the way in which such capacity will be developed, structured, and given authority.

Partial Example:
A unit with one resettlement officer (RO) will be attached to each provincial project coordination unit. The RO will report to the provincial coordinator. During the first six months, a consultant will oversee resettlement and train this officer.

Partial Example:
Once a subproject is approved, compensation in kind or in cash will be completed before an affected party is required to move or give up ownership of or access to the asset in question. Where cash is to be paid, the affected person will be given a check provided he/she already has a bank account; if not, cash will be delivered at the district office of the Project.

6. Consultation with, and Participation of, Affected People

Describe how people affected by particular subprojects will be consulted throughout the process
of preparing RAPs.

7. Schedule for Implementing Resettlement Provisions
Set out the schedule by which resettlement will arise and be treated, both in terms of the overall management of the Project and the flow of subprojects.

Example:
By effectiveness: project resettlement coordinator recruited. Month 6, resettlement oversight coordinator and staff in place, effective. Months 4-8, lower level staff trained in use of screening and evaluation tools, and in community consultation methods. By end of month 12, report on subprojects with resettlement for year 1 sent to Bank. For each subproject, resettlement items to be integrated into subproject calendar. Demonstration that no subproject to be accepted without completed land acquisition information and either RAP or statement that no RAP is needed. Schedule to show that no construction will take place where there is resettlement without entitlements paid.

8. Grievance Redress Mechanisms

Describe the mechanisms available to affected people for complaints about aspects of their resettlement treatment. Show how the mechanism will be accessible (in terms of language, distance, and cost) to affected people, and what recourse/appeal from the local grievance mechanism may be available.

9. Budget and Funding Arrangements

Estimate the overall costs of resettlement, including funds for general oversight. Show the sources of funds. Estimate the types and numbers of subprojects and a nominal resettlement budget based on an estimate of how many subprojects may involve resettlement.
It should not be difficult to estimate the budget required for “typical” subproject resettlement in relatively uniform sector investments, for example if all subprojects will be drainage schemes, or transmission lines. For projects where different types of subprojects may be selected with no prior knowledge of probable choices, or where only some fraction of subprojects may entail involuntary resettlement, estimating total costs may be more difficult.

10. Supervision and Monitoring Arrangements
Provide an appropriate mechanism for supervising the effective implementation of resettlement, either as part of overall subproject supervision, or separately to affirm that the resettlement objectives for all affected people are achieved. Show how the results of monitoring will be fed back into overall Project implementation. Where appropriate, set up monitoring checklists or templates to focus the work of local monitors.

Partial Example:
NGO XY has agreed to serve as the resettlement and social benefit monitor for all subprojects in
Province A. For resettlement, each six months the NGO will select a random sample of subprojects with resettlement, visit each, and report on the progress of resettlement using the tools provided in the Implementation Manual. The results will be summarized in a report to the Project managers and the Bank which uses key performance indicators selected by the Project as reporting topics. Qualitative comments on resettlement progress will also be provided.

Sudan
Watershed Management
Table 1. Atbara - Insitutional Strenthening & IWMD

Detailed Costs				**Quantities**			**Unit Cost**			**Base Cost (US$ '000)**			**Tot**
	Unit	**2008**	**2009**	**2010**	**2011**	**Total**	**(US$)**	**2008**	**2009**	**2010**	**2011**	**Total**	**2008**
I. Investment Costs													
A. Institutional Strengthening													
1. Strengthening of Supporting Institutions													
Preparation of local guidelines and procedures	US$							38	-	13	-	50	42
Development of land use plans	US$							50	-	50	-	100	56
Enhancement of financial monitoring and accounting system	US$							50	-	50	-	100	56
Integrated land use planning course	US$							13	13	-	-	25	14
Stakeholder participation and joint management	US$							13	13	-	-	25	14
Use of interactive maps and basic GIS	US$							25	25	-	-	50	28
Small dam design and supervision	US$							25	25	-	-	50	28
Financial accounting and management course	US$							25	25	-	-	50	28
Conflict resolution	US$							13	13	-	-	25	14
Gender sensitisation	US$							13	13	-	-	25	14
Subtotal Strengthening of Supporting Institutions								263	125	113	-	500	293
2. Strengthening of Beneficiary Organization and Community Participation													
Provide intensive training and capacity development	US$							100	-	-	-	100	112
Training in community based project planning	US$							100	-	-	-	100	112
Development of community land use management plans	US$							100	-	-	-	100	112
Skills training	US$							50	-	-	-	50	56
Awareness building of available financial mechanism	US$							50	-	-	-	50	56
Development of business centres	US$							50	-	-	-	50	56
Establishment of Community Initiative Fund	US$							200	-	-	-	200	223
Assessment of CBOs and review progress	US$							50	-	-	-	50	56
Subtotal Strengthening of Beneficiary Organization and Community Participation								700	-	-	-	700	782
Subtotal Institutional Strengthening								963	125	113	-	1 200	1 075
B. Integrated Watershed Management and Development													
1. Water Resources Development													
Detailed water resources assessment	US$							20	-	-	-	20	22
Groundwater mapping studies	US$							20	-	-	-	20	22
Training of extension officers	US$							120	-	-	-	120	134
Feasibility studies and design	US$							80	-	-	-	80	89
Construction weir and river in-take and outlets for Adarma schemes	US$							-	60	60	-	120	-
Training of Beneficiaries on O&M	US$							-	20	20	-	40	-
Drilling of observation boreholes	number	-	6	6	-	12	8,000	-	48	48	-	96	-
Shallow Wells	well	5	20	15	10	50	5,000	25	100	75	50	250	28
Subtotal Water Resources Development								265	228	203	50	746	296
2. Agricultural Intensification and Diversification													
Capacity building of agricultural extension officers	US$							75	-	-	-	75	84
Development of intensive agriculture models/technology packages	US$							225	-	-	-	225	251
Undertake field surveys and design of the projects	US$							38	19	19	-	75	42
Construction of diversion canals	US$							-	375	225	150	750	-
Organization of extension programs	US$							113	56	56	-	225	126
Provision of agricultural services and support	US$							75	38	38	-	150	84
Subtotal Agricultural Intensification and Diversification								525	488	338	150	1 500	586
Subtotal Integrated Watershed Management and Development								790	716	541	200	2 246	882
Total								1 753	841	653	200	3 446	1 957

als Including Contingencies (US$ '000)				Breakdown of Totals Incl. Cont. (US$ '000)				Parameters (in %)			Summary Divisions		Other Accounts	
2009	2010	2011	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account	Disb. Acct.	Fin. Rule
-	15	-	57	-	51	6	57	10,0	0,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	59	-	115	-	104	12	115	10,0	0,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	59	-	115	-	104	12	115	10,0	0,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
14	-	-	28	3	23	3	28	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
14	-	-	28	3	23	3	28	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
29	-	-	57	6	45	6	57	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
29	-	-	57	6	45	6	57	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
29	-	-	57	6	45	6	57	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
14	-	-	28	3	23	3	28	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
14	-	-	28	3	23	3	28	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
144	133	-	570	28	485	57	570							
-	-	-	112	11	89	11	112	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	112	11	89	11	112	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	112	11	89	11	112	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	56	6	45	6	56	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	56	-	50	6	56	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	56	-	50	6	56	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	223	-	201	22	223	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	CIF	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	56	-	50	6	56	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	782	39	664	78	782							
144	133	-	1 352	67	1 149	135	1 352							
-	-	-	22	-	20	2	22	10,0	0,0	10,0	B1_WATER_RESOURCE	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	22	-	20	2	22	10,0	0,0	10,0	B1_WATER_RESOURCE	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	134	13	107	13	134	10,0	10,0	10,0	B1_WATER_RESOURCE	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	89	-	80	9	89	10,0	0,0	10,0	B1_WATER_RESOURCE	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
69	71	-	140	70	56	14	140	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	ATBARA_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
23	24	-	47	5	37	5	47	10,0	10,0	10,0	B1_WATER_RESOURCE	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
55	57	-	112	56	45	11	112	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	ATBARA_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
115	89	61	293	146	117	29	293	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (20%)
262	240	61	860	291	483	86	860							
-	-	-	84	-	75	8	84	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	251	-	226	25	251	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
22	22	-	86	-	77	9	86	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
431	267	183	881	440	352	88	881	10,0	50,0	10,0	B2_AGRICULTURE_INTENSIFICATION	CIVIL_WORKS	ATBARA_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
65	67	-	257	26	206	26	257	10,0	10,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
43	44	-	171	17	137	17	171	10,0	10,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
561	400	183	1 730	483	1 073	173	1 730							
823	640	244	2 589	774	1 556	259	2 589							
967	773	244	3 941	841	2 706	394	3 941							

		Expenditures by Financiers (US$ '000)														
		The Government					Principal Donor					Other Donors				
Proc. Acct.	Proc. Method	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total
TECH_ASSIST	CQ_PM (100%)	6	-	2	-	9	23	-	8	-	31	13	-	4	-	17
TECH_ASSIST	CQ_PM (100%)	8	-	9	-	17	31	-	33	-	63	17	-	18	-	35
TECH_ASSIST	CQ_PM (100%)	8	-	9	-	17	31	-	33	-	63	17	-	18	-	35
TRAINING	CON_SRVCS_PM (100%)	2	2	-	-	4	8	8	-	-	16	4	4	-	-	8
TRAINING	CON_SRVCS_PM (100%)	2	2	-	-	4	8	8	-	-	16	4	4	-	-	8
TRAINING	CON_SRVCS_PM (100%)	4	4	-	-	8	15	16	-	-	31	8	9	-	-	17
TRAINING	CON_SRVCS_PM (100%)	4	4	-	-	8	15	16	-	-	31	8	9	-	-	17
TRAINING	CON_SRVCS_PM (100%)	4	4	-	-	8	15	16	-	-	31	8	9	-	-	17
TRAINING	CON_SRVCS_PM (100%)	2	2	-	-	4	8	8	-	-	16	4	4	-	-	8
TRAINING	CON_SRVCS_PM (100%)	2	2	-	-	4	8	8	-	-	16	4	4	-	-	8
		44	22	20	-	86	161	79	73	-	314	88	43	40	-	171
TRAINING	CON_SRVCS_PM (100%)	17	-	-	-	17	61	-	-	-	61	33	-	-	-	33
TRAINING	CON_SRVCS_PM (100%)	17	-	-	-	17	61	-	-	-	61	33	-	-	-	33
TECH_ASSIST	CQ_PM (100%)	17	-	-	-	17	61	-	-	-	61	33	-	-	-	33
TRAINING	CON_SRVCS_PM (100%)	8	-	-	-	8	31	-	-	-	31	17	-	-	-	17
TECH_ASSIST	CQ_PM (100%)	8	-	-	-	8	31	-	-	-	31	17	-	-	-	17
TECH_ASSIST	CQ_PM (100%)	8	-	-	-	8	31	-	-	-	31	17	-	-	-	17
CREDIT	OTHER_PM (100%)	33	-	-	-	33	123	-	-	-	123	67	-	-	-	67
TECH_ASSIST	CQ_PM (100%)	8	-	-	-	8	31	-	-	-	31	17	-	-	-	17
		117	-	-	-	117	430	-	-	-	430	234	-	-	-	234
		161	22	20	-	203	591	79	73	-	743	322	43	40	-	405
TECH_ASSIST	CQ_PM (100%)	3	-	-	-	3	12	-	-	-	12	7	-	-	-	7
TECH_ASSIST	CQ_PM (100%)	3	-	-	-	3	12	-	-	-	12	7	-	-	-	7
TRAINING	CON_SRVCS_PM (100%)	20	-	-	-	20	74	-	-	-	74	40	-	-	-	40
TECH_ASSIST	CQ_PM (100%)	13	-	-	-	13	49	-	-	-	49	27	-	-	-	27
WORKS_MS	NCB_PM (100%)	-	10	11	-	21	-	38	39	-	77	-	21	21	-	42
TRAINING	CON_SRVCS_PM (100%)	-	3	4	-	7	-	13	13	-	26	-	7	7	-	14
WORKS_MS	NCB_PM (100%)	-	8	9	-	17	-	30	31	-	62	-	17	17	-	34
TRAINING	CON_SRVCS_PM (100%)	7	29	22	15	73	15	63	49	34	161	6	23	18	12	59
		47	51	45	15	158	163	144	132	34	473	86	67	63	12	229
TRAINING	CON_SRVCS_PM (100%)	13	-	-	-	13	46	-	-	-	46	25	-	-	-	25
TRAINING	CON_SRVCS_PM (100%)	38	-	-	-	38	138	-	-	-	138	75	-	-	-	75
TECH_ASSIST	CQ_PM (100%)	6	3	3	-	13	23	12	12	-	47	13	6	7	-	26
WORKS_LS	ICB_PM (100%)	-	65	40	27	132	-	237	147	101	484	-	129	80	55	264
TRAINING	CON_SRVCS_PM (100%)	19	10	10	-	39	69	36	37	-	141	38	19	20	-	77
TRAINING	CON_SRVCS_PM (100%)	13	6	7	-	26	46	24	24	-	94	25	13	13	-	51
		88	84	60	27	259	322	308	220	101	951	176	168	120	55	519
		135	135	105	43	418	485	453	352	134	1 424	262	235	183	67	747
		296	156	125	43	620	1 076	532	425	134	2 167	584	278	223	67	1 153

Sudan
Watershed Management
Table 2. Atbara - IWMD

Detailed Costs		**Quantities**					**Unit Cost**	**Base Cost (US$ '000)**					**Totals Includi**	
	Unit	**2008**	**2009**	**2010**	**2011**	**Total**	**(US$)**	**2008**	**2009**	**2010**	**2011**	**Total**	**2008**	**2009**
I. Investment Costs														
A. Rangelands: Reseeding of Wadis														
Organization of training programs	US$							25	25	25	25	100	28	29
Provide agricultural services /a	US$							50	50	50	50	200	56	57
Provide veterinary services /b	US$							50	50	50	50	200	56	57
Capacity building of livestock extension services	US$							38	38	38	38	150	42	43
Capacity building and training of pastoralist	US$							13	13	13	13	50	14	14
Development of watering points	number							150	-	-	-	150	167	-
Veterinary support	US$							38	38	38	38	150	42	43
Subtotal Rangelands: Reseeding of Wadis								363	213	213	213	1 000	405	244
B. Rangelands: Homestead Plantations and Shelterbeds														
Conduct training in nursery, tree and shelterbed management	US$							40	60	-	-	100	45	69
Conduct training of community and women members	US$							40	60	-	-	100	45	69
Supply superior quality seeds of indigenous trees	US$							80	120	-	-	200	89	138
Supply seedlings and cuttings of improved exotic fruit trees	US$							80	120	-	-	200	89	138
Establish village nursery	US$							120	160	120	-	400	134	184
Planting seeds and seedlings	US$							90	120	90	-	300	100	138
Installation of pump-well and pipe irrigation system	US$							210	280	210	-	700	234	322
Subtotal Rangelands: Homestead Plantations and Shelterbeds								660	920	420	-	2 000	737	1 058
C. Reforestation and Joint Forest Management of Reserve Forest														
Training of committee members	US$							100	-	-	-	100	112	-
Training of community members in beekeeping and making modern beehives	US$							100	-	-	-	100	112	-
Promotion of collective marketing of honey	US$							80	120	-	-	200	89	138
Inventory and mapping of reserve forest	US$							80	120	-	-	200	89	138
Physical boundary and demarcation of the reserve forest	US$							80	120	-	-	200	89	138
Fire control and prevention	US$							-	60	80	60	200	-	69
Subtotal Reforestation and Joint Forest Management of Reserve Forest								440	420	80	60	1 000	491	483
D. Alternative Energy Sources														
Procurement of services from NGO and para-statal institutions	US$							38	38	38	38	150	42	43
Conduct environmental awareness training	US$							38	38	38	38	150	42	43
Training and mobilising private companies	US$							80	120	-	-	200	89	138
Establish mechanisms to access credits	US$							-	150	200	150	500	-	172
Subtotal Alternative Energy Sources								155	345	275	225	1 000	173	397
Total Investment Costs								1 618	1 898	988	498	5 000	1 806	2 182
II. Recurrent Costs														
A. Operational Costs														
Travel	US$							15	15	15	15	60	17	17
Accomodation	US$							15	15	15	15	60	17	17
Subsistance allowance	US$							10	10	10	10	40	11	11
Training material	US$							10	10	10	10	40	11	11
Total Recurrent Costs								50	50	50	50	200	56	57
Total								1 668	1 948	1 038	548	5 200	1 862	2 240

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\a land preparation, improving seeds, fertilizers, pesticides
\b Vaccines, artificial insemination

ing Contingencies (US$ '000)			Breakdown of Totals Incl. Cont. (US$ '000)				Parameters (in %)			Summary Divisions			
			For.	Local (Excl.	Duties &		Phy. Cont.	For.	Gross		Expenditure	Other Accounts	
2010	2011	Total	Exch.	Taxes)	Taxes	Total	Rate	Exch.	Tax Rate	Component	Account	Disb. Acct.	Fin. Rule
30	31	117	-	105	12	117	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
59	61	234	-	210	23	234	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
59	61	234	-	210	23	234	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
44	46	175	18	140	18	175	10,0	10,0	10,0	B3_IMPROVE_RANGELANDS	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
15	15	58	6	47	6	58	10,0	10,0	10,0	B3_IMPROVE_RANGELANDS	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	167	84	67	17	167	10,0	50,0	10,0	B3_IMPROVE_RANGELANDS	CIVIL_WORKS	ATBARA_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
44	46	175	-	158	18	175	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
252	259	1 160	107	937	116	1 160							
-	-	114	11	91	11	114	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	114	11	91	11	114	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	227	159	45	23	227	10,0	70,0	10,0	B4_AFFOREST_REFOREST	GOODS	ATBARA_GOODS	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	227	159	45	23	227	10,0	70,0	10,0	B4_AFFOREST_REFOREST	GOODS	ATBARA_GOODS	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
142	-	460	230	184	46	460	10,0	50,0	10,0	B4_AFFOREST_REFOREST	CIVIL_WORKS	ATBARA_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
107	-	345	242	69	35	345	10,0	70,0	10,0	B4_AFFOREST_REFOREST	GOODS	ATBARA_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
249	-	805	403	322	81	805	10,0	50,0	10,0	B4_AFFOREST_REFOREST	CIVIL_WORKS	ATBARA_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
497	-	2 292	1 215	848	229	2 292							
-	-	112	11	89	11	112	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	112	11	89	11	112	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	227	-	205	23	227	10,0	0,0	10,0	B4_AFFOREST_REFOREST	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	227	-	205	23	227	10,0	0,0	10,0	B4_AFFOREST_REFOREST	TA	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	227	114	91	23	227	10,0	50,0	10,0	B4_AFFOREST_REFOREST	CIVIL_WORKS	ATBARA_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
95	73	237	166	47	24	237	10,0	70,0	10,0	B4_AFFOREST_REFOREST	EQUIPMENT	ATBARA_GOODS	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
95	73	1 142	302	726	114	1 142							
44	46	175	18	140	18	175	10,0	10,0	10,0	B6_MINING_MANAGEMENT	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
44	46	175	18	140	18	175	10,0	10,0	10,0	B6_MINING_MANAGEMENT	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	227	23	182	23	227	10,0	10,0	10,0	B6_MINING_MANAGEMENT	TR	ATBARA_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
237	183	592	-	533	59	592	10,0	0,0	10,0	B6_MINING_MANAGEMENT	CIF	ATBARA_CREDIT	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
326	275	1 170	58	995	117	1 170							
1 170	607	5 765	1 682	3 506	576	5 765							
18	18	70	18	46	7	70	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	ATBARA_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
18	18	70	18	46	7	70	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	ATBARA_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
12	12	47	12	30	5	47	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	ATBARA_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
12	12	47	12	30	5	47	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	ATBARA_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
59	61	234	58	152	23	234							
1 229	668	5 998	1 740	3 658	600	5 998							

		Expenditures by Financiers (US$ '000)														
		The Government					Principal Donor					Other Donors				
Proc. Acct.	Proc. Method	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total
TRAINING	CON_SRVCS_PM (100%)	4	4	4	5	18	15	16	16	17	64	8	9	9	9	35
TRAINING	CON_SRVCS_PM (100%)	8	9	9	9	35	31	32	33	34	128	17	17	18	18	70
TRAINING	CON_SRVCS_PM (100%)	8	9	9	9	35	31	32	33	34	128	17	17	18	18	70
TRAINING	CON_SRVCS_PM (100%)	6	6	7	7	26	23	24	24	25	96	13	13	13	14	53
TRAINING	CON_SRVCS_PM (100%)	2	2	2	2	9	8	8	8	8	32	4	4	4	5	18
WORKS_LS	ICB_PM (100%)	25	-	-	-	25	92	-	-	-	92	50	-	-	-	50
TRAINING	CON_SRVCS_PM (100%)	6	6	7	7	26	23	24	24	25	96	13	13	13	14	53
		61	37	38	39	174	223	134	138	143	638	121	73	76	78	348
TRAINING	CON_SRVCS_PM (100%)	7	10	-	-	17	25	38	-	-	63	13	21	-	-	34
TRAINING	CON_SRVCS_PM (100%)	7	10	-	-	17	25	38	-	-	63	13	21	-	-	34
AG_INPUT	LCL_SHOPPING_PM (100%)	13	21	-	-	34	49	76	-	-	125	27	41	-	-	68
AG_INPUT	LCL_SHOPPING_PM (100%)	13	21	-	-	34	49	76	-	-	125	27	41	-	-	68
WORKS_MS	NCB_PM (100%)	20	28	21	-	69	74	101	78	-	253	40	55	43	-	138
WORKS_LS	ICB_PM (100%)	15	21	16	-	52	55	76	59	-	190	30	41	32	-	104
WORKS_MS	NCB_PM (100%)	35	48	37	-	121	129	177	137	-	443	70	97	75	-	242
		111	159	75	-	344	405	582	274	-	1 261	221	317	149	-	688
TRAINING	CON_SRVCS_PM (100%)	17	-	-	-	17	61	-	-	-	61	33	-	-	-	33
TRAINING	CON_SRVCS_PM (100%)	17	-	-	-	17	61	-	-	-	61	33	-	-	-	33
TRAINING	CON_SRVCS_PM (100%)	13	21	-	-	34	49	76	-	-	125	27	41	-	-	68
TECH_ASSIST	CQ_PM (100%)	13	21	-	-	34	49	76	-	-	125	27	41	-	-	68
WORKS_MS	NCB_PM (100%)	13	21	-	-	34	49	76	-	-	125	27	41	-	-	68
TRAINING	CON_SRVCS_PM (100%)	-	10	14	11	36	-	38	52	40	130	-	21	28	22	71
		74	72	14	11	171	270	266	52	40	628	147	145	28	22	343
TRAINING	CON_SRVCS_PM (100%)	6	6	7	7	26	23	24	24	25	96	13	13	13	14	53
TRAINING	CON_SRVCS_PM (100%)	6	6	7	7	26	23	24	24	25	96	13	13	13	14	53
TRAINING	CON_SRVCS_PM (100%)	13	21	-	-	34	49	76	-	-	125	27	41	-	-	68
CREDIT	OTHER_PM (100%)	-	26	36	27	89	-	95	130	101	326	-	52	71	55	178
		26	60	49	41	176	95	218	179	151	644	52	119	98	82	351
		271	327	175	91	865	993	1 200	643	334	3 171	542	655	351	182	1 729
O&M_COSTS	UNIDENT_1_PM (100%)	3	3	3	3	11	9	9	10	10	39	5	5	5	5	21
O&M_COSTS	UNIDENT_1_PM (100%)	3	3	3	3	11	9	9	10	10	39	5	5	5	5	21
O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	7	6	6	7	7	26	3	3	4	4	14
O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	7	6	6	7	7	26	3	3	4	4	14
		8	9	9	9	35	31	32	33	34	128	17	17	18	18	70
		279	336	184	100	900	1 024	1 232	676	367	3 299	559	672	369	200	1 799

Sudan
Watershed Management
Table 3. Dinder NP - Institutional Strenthening
Detailed Costs

	Unit	Quantities					Unit Cost (US$)	Base Cost (US$		
		2008	2009	2010	2011	Total		2008	2009	2010
I. Investment Costs										
A. Strengthening of Supporting Institutions										
Preparation of local guidelines and procedures	US$							45	-	15
Development of land use plans	US$							30	-	30
Enhancement of financial monitoring and accounting system	US$							30	-	30
Conflict Resolution	US$							-	42	18
Integrated land use planning course	US$							15	15	-
Stakeholder participation and joint management course	US$							15	15	-
Use of interactive maps and basic GIS course	US$							15	15	-
Small dam design and supervision course	US$							15	15	-
Financial accounting and management course	US$							15	15	-
Conflict resolution course	US$							15	15	-
Gender sensitisation course	US$							15	15	-
Park administration course	US$							15	15	-
Wildlife management course	US$							15	15	-
Vegetation management course	US$							15	15	-
Park security course	US$							15	15	-
Tourism development course	US$							15	15	-
Subtotal Strengthening of Supporting Institutions								285	222	93
B. Strengthening of Beneficiary Organization and Community Participation										
Provide intensive training and capacity development	US$							60	-	-
Capacity building of CBOs and interest groups	US$							60	-	-
Training in community based project planning	US$							60	-	-
Development of community land use management plans	US$							60	-	-
Skills training	US$							60	-	-
Awareness building of available financial mechanism	US$							60	-	-
Development of business centres	US$							60	-	-
Assessment of CBOs and review progress	US$							60	-	-
Awareness building of available financial mechanism	US$							60	-	-
Financial mechanisms for the Community Initative Fund	US$							60	-	-
Subtotal Strengthening of Beneficiary Organization and Community Participation								600	-	-
Total Investment Costs								885	222	93
II. Recurrent Costs										
Travel	US$							15	15	15
Accomodation	US$							15	15	15
Subsistance allowance	US$							10	10	10
Training material	US$							10	10	10
Total Recurrent Costs								50	50	50
Total								935	272	143

; '000)		Totals Including Contingencies (US$ '000)					Breakdown of Totals Incl. Cont. (US$ '000)				Parameters (in %)			Summary Divisions		
2011	Total	2008	2009	2010	2011	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account	Disb. Acct.
-	60	50	-	18	-	68	-	61	7	68	10,0	0,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TA	DNP_TA_TR
-	60	33	-	36	-	69	-	62	7	69	10,0	0,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TA	DNP_TA_TR
-	60	33	-	36	-	69	-	62	7	69	10,0	0,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TA	DNP_TA_TR
-	60	-	48	21	-	70	-	63	7	70	10,0	0,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TA	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	30	17	17	-	-	34	3	27	3	34	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	DNP_TA_TR
-	600	318	255	110	-	684	41	574	68	684						
-	60	67	-	-	-	67	7	54	7	67	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	DNP_TA_TR
-	60	67	-	-	-	67	7	54	7	67	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	DNP_TA_TR
-	60	67	-	-	-	67	7	54	7	67	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	DNP_TA_TR
-	60	67	-	-	-	67	7	54	7	67	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	DNP_TA_TR
-	60	67	-	-	-	67	7	54	7	67	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	DNP_TA_TR
-	60	67	-	-	-	67	-	60	7	67	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TA	DNP_TA_TR
-	60	67	-	-	-	67	-	60	7	67	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TA	DNP_TA_TR
-	60	67	-	-	-	67	-	60	7	67	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TA	DNP_TA_TR
-	60	67	-	-	-	67	-	60	7	67	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TA	DNP_TA_TR
-	60	67	-	-	-	67	-	60	7	67	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TA	DNP_TA_TR
-	600	670	-	-	-	670	33	569	67	670						
-	1 200	988	255	110	-	1 354	74	1 144	135	1 354						
15	60	17	17	18	18	70	18	46	7	70	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC
15	60	17	17	18	18	70	18	46	7	70	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC
10	40	11	11	12	12	47	12	30	5	47	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC
10	40	11	11	12	12	47	12	30	5	47	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC
50	200	56	57	59	61	234	58	152	23	234						
50	1 400	1 044	313	169	61	1 587	133	1 296	159	1 587						

Other Accounts			Expenditures by Financiers (US$ '000)									
			The Government					Other Donors				
Fin. Rule	Proc. Acct.	Proc. Method	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total
OTHER_DONORS (80%)	TECH_ASSIST	CQ_PM (100%)	10	-	4	-	14	40	-	14	-	54
OTHER_DONORS (80%)	TECH_ASSIST	CQ_PM (100%)	7	-	7	-	14	27	-	28	-	55
OTHER_DONORS (80%)	TECH_ASSIST	CQ_PM (100%)	7	-	7	-	14	27	-	28	-	55
OTHER_DONORS (80%)	TECH_ASSIST	CQ_PM (100%)	-	10	4	-	14	-	39	17	-	56
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	3	3	-	-	7	13	14	-	-	27
			64	51	22	-	137	255	204	88	-	547
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	13	-	-	-	13	54	-	-	-	54
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	13	-	-	-	13	54	-	-	-	54
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	13	-	-	-	13	54	-	-	-	54
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	13	-	-	-	13	54	-	-	-	54
OTHER_DONORS (80%)	TRAINING	CON_SRVCS_PM (100%)	13	-	-	-	13	54	-	-	-	54
OTHER_DONORS (80%)	TECH_ASSIST	CQ_PM (100%)	13	-	-	-	13	54	-	-	-	54
OTHER_DONORS (80%)	TECH_ASSIST	CQ_PM (100%)	13	-	-	-	13	54	-	-	-	54
OTHER_DONORS (80%)	TECH_ASSIST	CQ_PM (100%)	13	-	-	-	13	54	-	-	-	54
OTHER_DONORS (80%)	TECH_ASSIST	CQ_PM (100%)	13	-	-	-	13	54	-	-	-	54
OTHER_DONORS (80%)	TECH_ASSIST	CQ_PM (100%)	13	-	-	-	13	54	-	-	-	54
			134	-	-	-	134	536	-	-	-	536
			198	51	22	-	271	790	204	88	-	1 083
OTHER_DONORS (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	3	3	4	4	14	13	14	14	15	56
OTHER_DONORS (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	3	3	4	4	14	13	14	14	15	56
OTHER_DONORS (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	9	9	9	9	10	37
OTHER_DONORS (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	9	9	9	9	10	37
			11	11	12	12	47	45	46	47	49	187
			209	63	34	12	317	835	250	136	49	1 270

Sudan
Watershed Management
Table 4. Dinder NP - IWMD 1
Detailed Costs

		Quantities					Unit Cost	Base Cost (US$ '000)					Totals Including Contin '000)		
	Unit	2008	2009	2010	2011	Total	(US$)	2008	2009	2010	2011	Total	2008	2009	2010
I. Investment Costs															
A. Water Resources Development															
Training of extension officers	US$							30	-	-	-	30	33	-	-
Feasibility studies and design	US$							40	-	-	-	40	45	-	-
Construction of Dams	number	-	3	3	-	6	150,000	-	450	450	-	900	-	517	533
Construction of shallow wells	unit	-	5	5	-	10	2,000	-	10	10	-	20	-	11	12
Construction of hafir	unit	-	1	-	-	1	25,000	-	25	-	-	25	-	29	-
Construction of wateryards	unit	-	2	2	-	4	92,000	-	184	184	-	368	-	212	218
Construction of mayas	US$							-	25	25	-	50	-	29	30
Training of Beneficiaries on O&M	US$							-	15	15	-	30	-	17	18
Miscellaneous Field Equipment	US$							200	300	-	-	500	223	345	-
Subtotal Water Resources Development								270	1 009	684	-	1 963	301	1 160	810
B. Agricultural Intensification and Diversification															
Undertake field surveys and design of the projects	US$							30	15	15	-	60	33	17	18
Construction of diversion canals	US$							-	90	54	36	180	-	103	64
Organization of extension programs	US$							15	8	8	-	30	17	9	9
Provision of agricultural services and support	US$							15	8	8	-	30	17	9	9
Subtotal Agricultural Intensification and Diversification								60	120	84	36	300	67	138	99
C. Capacity Building of Agricultural Extension Offices															
Horticulturalist	day	40	40	-	-	80	150	6	6	-	-	12	7	7	-
National agriculturalist	day	40	40	-	-	80	150	6	6	-	-	12	7	7	-
Arable crop specialist	day	40	40	-	-	80	150	6	6	-	-	12	7	7	-
Subtotal Capacity Building of Agricultural Extension Offices								18	18	-	-	36	20	21	-
D. Development of intensive agriculture models/technology packages															
Horticulturalist	days	50	50	-	-	100	150	8	8	-	-	15	8	9	-
Irrigation Specialist	days	50	50	-	-	100	150	8	8	-	-	15	8	9	-
Agriculturalist	days	40	40	-	-	80	150	6	6	-	-	12	7	7	-
Arable crop specialist	days	50	50	-	-	100	150	8	8	-	-	15	8	9	-
Subtotal Development of intensive agriculture models/technology packages								29	29	-	-	57	32	33	-
E. Reforestation and Joint Management of Reserve Forests															
Forestry management training (park staff, locality and communities)	US$							130	-	-	-	130	145	-	-
Identification of locations for plantations	US$							65	-	-	-	65	73	-	-
Aerial seeding for acacia seyal and senegal	US$							163	163	-	-	325	181	187	-
Training of forest managers	US$							-	20	26	20	65	-	22	31
Tree protection and maintenance	US$							-	20	26	20	65	-	22	31
Subtotal Reforestation and Joint Management of Reserve Forests								358	202	52	39	650	399	232	62
Total Investment Costs								734	1 377	820	75	3 006	820	1 584	971
II. Recurrent Costs															
A. Infrastructure Operation and Maintenance															
O&M for dams	US$							-	23	45	45	113	-	26	53
O&M for wells	US$							-	1	1	1	3	-	1	1
O&M for hafirs	US$							-	1	1	1	4	-	1	1
O&M for water yards	US$							-	9	18	18	46	-	11	22
Subtotal Infrastructure Operation and Maintenance								-	33	66	66	165	-	38	78
B. Travel Expenses															
Travel	US$							8	8	8	8	30	8	9	9
Accomodation	US$							8	8	8	8	30	8	9	9
Subsistance allowance	US$							5	5	5	5	20	6	6	6
Training material	US$							5	5	5	5	20	6	6	6
Subtotal Travel Expenses								25	25	25	25	100	28	29	30
Total Recurrent Costs								25	58	91	91	265	28	67	107
Total								759	1 435	911	166	3 271	847	1 651	1 079

ıgencies (US$		Breakdown of Totals Incl. Cont. (US$ '000)				Parameters (in %)			Summary Divisions		Other Accounts				The	
		For.	Local (Excl.	Duties &		Phy. Cont.	For.	Gross		Expenditure						
2011	Total	Exch.	Taxes)	Taxes	Total	Rate	Exch.	Tax Rate	Component	Account	Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method	2008	2009
-	33	3	27	3	33	10,0	10,0	10,0	B1_WATER_RESOURCE	TR	DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	8	-
-	45	22	18	4	45	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	DNP_CW	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	11	-
-	1 051	525	420	105	1 051	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	DNP_CW	OTHER_DONORS (75%)	WORKS_LS	ICB_PM (100%)	-	129
-	23	12	9	2	23	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	DNP_CW	OTHER_DONORS (75%)	WORKS_LS	ICB_PM (100%)	-	3
-	29	14	11	3	29	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	DNP_CW	OTHER_DONORS (75%)	WORKS_MS	NCB_PM (100%)	-	7
-	430	215	172	43	430	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	DNP_CW	OTHER_DONORS (75%)	WORKS_MS	NCB_PM (100%)	-	53
-	58	29	23	6	58	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	DNP_CW	OTHER_DONORS (75%)	WORKS_MS	NCB_PM (100%)	-	7
-	35	4	28	4	35	10,0	10,0	10,0	B1_WATER_RESOURCE	TR	DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	-	4
-	568	284	227	57	568	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	DNP_CW	GOVT	GOODS_EQUIP	NBF_PM (100%)	223	345
-	2 272	1 109	936	227	2 272										243	549
-	69	-	62	7	69	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	8	4
44	211	106	85	21	211	10,0	50,0	10,0	B2_AGRICULTURE_INTENSIFICATION	CIVIL_WORKS	DNP_CW	OTHER_DONORS (75%)	WORKS_LS	ICB_PM (100%)	-	26
-	34	3	27	3	34	10,0	10,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TR	DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	4	2
-	34	3	27	3	34	10,0	10,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TR	DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	4	2
44	348	113	201	35	348										17	34
-	14	-	12	1	14	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	2	2
-	14	-	12	1	14	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	2	2
-	14	-	12	1	14	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	2	2
-	41	-	37	4	41										5	5
-	17	-	15	2	17	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	2	2
-	17	-	15	2	17	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	2	2
-	14	-	12	1	14	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	2	2
-	17	-	15	2	17	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	2	2
-	65	-	58	6	65										8	8
-	145	15	116	15	145	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	36	-
-	73	-	65	7	73	10,0	0,0	10,0	B4_AFFOREST_REFOREST	TA	DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	18	-
-	368	258	74	37	368	10,0	70,0	10,0	B4_AFFOREST_REFOREST	GOODS	DNP_GOODS	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	45	47
24	77	8	62	8	77	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	-	6
24	77	8	62	8	77	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	-	6
48	740	288	378	74	740										100	58
92	3 466	1 509	1 610	347	3 466										372	655
55	134	34	87	13	134	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC	OTHER_DONORS (75%)	O&M_COSTS	UNIDENT_1_PM (100%)	-	6
1	3	1	2	0	3	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC	OTHER_DONORS (75%)	O&M_COSTS	UNIDENT_1_PM (100%)	-	0
2	4	1	3	0	4	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC	OTHER_DONORS (75%)	O&M_COSTS	UNIDENT_1_PM (100%)	-	0
22	55	14	36	5	55	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC	OTHER_DONORS (75%)	O&M_COSTS	UNIDENT_1_PM (100%)	-	3
80	196	49	128	20	196										-	10
9	35	9	23	4	35	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC	OTHER_DONORS (75%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2
9	35	9	23	4	35	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC	OTHER_DONORS (75%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2
6	23	6	15	2	23	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC	OTHER_DONORS (75%)	O&M_COSTS	UNIDENT_1_PM (100%)	1	1
6	23	6	15	2	23	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	DNP_OC	OTHER_DONORS (75%)	O&M_COSTS	UNIDENT_1_PM (100%)	1	1
31	117	29	76	12	117										7	7
111	313	78	204	31	313										7	17
202	3 779	1 587	1 814	378	3 779										379	671

Expenditures by Financiers (US$ '000)							
e Government			Other Donors				
2010	2011	Total	2008	2009	2010	2011	Total
-	-	8	25	-	-	-	25
-	-	11	33	-	-	-	33
133	-	263	-	388	400	-	788
3	-	6	-	9	9	-	18
-	-	7	-	22	-	-	22
54	-	107	-	159	163	-	322
7	-	15	-	22	22	-	44
4	-	9	-	13	13	-	26
-	-	568	-	-	-	-	-
203	-	994	59	612	608	-	1 278
4	-	17	25	13	13	-	51
16	11	53	-	78	48	33	159
2	-	9	13	6	7	-	26
2	-	9	13	6	7	-	26
25	11	87	50	103	75	33	261
-	-	3	5	5	-	-	10
-	-	3	5	5	-	-	10
-	-	3	5	5	-	-	10
-	-	10	15	16	-	-	31
-	-	4	6	6	-	-	13
-	-	4	6	6	-	-	13
-	-	3	5	5	-	-	10
-	-	4	6	6	-	-	13
-	-	16	24	25	-	-	48
-	-	36	109	-	-	-	109
-	-	18	54	-	-	-	54
-	-	92	136	140	-	-	276
8	6	19	-	17	23	18	58
8	6	19	-	17	23	18	58
15	12	185	299	174	46	36	555
243	23	1 293	447	929	728	69	2 173
13	14	34	-	19	40	41	101
0	0	1	-	0	1	1	2
0	0	1	-	1	1	1	3
5	6	14	-	8	16	17	41
19	20	49	-	29	58	60	147
2	2	9	6	6	7	7	26
2	2	9	6	6	7	7	26
1	2	6	4	4	4	5	18
1	2	6	4	4	4	5	18
7	8	29	21	22	22	23	88
27	28	78	21	50	81	83	235
270	51	1 371	468	979	809	152	2 408

Sudan
Watershed Management
Table 5. Dinder NP - IWMD 2
Detailed Costs

	Unit	Quantities					Unit Cost	Base	
		2008	2009	2010	2011	Total	(US$)	2008	2009
I. Investment Costs									
A. Improvement of Rangelands and Regulation of Animal Routes									
Assist in reviewing and improving the animal migration routes	US$							40	40
Promote planting trees along animal routes	US$							-	24
Establishment of drinking water points	US$							-	96
Establishment of camp places	US$							-	48
Assist in organizing campaigns	US$							-	24
Assist in improving the capacity of rangelands	US$							-	24
Subtotal Improvement of Rangelands and Regulation of Animal Routes								40	256
B. Training of Pastoralist									
Veterinary Surgeon	days	-	100	-	-	100	150	-	15
Conflict Resolution Adviser	days	-	30	-	-	30	150	-	5
National Livestock Specialist	days	-	100	-	-	100	150	-	15
International Livestock Specialist	days	-	100	-	-	100	700	-	70
Subtotal Training of Pastoralist								-	105
C. Private Forestry									
Environmental awareness training	US$							-	12
Training of mechanised farmers in tree planting, management and maintenance	US$							-	6
Supply of superior quality seedlings	US$							-	30
Training on tree protection and maintenance	US$							-	12
Subtotal Private Forestry								-	60
D. Community Forests									
Set up a development fund for tree planting activities	US$							100	-
Training of committee members	US$							25	25
Training of farmers improved methods of gum arabic tapping	US$							13	13
Physical boundary and demarcation of the area of community forest	US$							38	38
Supply of superior quality seeds	US$							38	38
Supply nursery and plantation tools	US$							63	63
Village nursery establishment	US$							50	50
Subtotal Community Forests								325	225
E. Alternative Energy Sources									
Procurement of services from NGO and para-statal institutions	US$							19	19
Conduct environmental awareness training	US$							19	19
Training and mobilising private companies	US$							40	60
Establish mechanisms to access credits	US$							-	75
Subtotal Alternative Energy Sources								78	173
Total								443	818

Cost (US$ '000)			Totals Including Contingencies (US$ '000)					Breakdown of Totals Incl. Cont. (US$ '000)				Parameters (in %)			Summary Divisions	
2010	2011	Total	2008	2009	2010	2011	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account
-	-	80	45	46	-	-	91	-	82	9	91	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA
32	24	80	-	28	38	29	95	66	19	9	95	10,0	70,0	10,0	B3_IMPROVE_RANGELANDS	GOODS
128	96	320	-	110	152	117	379	190	152	38	379	10,0	50,0	10,0	B3_IMPROVE_RANGELANDS	CIVIL_WORKS
64	48	160	-	55	76	59	190	95	76	19	190	10,0	50,0	10,0	B3_IMPROVE_RANGELANDS	CIVIL_WORKS
32	24	80	-	28	38	29	95	47	38	9	95	10,0	50,0	10,0	B3_IMPROVE_RANGELANDS	CIVIL_WORKS
32	24	80	-	28	38	29	95	47	38	9	95	10,0	50,0	10,0	B3_IMPROVE_RANGELANDS	CIVIL_WORKS
288	216	800	45	294	341	264	944	445	404	94	944					
-	-	15	-	17	-	-	17	-	16	2	17	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA
-	-	5	-	5	-	-	5	-	5	1	5	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA
-	-	15	-	17	-	-	17	-	16	2	17	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA
-	-	70	-	80	-	-	80	-	72	8	80	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA
-	-	105	-	120	-	-	120	-	108	12	120					
16	12	40	-	14	19	15	47	5	38	5	47	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR
8	6	20	-	7	9	7	24	2	19	2	24	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR
40	30	100	-	34	47	37	118	83	24	12	118	10,0	70,0	10,0	B4_AFFOREST_REFOREST	GOODS
16	12	40	-	14	19	15	47	5	38	5	47	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR
80	60	200	-	69	95	73	237	95	118	24	237					
-	-	100	112	-	-	-	112	11	89	11	112	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR
25	25	100	28	29	30	31	117	12	93	12	117	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR
13	13	50	14	14	15	15	58	-	53	6	58	10,0	0,0	10,0	B4_AFFOREST_REFOREST	TA
38	38	150	42	43	44	46	175	88	70	18	175	10,0	50,0	10,0	B4_AFFOREST_REFOREST	CIVIL_WORKS
38	38	150	42	43	44	46	175	123	35	18	175	10,0	70,0	10,0	B4_AFFOREST_REFOREST	GOODS
63	63	250	70	72	74	76	292	204	58	29	292	10,0	70,0	10,0	B4_AFFOREST_REFOREST	EQUIPMENT
50	50	200	56	57	59	61	234	117	93	23	234	10,0	50,0	10,0	B4_AFFOREST_REFOREST	CIVIL_WORKS
225	225	1 000	363	259	267	275	1 163	554	492	116	1 163					
19	19	75	21	22	22	23	88	9	70	9	88	10,0	10,0	10,0	B5_ALTERNATIVE_ENERGY	TR
19	19	75	21	22	22	23	88	9	70	9	88	10,0	10,0	10,0	B5_ALTERNATIVE_ENERGY	TR
-	-	100	45	69	-	-	114	11	91	11	114	10,0	10,0	10,0	B5_ALTERNATIVE_ENERGY	TR
100	75	250	-	86	118	92	296	-	267	30	296	10,0	0,0	10,0	B5_ALTERNATIVE_ENERGY	CIF
138	113	500	87	198	163	137	585	29	498	59	585					
731	614	2 605	494	941	865	748	3 049	1 123	1 620	305	3 049					

Other Accounts				Expenditures by Financiers (US$ '000)									
				The Government					Other Donors				
Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total
DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	11	11	-	-	23	33	34	-	-	68
DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	-	7	9	7	24	-	21	28	22	71
DNP_CW	OTHER_DONORS (75%)	WORKS_MS	NCB_PM (100%)	-	28	38	29	95	-	83	114	88	284
DNP_CW	OTHER_DONORS (75%)	WORKS_MS	NCB_PM (100%)	-	14	19	15	47	-	41	57	44	142
DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	-	7	9	7	24	-	21	28	22	71
DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	-	7	9	7	24	-	21	28	22	71
				11	74	85	66	236	33	221	256	198	708
DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	-	4	-	-	4	-	13	-	-	13
DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	-	1	-	-	1	-	4	-	-	4
DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	-	4	-	-	4	-	13	-	-	13
DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	-	20	-	-	20	-	60	-	-	60
				-	30	-	-	30	-	90	-	-	90
DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	-	3	5	4	12	-	10	14	11	36
DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	-	2	2	2	6	-	5	7	5	18
DNP_GOODS	OTHER_DONORS (75%)	AG_INPUT	LCL_SHOPPING_PM (100%)	-	9	12	9	30	-	26	36	27	89
DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	-	3	5	4	12	-	10	14	11	36
				-	17	24	18	59	-	52	71	55	178
DNP_TA_TR	OTHER_DONORS (75%)	TECH_ASSIST	CQ_PM (100%)	28	-	-	-	28	84	-	-	-	84
DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	7	7	7	8	29	21	22	22	23	88
DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	3	4	4	4	15	10	11	11	11	44
DNP_CW	OTHER_DONORS (75%)	WORKS_MS	NCB_PM (100%)	10	11	11	11	44	31	32	33	34	131
DNP_GOODS	OTHER_DONORS (75%)	AG_INPUT	LCL_SHOPPING_PM (100%)	10	11	11	11	44	31	32	33	34	131
DNP_GOODS	OTHER_DONORS (75%)	AG_INPUT	LCL_SHOPPING_PM (100%)	17	18	19	19	73	52	54	56	57	219
DNP_CW	OTHER_DONORS (75%)	WORKS_LS	ICB_PM (100%)	14	14	15	15	58	42	43	44	46	175
				91	65	67	69	291	272	194	200	206	872
DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	5	5	6	6	22	16	16	17	17	66
DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	5	5	6	6	22	16	16	17	17	66
DNP_TA_TR	OTHER_DONORS (75%)	TRAINING	CON_SRVCS_PM (100%)	11	17	-	-	28	33	52	-	-	85
DNP_CREDIT	OTHER_DONORS (75%)	CREDIT	OTHER_PM (100%)	-	22	30	23	74	-	65	89	69	222
				22	50	41	34	146	65	149	122	103	439
				124	235	216	187	762	371	706	649	561	2 286

Sudan
Watershed Management
Table 6. Ingessana - Institutional Strenthening

Detailed Costs														**Tot**
		Quantities					**Unit Cost**	**Base Cost (US$ '000)**						
	Unit	**2008**	**2009**	**2010**	**2011**	**Total**	**(US$)**	**2008**	**2009**	**2010**	**2011**	**Total**	**2008**	
I. Investment Costs														
A. Strengthening of Supporting Institutions /a														
Preparation of local guidelines and procedures	US$							20	-	20	-	40	22	
Development of land use plans	US$							40	-	40	-	80	45	
Enhancement of financial monitoring and accounting system	US$							40	-	40	-	80	45	
Integrated land use planning course	US$							10	-	10	-	20	11	
Stakeholder participation and joint management course	US$							10	-	10	-	20	11	
Use of interactive maps and basic GIS course	US$							20	-	20	-	40	22	
Small dam design and supervision course	US$							20	-	20	-	40	22	
Financial accounting and management course	US$							20	-	20	-	40	22	
Conflict resolution course	US$							10	-	10	-	20	11	
Gender sensitisation course	US$							10	-	10	-	20	11	
Subtotal Strengthening of Supporting Institutions								200	-	200	-	400	223	
B. Strengthening of Beneficiary Organization and Community Participation														
Provide intensive training and capacity development	US$							80	-	-	-	80	89	
Training in community based project planning	US$							80	-	-	-	80	89	
Development of community land use management plans	US$							80	-	-	-	80	89	
Skills training	US$							40	-	-	-	40	45	
Awareness building of available financial mechanism	US$							10	10	10	10	40	11	
Development of business centres	US$							40	-	-	-	40	45	
Assessment of CBOs and review progress	US$							40	-	-	-	40	45	
Subtotal Strengthening of Beneficiary Organization and Community Participation								370	10	10	10	400	413	
Total Investment Costs								570	10	210	10	800	636	
II. Recurrent Costs														
A. Operational Costs														
Travel	US$							8	8	8	8	30	8	
Accomodation	US$							8	8	8	8	30	8	
Subsistance allowance	US$							5	5	5	5	20	6	
Training material	US$							5	5	5	5	20	6	
Total Recurrent Costs								25	25	25	25	100	28	
Total								595	35	235	35	900	664	

\a Courses, workshops and field visits

:als Including Contingencies (US$ '000)				Breakdown of Totals Incl. Cont. (US$ '000)				Parameters (in %)			Summary Divisions		Other Accounts	
2009	2010	2011	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account	Disb. Acct.	Fin. Rule
-	24	-	46	-	41	5	46	10,0	0,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	47	-	92	-	83	9	92	10,0	0,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	47	-	92	-	83	9	92	10,0	0,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	12	-	23	2	18	2	23	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	12	-	23	2	18	2	23	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	24	-	46	5	37	5	46	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	24	-	46	5	37	5	46	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	24	-	46	5	37	5	46	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	12	-	23	2	18	2	23	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	12	-	23	2	18	2	23	10,0	10,0	10,0	A1_STRENGTH_SUPP_INSTITUT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	237	-	460	23	391	46	460							
-	-	-	89	9	71	9	89	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	89	9	71	9	89	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	89	9	71	9	89	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	45	4	36	4	45	10,0	10,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
11	12	12	47	-	42	5	47	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	45	-	40	4	45	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	45	-	40	4	45	10,0	0,0	10,0	A2_STRENGTH_SUPP_INSTITUT_1	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
11	12	12	449	31	373	45	449							
11	249	12	909	54	764	91	909							
9	9	9	35	9	23	4	35	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	INGES_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
9	9	9	35	9	23	4	35	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	INGES_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
6	6	6	23	6	15	2	23	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	INGES_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
6	6	6	23	6	15	2	23	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	INGES_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
29	30	31	117	29	76	12	117							
40	278	43	1 026	83	840	103	1 026							

		Expenditures by Financiers (US$ '000)														
		The Government					Principal Donor					Other Donors				
Proc. Acct.	Proc. Method	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total
TECH_ASSIST	CQ_PM (100%)	3	-	4	-	7	12	-	13	-	25	7	-	7	-	14
TECH_ASSIST	CQ_PM (100%)	7	-	7	-	14	25	-	26	-	51	13	-	14	-	28
TECH_ASSIST	CQ_PM (100%)	7	-	7	-	14	25	-	26	-	51	13	-	14	-	28
TRAINING	CON_SRVCS_PM (100%)	2	-	2	-	3	6	-	7	-	13	3	-	4	-	7
TRAINING	CON_SRVCS_PM (100%)	2	-	2	-	3	6	-	7	-	13	3	-	4	-	7
TRAINING	CON_SRVCS_PM (100%)	3	-	4	-	7	12	-	13	-	25	7	-	7	-	14
TRAINING	CON_SRVCS_PM (100%)	3	-	4	-	7	12	-	13	-	25	7	-	7	-	14
TRAINING	CON_SRVCS_PM (100%)	3	-	4	-	7	12	-	13	-	25	7	-	7	-	14
TRAINING	CON_SRVCS_PM (100%)	2	-	2	-	3	6	-	7	-	13	3	-	4	-	7
TRAINING	CON_SRVCS_PM (100%)	2	-	2	-	3	6	-	7	-	13	3	-	4	-	7
		33	-	36	-	69	123	-	130	-	253	67	-	71	-	138
TRAINING	CON_SRVCS_PM (100%)	13	-	-	-	13	49	-	-	-	49	27	-	-	-	27
TRAINING	CON_SRVCS_PM (100%)	13	-	-	-	13	49	-	-	-	49	27	-	-	-	27
TRAINING	CON_SRVCS_PM (100%)	13	-	-	-	13	49	-	-	-	49	27	-	-	-	27
TRAINING	CON_SRVCS_PM (100%)	7	-	-	-	7	25	-	-	-	25	13	-	-	-	13
TECH_ASSIST	CQ_PM (100%)	2	2	2	2	7	6	6	7	7	26	3	3	4	4	14
TECH_ASSIST	CQ_PM (100%)	7	-	-	-	7	25	-	-	-	25	13	-	-	-	13
TECH_ASSIST	CQ_PM (100%)	7	-	-	-	7	25	-	-	-	25	13	-	-	-	13
		62	2	2	2	67	227	6	7	7	247	124	3	4	4	135
		95	2	37	2	136	350	6	137	7	500	191	3	75	4	273
O&M_COSTS	UNIDENT_1_PM (100%)	1	1	1	1	5	5	5	5	5	19	3	3	3	3	11
O&M_COSTS	UNIDENT_1_PM (100%)	1	1	1	1	5	5	5	5	5	19	3	3	3	3	11
O&M_COSTS	UNIDENT_1_PM (100%)	1	1	1	1	4	3	3	3	3	13	2	2	2	2	7
O&M_COSTS	UNIDENT_1_PM (100%)	1	1	1	1	4	3	3	3	3	13	2	2	2	2	7
		4	4	4	5	18	15	16	16	17	64	8	9	9	9	35
		100	6	42	6	154	365	22	153	23	564	199	12	84	13	308

Sudan
Watershed Management
Table 7. Ingessana - IWMD 1
Detailed Costs

	Unit	Quantities 2008	2009	2010	2011	Total	Unit Cost (US$)	Base Cost (US$ '000) 2008	2009	2010	2011	Total	Tot 2008
I. Investment Costs													
A. Water Resources Development - Studies, TA and Training													
Geophysical Investigations /a	US$							75	75	-	-	150	84
Training of extension officers	US$							15	-	-	-	15	17
Feasibility studies and design	US$							20	-	-	-	20	22
Training of Beneficiaries on O&M /b	US$							-	8	8	-	15	-
Subtotal Water Resources Development - Studies, TA and Training								110	83	8	-	200	123
B. Construction for Water Resources Development													
Hafirs /c	number	-	3	4	3	10	25,000	-	75	100	75	250	-
Small dams /d	number	-	2	1	-	3	1,250,000	-	2 500	1 250	-	3 750	-
Ground Water Dams /e	US$	-	8	8	4	20	15,000	-	120	120	60	300	-
Rain water harvesting structures /f	US$	-	-	1,5	3	4,5	50,000	-	-	75	150	225	-
Pilot Sanitation Program /g	US$							20	80	100	-	200	22
Subtotal Construction for Water Resources Development								20	2 775	1 645	285	4 725	22
C. Agricultural Intensification and Diversification													
Capacity building of agricultural extension officers	US$							30	-	-	-	30	33
Development of intensive agriculture models/technology packages /h	US$							90	-	-	-	90	100
Undertake field surveys and design of the projects	US$							15	8	8	-	30	17
Construction of diversion canals, drilling of boreholes	US$							-	120	72	48	240	-
Organization of extension programs	US$							45	23	23	-	90	50
Provision of agricultural services and support /i	US$							30	15	15	-	60	33
Improve harvesting, storage processing, distribution and marketing products	US$							30	15	15	-	60	33
Subtotal Agricultural Intensification and Diversification								240	180	132	48	600	268
Total Investment Costs								370	3 038	1 785	333	5 525	413
II. Recurrent Costs													
A. Infrastructure Operation and Maintenance													
O&M for hafirs	US$							-	4	5	4	13	-
O&M for small dams	US$							-	125	188	188	500	-
O&M for ground water dams	US$							-	6	12	15	33	-
O&M for water harvesting structures	US$							-	-	4	11	15	-
Total Recurrent Costs								-	135	208	218	561	-
Total								370	3 172	1 993	551	6 086	413

\a Includes equipment.
\b 50 sessions 2 days for 30 participants
\c Includes microdams, pans and hafir construction and or rehabilitation.
\d Includes small dams up to 15 m high with diversion structures but not canals.
\e One wadi with 20 sub-units.
\f Collection surfaces, storage facilities and pumps.
\g May include latrines and septic tanks.
\h 50000 feddans of cropland irrigated using improved agricultural technologies.
\i for 5000 people

tals Including Contingencies (US$ '000)				Breakdown of Totals Incl. Cont. (US$ '000)				Parameters (in %)			Summary Divisions		Other Accounts	
2009	2010	2011	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account	Disb. Acct.	Fin. Rule
86	-	-	170	-	153	17	170	10,0	0,0	10,0	B1_WATER_RESOURCE	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	17	2	13	2	17	10,0	10,0	10,0	B1_WATER_RESOURCE	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	22	-	20	2	22	10,0	0,0	10,0	B1_WATER_RESOURCE	TA	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
9	9	-	18	2	14	2	18	10,0	10,0	10,0	B1_WATER_RESOURCE	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
95	9	-	227	3	200	23	227							
86	118	92	296	148	118	30	296	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
2 875	1 481	-	4 356	2 178	1 742	436	4 356	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
138	142	73	353	177	141	35	353	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	89	183	272	136	109	27	272	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
92	118	-	233	116	93	23	233	10,0	50,0	10,0	B1_WATER_RESOURCE	CIVIL_WORKS	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
3 191	1 948	348	5 510	2 755	2 204	551	5 510							
-	-	-	33	-	30	3	33	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	-	-	100	-	90	10	100	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
9	9	-	34	-	31	3	34	10,0	0,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
138	85	59	282	141	113	28	282	10,0	50,0	10,0	B2_AGRICULTURE_INTENSIFICATION	CIVIL_WORKS	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
26	27	-	103	10	82	10	103	10,0	10,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
17	18	-	69	7	55	7	69	10,0	10,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
17	18	-	69	7	55	7	69	10,0	10,0	10,0	B2_AGRICULTURE_INTENSIFICATION	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
207	156	59	690	165	456	69	690							
3 493	2 114	406	6 426	2 923	2 860	643	6 426							
4	6	5	15	4	10	1	15	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	INGES_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
144	222	229	595	149	386	59	595	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	INGES_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
7	14	18	39	10	26	4	39	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	INGES_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
-	4	14	18	5	12	2	18	10,0	25,0	10,0	A1_STRENGTH_SUPP_INSTITUT	O_AND_M	INGES_OC	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)
155	247	265	667	167	434	67	667							
3 648	2 360	672	7 093	3 090	3 294	709	7 093							

		Expenditures by Financiers (US$ '000)														
		The Government					Principal Donor					Other Donors				
Proc. Acct.	Proc. Method	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total
TECH_ASSIST	CQ_PM (100%)	13	13	-	-	25	46	47	-	-	93	25	26	-	-	51
TRAINING	CON_SRVCS_PM (100%)	3	-	-	-	3	9	-	-	-	9	5	-	-	-	5
TECH_ASSIST	CQ_PM (100%)	3	-	-	-	3	12	-	-	-	12	7	-	-	-	7
TRAINING	CON_SRVCS_PM (100%)	-	1	1	-	3	-	5	5	-	10	-	3	3	-	5
		18	14	1	-	34	68	52	5	-	125	37	28	3	-	68
WORKS_LS	ICB_PM (100%)	-	13	18	14	44	-	47	65	50	163	-	26	36	27	89
WORKS_LS	ICB_PM (100%)	-	431	222	-	653	-	1 581	814	-	2 396	-	862	444	-	1 307
WORKS_MS	NCB_PM (100%)	-	21	21	11	53	-	76	78	40	194	-	41	43	22	106
WORKS_LS	ICB_PM (100%)	-	-	13	27	41	-	-	49	101	150	-	-	27	55	82
WORKS_MS	LCL_SHOPPING_PM (100%)	3	14	18	-	35	12	51	65	-	128	7	28	36	-	70
		3	479	292	52	826	12	1 755	1 072	191	3 030	7	957	585	104	1 653
TECH_ASSIST	CQ_PM (100%)	5	-	-	-	5	18	-	-	-	18	10	-	-	-	10
TECH_ASSIST	CQ_PM (100%)	15	-	-	-	15	55	-	-	-	55	30	-	-	-	30
TECH_ASSIST	CQ_PM (100%)	3	1	1	-	5	9	5	5	-	19	5	3	3	-	10
WORKS_LS	ICB_PM (100%)	-	21	13	9	42	-	76	47	32	155	-	41	26	18	85
TRAINING	CON_SRVCS_PM (100%)	8	4	4	-	15	28	14	15	-	57	15	8	8	-	31
TRAINING	CON_SRVCS_PM (100%)	5	3	3	-	10	18	9	10	-	38	10	5	5	-	21
TRAINING	CON_SRVCS_PM (100%)	5	3	3	-	10	18	9	10	-	38	10	5	5	-	21
		40	31	23	9	103	147	114	86	32	379	80	62	47	18	207
		62	524	317	61	964	227	1 921	1 163	223	3 534	124	1 048	634	122	1 928
O&M_COSTS	UNIDENT_1_PM (100%)	-	1	1	1	2	-	2	3	3	8	-	1	2	1	4
O&M_COSTS	UNIDENT_1_PM (100%)	-	22	33	34	89	-	79	122	126	327	-	43	67	69	178
O&M_COSTS	UNIDENT_1_PM (100%)	-	1	2	3	6	-	4	8	10	22	-	2	4	5	12
O&M_COSTS	UNIDENT_1_PM (100%)	-	-	1	2	3	-	-	2	8	10	-	-	1	4	5
		-	23	37	40	100	-	85	136	146	367	-	46	74	80	200
		62	547	354	101	1 064	227	2 006	1 298	369	3 901	124	1 094	708	201	2 128

Sudan
Watershed Management
Table 8. Ingessana - IWMD 2
Detailed Costs

		Quantities					Unit Cost	Base Cost (US$ '000)					Totals Including Contin '000)		
	Unit	2008	2009	2010	2011	Total	(US$)	2008	2009	2010	2011	Total	2008	2009	2010
I. Investment Costs															
A. Improvement of Rangelands and Regulation of Animal Routes															
Assist in reviewing and improving the animal migration routes	US$							40	40	-	-	80	45	46	-
Promote planting trees along animal routes	US$							-	24	32	24	80	-	28	38
Establishment of drinking water yards	US$							-	72	96	72	240	-	83	114
Establishment of camp places	US$							-	48	64	48	160	-	55	76
Training of pastoralists	US$							40	40	-	-	80	45	46	-
Assist in organizing campaigns	US$							-	24	32	24	80	-	28	38
Assist in improving the capacity of rangelands	US$							-	24	32	24	80	-	28	38
Subtotal Improvement of Rangelands and Regulation of Animal Routes								80	272	256	192	800	89	313	303
B. Private Forestry															
Environmental awareness training	US$							-	18	24	18	60	-	21	28
Training of mechanised farmers in tree planting, management and maintenance	US$							-	9	12	9	30	-	10	14
Supply of superior quality seedlings	US$							-	45	60	45	150	-	52	71
Training on tree protection and maintenance	US$							-	18	24	18	60	-	21	28
Subtotal Private Forestry								-	90	120	90	300	-	103	142
C. Community Forests															
Set up a development fund for tree planting activities	US$							40	-	-	-	40	45	-	-
Training of committee members	US$							10	10	10	10	40	11	11	12
Training of farmers improved methods of gum arabic tapping	US$							5	5	5	5	20	6	6	6
Physical boundary and demarcation of the area of community forest	US$							15	15	15	15	60	17	17	18
Supply of superior quality seeds	US$							15	15	15	15	60	17	17	18
Supply nursery and plantation tools	US$							25	25	25	25	100	28	29	30
Village nursery establishment	US$							20	20	20	20	80	22	23	24
Subtotal Community Forests								130	90	90	90	400	145	103	107
D. Joint Forest Management of Reserve Forest															
Training in environmental awareness	US$							20	-	-	-	20	22	-	-
Training of committee members	US$							20	-	-	-	20	22	-	-
Training of local community members in Boswella	US$							20	-	-	-	20	22	-	-
Promotion of collective marketing of honey	US$							8	12	-	-	20	9	14	-
Inventory and mapping of reserve forest	US$							24	36	-	-	60	27	41	-
Physical boundary and demarcation of the reserve forest	US$							48	72	-	-	120	54	83	-
Fire control and prevention	US$							-	18	24	18	60	-	21	28
Grazing control and prevention	US$							-	24	32	24	80	-	28	38
Subtotal Joint Forest Management of Reserve Forest								140	162	56	42	400	156	186	66
E. Alternative Energy Sources															
Procurement of services from NGO and para-statal institutions	US$							11	11	11	11	45	13	13	13
Conduct environmental awareness training	US$							11	11	11	11	45	13	13	13
Training and mobilising private companies	US$							24	36	-	-	60	27	41	-
Establish mechanisms to access credits	US$							-	45	60	45	150	-	52	71
Subtotal Alternative Energy Sources								47	104	83	68	300	52	119	98
F. Small-holder Mining Management and Mitigation															
Training of small-scale miners committees or cooperatives	US$							13	13	13	13	53	15	15	16
Providing training for miners, local authorities /a	US$							13	13	13	13	53	15	15	16
Promotion of alternative technologies for different mining activities	US$							28	42	-	-	70	31	48	-
Support for the development of alternative livelihood opportunities	US$							-	53	70	53	175	-	60	83
Subtotal Small-holder Mining Management and Mitigation								54	121	96	79	350	61	139	114
Total								451	838	701	560	2 550	503	964	830

\a In relevant legislation and policies, alternative technologies, aspects of environmental management and rehabilitation , health and social aspects, group mining practices, marketing and credit .

gencies (US$		Breakdown of Totals Incl. Cont. (US$ '000)				Parameters (in %)			Summary Divisions		Other Accounts		
2011	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Component	Expenditure Account	Disb. Acct.	Fin. Rule	Proc. Acct.
-	91	-	82	9	91	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TECH_ASSIST
29	95	-	85	9	95	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TECH_ASSIST
88	284	142	114	28	284	10,0	50,0	10,0	B3_IMPROVE_RANGELANDS	CIVIL_WORKS	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	WORKS_MS
59	190	95	76	19	190	10,0	50,0	10,0	B3_IMPROVE_RANGELANDS	CIVIL_WORKS	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	WORKS_MS
-	91	9	73	9	91	10,0	10,0	10,0	B3_IMPROVE_RANGELANDS	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
29	95	-	85	9	95	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TECH_ASSIST
29	95	-	85	9	95	10,0	0,0	10,0	B3_IMPROVE_RANGELANDS	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TECH_ASSIST
234	940	246	600	94	940								
22	71	7	57	7	71	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
11	36	4	28	4	36	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
55	178	124	36	18	178	10,0	70,0	10,0	B4_AFFOREST_REFOREST	GOODS	INGES_GOODS	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	AG_INPUT
22	71	7	57	7	71	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
110	355	142	178	36	355								
-	45	4	36	4	45	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TECH_ASSIST
12	47	5	37	5	47	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
6	23	2	19	2	23	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
18	70	35	28	7	70	10,0	50,0	10,0	B4_AFFOREST_REFOREST	CIVIL_WORKS	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	WORKS_MS
18	70	49	14	7	70	10,0	70,0	10,0	B4_AFFOREST_REFOREST	GOODS	INGES_GOODS	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	AG_INPUT
31	117	82	23	12	117	10,0	70,0	10,0	B4_AFFOREST_REFOREST	EQUIPMENT	INGES_GOODS	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	AG_INPUT
24	93	47	37	9	93	10,0	50,0	10,0	B4_AFFOREST_REFOREST	CIVIL_WORKS	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	WORKS_MS
110	465	224	195	47	465								
-	22	2	18	2	22	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
-	22	2	18	2	22	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
-	22	2	18	2	22	10,0	10,0	10,0	B4_AFFOREST_REFOREST	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
-	23	-	20	2	23	10,0	0,0	10,0	B4_AFFOREST_REFOREST	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
-	68	-	61	7	68	10,0	0,0	10,0	B4_AFFOREST_REFOREST	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
-	136	68	55	14	136	10,0	50,0	10,0	B4_AFFOREST_REFOREST	CIVIL_WORKS	INGES_CW	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	WORKS_MS
22	71	50	14	7	71	10,0	70,0	10,0	B4_AFFOREST_REFOREST	EQUIPMENT	INGES_GOODS	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	GOODS_EQUIP
29	95	66	19	9	95	10,0	70,0	10,0	B4_AFFOREST_REFOREST	EQUIPMENT	INGES_GOODS	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	GOODS_EQUIP
51	460	191	223	46	460								
14	53	5	42	5	53	10,0	10,0	10,0	B6_MINING_MANAGEMENT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
14	53	5	42	5	53	10,0	10,0	10,0	B6_MINING_MANAGEMENT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
-	68	7	55	7	68	10,0	10,0	10,0	B6_MINING_MANAGEMENT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
55	178	-	160	18	178	10,0	0,0	10,0	B6_MINING_MANAGEMENT	CIF	INGES_CREDIT	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	CREDIT
82	351	17	299	35	351								
16	61	6	49	6	61	10,0	10,0	10,0	B6_MINING_MANAGEMENT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
16	61	6	49	6	61	10,0	10,0	10,0	B6_MINING_MANAGEMENT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
-	80	8	64	8	80	10,0	10,0	10,0	B6_MINING_MANAGEMENT	TR	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
64	207	-	187	21	207	10,0	0,0	10,0	B6_MINING_MANAGEMENT	TA	INGES_TA_TR	PRINCIPAL_DONOR (55%), OTHER_DONORS (30%)	TRAINING
96	410	20	348	41	410								
684	2 981	841	1 842	298	2 981								

	Expenditures by Financiers (US$ '000)														
	The Government					Principal Donor					Other Donors				
Proc. Method	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total
CQ_PM (100%)	7	7	-	-	14	25	25	-	-	50	13	14	-	-	27
CQ_PM (100%)	-	4	6	4	14	-	15	21	16	52	-	8	11	9	28
NCB_PM (100%)	-	12	17	13	43	-	46	63	48	156	-	25	34	26	85
NCB_PM (100%)	-	8	11	9	28	-	30	42	32	104	-	17	23	18	57
CON_SRVCS_PM (100%)	7	7	-	-	14	25	25	-	-	50	13	14	-	-	27
CQ_PM (100%)	-	4	6	4	14	-	15	21	16	52	-	8	11	9	28
CQ_PM (100%)	-	4	6	4	14	-	15	21	16	52	-	8	11	9	28
	13	47	45	35	141	49	172	167	129	517	27	94	91	70	282
CON_SRVCS_PM (100%)	-	3	4	3	11	-	11	16	12	39	-	6	9	7	21
CON_SRVCS_PM (100%)	-	2	2	2	5	-	6	8	6	20	-	3	4	3	11
LCL_SHOPPING_PM (100%)	-	8	11	8	27	-	28	39	30	98	-	16	21	16	53
CON_SRVCS_PM (100%)	-	3	4	3	11	-	11	16	12	39	-	6	9	7	21
	-	16	21	16	53	-	57	78	60	195	-	31	43	33	107
CQ_PM (100%)	7	-	-	-	7	25	-	-	-	25	13	-	-	-	13
CON_SRVCS_PM (100%)	2	2	2	2	7	6	6	7	7	26	3	3	4	4	14
CON_SRVCS_PM (100%)	1	1	1	1	4	3	3	3	3	13	2	2	2	2	7
NCB_PM (100%)	3	3	3	3	11	9	9	10	10	39	5	5	5	5	21
LCL_SHOPPING_PM (100%)	3	3	3	3	11	9	9	10	10	39	5	5	5	5	21
LCL_SHOPPING_PM (100%)	4	4	4	5	18	15	16	16	17	64	8	9	9	9	35
NCB_PM (100%)	3	3	4	4	14	12	13	13	13	51	7	7	7	7	28
	22	16	16	16	70	80	57	59	60	256	44	31	32	33	140
CON_SRVCS_PM (100%)	3	-	-	-	3	12	-	-	-	12	7	-	-	-	7
CON_SRVCS_PM (100%)	3	-	-	-	3	12	-	-	-	12	7	-	-	-	7
CON_SRVCS_PM (100%)	3	-	-	-	3	12	-	-	-	12	7	-	-	-	7
CON_SRVCS_PM (100%)	1	2	-	-	3	5	8	-	-	13	3	4	-	-	7
CON_SRVCS_PM (100%)	4	6	-	-	10	15	23	-	-	38	8	12	-	-	20
LCB_PM (100%)	8	12	-	-	20	29	46	-	-	75	16	25	-	-	41
NCB_PM (100%)	-	3	4	3	11	-	11	16	12	39	-	6	9	7	21
NCB_PM (100%)	-	4	6	4	14	-	15	21	16	52	-	8	11	9	28
	23	28	10	8	69	86	102	36	28	253	47	56	20	15	138
CON_SRVCS_PM (100%)	2	2	2	2	8	7	7	7	8	29	4	4	4	4	16
CON_SRVCS_PM (100%)	2	2	2	2	8	7	7	7	8	29	4	4	4	4	16
CON_SRVCS_PM (100%)	4	6	-	-	10	15	23	-	-	38	8	12	-	-	20
OTHER_PM (100%)	-	8	11	8	27	-	28	39	30	98	-	16	21	16	53
	8	18	15	12	53	29	65	54	45	193	16	36	29	25	105
CON_SRVCS_PM (100%)	2	2	2	2	9	8	8	9	9	34	4	5	5	5	18
CON_SRVCS_PM (100%)	2	2	2	2	9	8	8	9	9	34	4	5	5	5	18
CON_SRVCS_PM (100%)	5	7	-	-	12	17	27	-	-	44	9	14	-	-	24
CON_SRVCS_PM (100%)	-	9	12	10	31	-	33	46	35	114	-	18	25	19	62
	9	21	17	14	61	33	76	63	53	225	18	42	34	29	123
	75	145	125	103	447	277	530	457	376	1 639	151	289	249	205	894

Sudan
Watershed Management
Table 9. Project Coordination Unit (PCU) /a

Detailed Costs		Quantities					Unit Cost	Base Cost (US$ '000)					Totals Including Contingencies (US$ '000)					Breakdown of Totals Incl. Cont. (US$ '000)				Para
	Unit	2008	2009	2010	2011	Total	(US$)	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	Phy. Cont. Rate
I. Investment Costs																						
A. Project Management Unit in Khartoum																						
1. Office Rehabilitation	US$							15	-	-	-	15	17	-	-	-	17	8	7	2	17	10,0
2. Office Equipment																						
Computers and Printers	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0
Specialized Software	US$							8	-	-	-	8	8	-	-	-	8	6	2	1	8	10,0
Fax and Telephone Machines	US$							0	-	-	-	0	0	-	-	-	0	0	0	0	0	10,0
Subtotal Office Equipment								10	-	-	-	10	11	-	-	-	11	8	2	1	11	
3. Office Furniture																						
Office Desk	US$							1	-	-	-	1	1	-	-	-	1	1	0	0	1	10,0
Chairs	US$							1	-	-	-	1	1	-	-	-	1	1	0	0	1	10,0
Filing Cabinets	US$							1	-	-	-	1	1	-	-	-	1	1	0	0	1	10,0
Miscellaneous /b	US$							1	-	-	-	1	1	-	-	-	1	1	0	0	1	10,0
Subtotal Office Furniture								5	-	-	-	5	6	-	-	-	6	4	1	1	6	
4. Vehicles /c	car	2	-	-	-	2	20,000	40	-	-	-	40	45	-	-	-	45	31	9	4	45	10,0
5. Staff Training																						
Project Management	US$							13	-	-	-	13	14	-	-	-	14	1	11	1	14	10,0
Financial Management	US$							13	-	-	-	13	14	-	-	-	14	1	11	1	14	10,0
Monitoring and Evaluation	US$							13	-	-	-	13	14	-	-	-	14	1	11	1	14	10,0
Watershed Management	US$							13	-	-	-	13	14	-	-	-	14	1	11	1	14	10,0
Subtotal Staff Training								50	-	-	-	50	56	-	-	-	56	6	45	6	56	
Subtotal Project Management Unit in Khartoum								120	-	-	-	120	134	-	-	-	134	57	64	13	134	
B. Miscellaneous Service Contracts																						
1. Development of Project Administration System																						
Operational management system	US$							8	-	-	-	8	8	-	-	-	8	-	8	1	8	10,0
Financial control system	US$							13	-	-	-	13	14	-	-	-	14	-	13	1	14	10,0
Capacity building of local partners	US$							8	8	8	8	30	8	9	9	9	35	-	32	4	35	10,0
Subtotal Development of Project Administration System								28	8	8	8	50	31	9	9	9	57	-	52	6	57	
2. Services from Other Government Agencies /d	US$							40	80	60	20	200	45	92	71	24	232	162	46	23	232	10,0
3. Exchange Visits /e	US$							250	-	-	-	250	279	-	-	-	279	28	223	28	279	10,0
Subtotal Miscellaneous Service Contracts								318	88	68	28	500	354	101	80	34	569	190	321	57	569	
Total Investment Costs								438	88	68	28	620	489	101	80	34	703	248	385	70	703	
II. Recurrent Costs																						
A. Project Management Unit in Khartoum																						
1. Salaries for Central PMU Staff																						
National Project Coordinator	py	1	1	1	1	4	18,000	18	18	18	18	72	20	21	21	22	84	21	55	8	84	10,0
Financial Controller	py	1	1	1	1	4	15,000	15	15	15	15	60	17	17	18	18	70	18	46	7	70	10,0
Subtotal Salaries for Central PMU Staff								33	33	33	33	132	37	38	39	40	154	39	100	15	154	
2. Salaries for Support Staff																						
Secretary	py	1	1	1	1	4	6,000	6	6	6	6	24	7	7	7	7	28	7	18	3	28	10,0
Drivers	py	2	2	2	2	8	4,200	8	8	8	8	34	9	10	10	10	39	10	26	4	39	10,0
Office Helpers	py	2	2	2	2	8	3,000	6	6	6	6	24	7	7	7	7	28	7	18	3	28	10,0
Subtotal Salaries for Support Staff								20	20	20	20	82	23	23	24	25	95	24	62	10	95	
3. O&M Cost																						
Vehicles O&M	US$							10	10	10	10	40	11	11	12	12	47	12	30	5	47	10,0
Equipment	US$							4	4	4	4	15	4	4	4	5	18	4	11	2	18	10,0
Rent	US$							4	4	4	4	15	4	4	4	5	18	4	11	2	18	10,0
Utilities	US$							3	3	3	3	10	3	3	3	3	12	3	8	1	12	10,0
Translation service contracts	US$							5	5	5	5	20	6	6	6	6	23	6	15	2	23	10,0
Subtotal O&M Cost								25	25	25	25	100	28	29	30	31	117	29	76	12	117	
Total Recurrent Costs								78	78	78	78	314	88	90	93	96	366	92	238	37	366	
Total								516	166	146	106	934	576	191	173	129	1 069	339	623	107	1 069	

\a Located at the lead agency MOIWR.
\b Water dispensers and other items.
\c 4WD utility vehicles for off road use
\d Examples are various research institutes and National Forestry Corporation.
\e Between project sites and to other ENTRO countries.

ameters (in %)		Summary Divisions		Other Accounts				Expenditures by Financiers (US$ '000)									
For.	Gross		Expenditure					The Government					Principal Donor				
Exch.	Tax Rate	Component	Account	Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total
50,0	10,0	C_PROJECT_MANAGEMENT	CIVIL_WORKS	PMU_CW	PRINCIPAL_DONOR (80%)	WORKS_MS	NCB_PM (100%)	3	-	-	-	3	13	-	-	-	13
70,0	10,0	C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
70,0	10,0	C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	2	-	-	-	2	7	-	-	-	7
70,0	10,0	C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	0	-	-	-	0	0	-	-	-	0
								2	-	-	-	2	9	-	-	-	9
70,0	10,0	C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	0	-	-	-	0	1	-	-	-	1
70,0	10,0	C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	0	-	-	-	0	1	-	-	-	1
70,0	10,0	C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	0	-	-	-	0	1	-	-	-	1
70,0	10,0	C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	0	-	-	-	0	1	-	-	-	1
								1	-	-	-	1	4	-	-	-	4
70,0	10,0	C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	9	-	-	-	9	36	-	-	-	36
10,0	10,0	C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	3	-	-	-	3	11	-	-	-	11
10,0	10,0	C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	3	-	-	-	3	11	-	-	-	11
10,0	10,0	C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	3	-	-	-	3	11	-	-	-	11
10,0	10,0	C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	3	-	-	-	3	11	-	-	-	11
								11	-	-	-	11	45	-	-	-	45
								27	-	-	-	27	107	-	-	-	107
0,0	10,0	C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	2	-	-	-	2	7	-	-	-	7
0,0	10,0	C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	3	-	-	-	3	11	-	-	-	11
0,0	10,0	C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	2	2	2	2	7	7	7	7	7	28
								6	2	2	2	11	25	7	7	7	46
70,0	10,0	C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	TECH_SERVICES	LTR_PM (100%)	9	18	14	5	46	36	74	57	20	186
10,0	10,0	C_PROJECT_MANAGEMENT	TR	PMU_GOODS	PRINCIPAL_DONOR (80%)	TRAINING	OTHER_PM (100%)	56	-	-	-	56	223	-	-	-	223
								71	20	16	7	114	284	80	64	27	455
								98	20	16	7	141	391	80	64	27	562
25,0	10,0	C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	4	4	4	4	17	16	17	17	18	67
25,0	10,0	C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	4	4	14	13	14	14	15	56
								7	8	8	8	31	29	30	31	32	123
25,0	10,0	C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	1	1	1	1	6	5	6	6	6	22
25,0	10,0	C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	2	2	2	2	8	8	8	8	8	31
25,0	10,0	C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	1	1	1	1	6	5	6	6	6	22
								5	5	5	5	19	18	19	19	20	76
25,0	10,0	C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	9	9	9	9	10	37
25,0	10,0	C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	1	1	1	1	4	3	3	4	4	14
25,0	10,0	C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	1	1	1	1	4	3	3	4	4	14
25,0	10,0	C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	1	1	1	1	2	2	2	2	2	9
25,0	10,0	C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	1	1	1	1	5	4	5	5	5	19
								6	6	6	6	23	22	23	24	24	93
								18	18	19	19	73	70	72	74	77	293
								115	38	35	26	214	461	153	138	103	855

Sudan
Watershed Management
Table 10. Project Management - LIU (Ed Damer Locality)
Detailed Costs

		Quantities					Unit Cost	Base Cost (US$ '000)					Totals Including Contingencies (US$ '000)					Breakdown of Totals Incl. Cont. (US$ '000)				Parameters (in %)		
	Unit	2008	2009	2010	2011	Total	(US$)	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate
I. Investment Costs																								
A. Local Implementation Unit in Ed Damer Locality /a																								
1. Office Rehabilitation	US$							30	-	-	-	30	33	-	-	-	33	17	13	3	33	10,0	50,0	10,0
2. Office Equipment																								
Computers and Printers	US$							5	-	-	-	5	6	-	-	-	6	4	1	1	6	10,0	70,0	10,0
Air Conditioner	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Generator	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Specialized Software	US$							15	-	-	-	15	17	-	-	-	17	12	3	2	17	10,0	70,0	10,0
Fax and Telephone Machines	US$							1	-	-	-	1	1	-	-	-	1	0	0	0	1	10,0	70,0	10,0
Subtotal Office Equipment								27	-	-	-	27	30	-	-	-	30	21	6	3	30			
3. Transport Means																								
4WD Vehicles	car	2	-	-	-	2	40,000	80	-	-	-	80	89	-	-	-	89	63	18	9	89	10,0	70,0	10,0
Motorbike	motobike	2	2	-	-	4	2,000	4	4	-	-	8	4	5	-	-	9	6	2	1	9	10,0	70,0	10,0
Subtotal Transport Means								84	4	-	-	88	94	5	-	-	98	69	20	10	98			
4. Office Furniture																								
Office Desk	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Chairs	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Filing Cabinets	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Miscellaneous /b	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Subtotal Office Furniture								10	-	-	-	10	11	-	-	-	11	8	2	1	11			
5. Staff Training																								
Project Management	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Financial Management	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Monitoring and Evaluation	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Watershed Management	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Subtotal Staff Training								100	-	-	-	100	112	-	-	-	112	11	89	11	112			
6. Development of Project Administration System																								
Operational management system	US$							15	-	-	-	15	17	-	-	-	17	-	15	2	17	10,0	0,0	10,0
Financial control system	US$							25	-	-	-	25	28	-	-	-	28	-	25	3	28	10,0	0,0	10,0
Capacity building of local partners	US$							15	15	15	15	60	17	17	18	18	70	-	63	7	70	10,0	0,0	10,0
Subtotal Development of Project Administration System								55	15	15	15	100	61	17	18	18	115	-	103	11	115			
Total Investment Costs								306	19	15	15	355	341	22	18	18	399	125	234	40	399			
II. Recurrent Costs																								
A. Local Implementation Unit in Ed Damer Locality																								
1. Externally Recruited Full Time Contract Staff																								
FTP LIU Manager/Land Use Mngt Specialist	py	1	1	1	1	4	30,000	30	30	30	30	120	33	34	36	37	140	35	91	14	140	10,0	25,0	10,0
Social Facilitator/M&E Officer	py	1	1	1	1	4	24,000	24	24	24	24	96	27	28	28	29	112	28	73	11	112	10,0	25,0	10,0
Water Resources Engineer	py	1	1	1	1	4	24,000	24	24	24	24	96	27	28	28	29	112	28	73	11	112	10,0	25,0	10,0
Subtotal Externally Recruited Full Time Contract Staff								78	78	78	78	312	87	90	92	95	364	91	237	36	364			
2. Seconded Full Time Government Staff																								
Financial Controller	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Procurement Specialist	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Subtotal Seconded Full Time Government Staff								24	24	24	24	96	27	28	28	29	112	28	73	11	112			
3. Seconded Development Teams																								
Agriculture Extension Agent	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Forestry Extension Agent	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Range/Livestock Extension Agent	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Micro-finance Business Development Officer	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Subtotal Seconded Development Teams								48	48	48	48	192	54	55	57	59	224	56	146	22	224			
4. Salaries for Support Staff																								
Secretary	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Drivers	py	2	2	2	2	8	8,400	17	17	17	17	67	19	19	20	20	78	20	51	8	78	10,0	25,0	10,0
Office Helpers	py	2	2	2	2	8	6,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Subtotal Salaries for Support Staff								41	41	41	41	163	46	47	48	50	191	48	124	19	191			
5. O&M Cost																								
Vehicles O&M	US$							20	20	20	20	80	22	23	24	24	93	23	61	9	93	10,0	25,0	10,0
Equipment	US$							8	8	8	8	30	8	9	9	9	35	9	23	4	35	10,0	25,0	10,0
Rent	US$							8	8	8	8	30	8	9	9	9	35	9	23	4	35	10,0	25,0	10,0
Utilities	US$							5	5	5	5	20	6	6	6	6	23	6	15	2	23	10,0	25,0	10,0
Translation service contracts	US$							10	10	10	10	40	11	11	12	12	47	12	30	5	47	10,0	25,0	10,0
Subtotal O&M Cost								50	50	50	50	200	56	57	59	61	234	58	152	23	234			
Total Recurrent Costs								241	241	241	241	963	269	277	285	294	1 125	281	731	112	1 125			
Total								546	260	256	256	1 318	610	299	303	312	1 524	407	965	152	1 524			

\a Established in Ed Damer Locality in River Nile State responsible for project implementation in Lower Atbara project area
\b Water dispensers and other items.

Summary Divisions		Other Accounts				Expenditures by Financiers (US$ '000)									
	Expenditure					The Government					Principal Donor				
Component	Account	Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total
C_PROJECT_MANAGEMENT	CIVIL_WORKS	PMU_CW	PRINCIPAL_DONOR (80%)	WORKS_MS	NCB_PM (100%)	7	-	-	-	7	27	-	-	-	27
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	4	-	-	-	4
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	3	-	-	-	3
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	3	-	-	-	3
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	3	-	-	-	3	13	-	-	-	13
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	0	-	-	-	0	0	-	-	-	0
						6	-	-	-	6	24	-	-	-	24
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	18	-	-	-	18	71	-	-	-	71
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	1	-	-	2	4	4	-	-	7
						19	1	-	-	20	75	4	-	-	79
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
						2	-	-	-	2	9	-	-	-	9
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
						22	-	-	-	22	89	-	-	-	89
C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	3	-	-	-	3	13	-	-	-	13
C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	3	3	4	4	14	13	14	14	15	56
						12	3	4	4	23	49	14	14	15	92
						68	4	4	4	80	273	17	14	15	319
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	7	7	7	7	28	27	28	28	29	112
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	5	6	6	6	22	21	22	23	23	90
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	5	6	6	6	22	21	22	23	23	90
						17	18	18	19	73	70	72	74	76	291
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
						5	6	6	6	22	21	22	23	23	90
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
						11	11	11	12	45	43	44	45	47	179
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	4	4	4	4	16	15	15	16	16	63
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
						9	9	10	10	38	36	38	39	40	152
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	4	5	5	5	19	18	18	19	20	75
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	7	7	7	7	7	28
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	7	7	7	7	7	28
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	1	1	1	1	5	4	5	5	5	19
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	9	9	9	9	10	37
						11	11	12	12	47	45	46	47	49	187
						54	55	57	59	225	215	222	228	235	900
						122	60	61	62	305	488	239	242	250	1 219

Sudan
Watershed Management
Table 11. Project Management - LIU (Blue Nile State)
Detailed Costs

	Unit	Quantities					Unit Cost	Base Cost (US$ '000)					Totals Including Contingencies (US$ '000)					Breakdown of Totals Incl. Cont. (US$ '000)				Parameters (in %)		
		2008	2009	2010	2011	Total	(US$)	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	Phy. Cont. Rate	For. Exch.	Gross Tax Rate
I. Investment Costs																								
A. Local Implementation Unit in Blue Nile State /a																								
1. Office Rehabilitation	US$							30	-	-	-	30	33	-	-	-	33	17	13	3	33	10,0	50,0	10,0
2. Office Equipment																								
Computers and Printers	US$							5	-	-	-	5	6	-	-	-	6	4	1	1	6	10,0	70,0	10,0
Air Conditioner	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Generator	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Specialized Software	US$							15	-	-	-	15	17	-	-	-	17	12	3	2	17	10,0	70,0	10,0
Fax and Telephone Machines	US$							1	-	-	-	1	1	-	-	-	1	0	0	0	1	10,0	70,0	10,0
Subtotal Office Equipment								27	-	-	-	27	30	-	-	-	30	21	6	3	30			
3. Transport Means																								
4WD Vehicles	car	2	-	-	-	2	40,000	80	-	-	-	80	89	-	-	-	89	63	18	9	89	10,0	70,0	10,0
Motorbike	motobike	2	2	-	-	4	2,000	4	4	-	-	8	4	5	-	-	9	6	2	1	9	10,0	70,0	10,0
Subtotal Transport Means								84	4	-	-	88	94	5	-	-	98	69	20	10	98			
4. Office Furniture																								
Office Desk	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Chairs	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Filing Cabinets	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Miscellaneous /b	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Subtotal Office Furniture								10	-	-	-	10	11	-	-	-	11	8	2	1	11			
5. Staff Training																								
Project Management	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Financial Management	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Monitoring and Evaluation	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Watershed Management	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Subtotal Staff Training								100	-	-	-	100	112	-	-	-	112	11	89	11	112			
6. Development of Project Administration System																								
Operational management system	US$							15	-	-	-	15	17	-	-	-	17	-	15	2	17	10,0	0,0	10,0
Financial control system	US$							25	-	-	-	25	28	-	-	-	28	-	25	3	28	10,0	0,0	10,0
Capacity building of local partners	US$							15	15	15	15	60	17	17	18	18	70	-	63	7	70	10,0	0,0	10,0
Subtotal Development of Project Administration System								55	15	15	15	100	61	17	18	18	115	-	103	11	115			
Total Investment Costs								306	19	15	15	355	341	22	18	18	399	125	234	40	399			
II. Recurrent Costs																								
A. Local Implementation Unit in Blue Nile State																								
1. Externally Recruited Full Time Contract Staff																								
FTP LIU Manager/Land Use Mngt Specialist	py	1	1	1	1	4	30,000	30	30	30	30	120	33	34	36	37	140	35	91	14	140	10,0	25,0	10,0
Social Facilitator/M&E Officer	py	1	1	1	1	4	24,000	24	24	24	24	96	27	28	28	29	112	28	73	11	112	10,0	25,0	10,0
Water Resources Engineer	py	1	1	1	1	4	24,000	24	24	24	24	96	27	28	28	29	112	28	73	11	112	10,0	25,0	10,0
Subtotal Externally Recruited Full Time Contract Staff								78	78	78	78	312	87	90	92	95	364	91	237	36	364			
2. Seconded Full Time Government Staff																								
Financial Controller	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Procurement Specialist	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Subtotal Seconded Full Time Government Staff								24	24	24	24	96	27	28	28	29	112	28	73	11	112			
3. Seconded Development Teams																								
Agriculture Extension Agent	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Forestry Extension Agent	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Range/Livestock Extension Agent	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Micro-finance Business Development Officer	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Subtotal Seconded Development Teams								48	48	48	48	192	54	55	57	59	224	56	146	22	224			
4. Salaries for Support Staff																								
Secretary	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Drivers	py	2	2	2	2	8	8,400	17	17	17	17	67	19	19	20	20	78	20	51	8	78	10,0	25,0	10,0
Office Helpers	py	2	2	2	2	8	6,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Subtotal Salaries for Support Staff								41	41	41	41	163	46	47	48	50	191	48	124	19	191			
5. O&M Cost																								
Vehicles O&M	US$							20	20	20	20	80	22	23	24	24	93	23	61	9	93	10,0	25,0	10,0
Equipment	US$							8	8	8	8	30	8	9	9	9	35	9	23	4	35	10,0	25,0	10,0
Rent	US$							8	8	8	8	30	8	9	9	9	35	9	23	4	35	10,0	25,0	10,0
Utilities	US$							5	5	5	5	20	6	6	6	6	23	6	15	2	23	10,0	25,0	10,0
Translation service contracts	US$							10	10	10	10	40	11	11	12	12	47	12	30	5	47	10,0	25,0	10,0
Subtotal O&M Cost								50	50	50	50	200	56	57	59	61	234	58	152	23	234			
Total Recurrent Costs								241	241	241	241	963	269	277	285	294	1 125	281	731	112	1 125			
Total								546	260	256	256	1 318	610	299	303	312	1 524	407	965	152	1 524			

\a Established in Blue Nile State with responsible for project implementation in Bau and Rosaries Locality
\b Water dispensers and other items.

Summary Divisions		Other Accounts				Expenditures by Financiers (US$ '000)									
	Expenditure					The Government					Principal Donor				
Component	Account	Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total
C_PROJECT_MANAGEMENT	CIVIL_WORKS	PMU_CW	PRINCIPAL_DONOR (80%)	WORKS_MS	NCB_PM (100%)	7	-	-	-	7	27	-	-	-	27
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	4	-	-	-	4
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	3	-	-	-	3
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	3	-	-	-	3
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	3	-	-	-	3	13	-	-	-	13
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	0	-	-	-	0	0	-	-	-	0
						6	-	-	-	6	24	-	-	-	24
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	18	-	-	-	18	71	-	-	-	71
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	1	-	-	2	4	4	-	-	7
						19	1	-	-	20	75	4	-	-	79
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
						2	-	-	-	2	9	-	-	-	9
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
						22	-	-	-	22	89	-	-	-	89
C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	3	-	-	-	3	13	-	-	-	13
C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	3	3	4	4	14	13	14	14	15	56
						12	3	4	4	23	49	14	14	15	92
						68	4	4	4	80	273	17	14	15	319
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	7	7	7	7	28	27	28	28	29	112
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	5	6	6	6	22	21	22	23	23	90
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	5	6	6	6	22	21	22	23	23	90
						17	18	18	19	73	70	72	74	76	291
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
						5	6	6	6	22	21	22	23	23	90
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
						11	11	11	12	45	43	44	45	47	179
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	4	4	4	4	16	15	15	16	16	63
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
						9	9	10	10	38	36	38	39	40	152
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	4	5	5	5	19	18	18	19	20	75
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	7	7	7	7	7	28
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	7	7	7	7	7	28
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	1	1	1	1	5	4	5	5	5	19
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	9	9	9	9	10	37
						11	11	12	12	47	45	46	47	49	187
						54	55	57	59	225	215	222	228	235	900
						122	60	61	62	305	488	239	242	250	1 219

Sudan
Watershed Management
Table 12. Project Management - LIU (Dinder National Park)
Detailed Costs

	Unit	Quantities 2008	2009	2010	2011	Total	Unit Cost (US$)	Base Cost (US$ '000) 2008	2009	2010	2011	Total	Totals Including Contingencies (US$ '000) 2008	2009	2010	2011	Total	Breakdown of Totals Incl. Cont. (US$ '000) For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	Parameters (in %) Phy. Cont. Rate	For. Exch.	Gross Tax Rate
I. Investment Costs																									
A. Local Implementation Unit in Blue Nile State /a																									
1. Office Rehabilitation	US$							30	-	-	-	30	33	-	-	-	33	17	13	3	33	10,0	50,0	10,0
2. Office Equipment																									
Computers and Printers	US$							5	-	-	-	5	6	-	-	-	6	4	1	1	6	10,0	70,0	10,0
Air Conditioner	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Generator	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Specialized Software	US$							15	-	-	-	15	17	-	-	-	17	12	3	2	17	10,0	70,0	10,0
Fax and Telephone Machines	US$							1	-	-	-	1	1	-	-	-	1	0	0	0	1	10,0	70,0	10,0
Subtotal Office Equipment								27	-	-	-	27	30	-	-	-	30	21	6	3	30			
3. Transport Means																									
4WD Vehicles	car	2	-	-	-	2	40,000	80	-	-	-	80	89	-	-	-	89	63	18	9	89	10,0	70,0	10,0
Motorbike	motobike	2	2	-	-	4	2,000	4	4	-	-	8	4	5	-	-	9	6	2	1	9	10,0	70,0	10,0
Subtotal Transport Means								84	4	-	-	88	94	5	-	-	98	69	20	10	98			
4. Office Furniture																									
Office Desk	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Chairs	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Filing Cabinets	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Miscellaneous /b	US$							3	-	-	-	3	3	-	-	-	3	2	1	0	3	10,0	70,0	10,0
Subtotal Office Furniture								10	-	-	-	10	11	-	-	-	11	8	2	1	11			
5. Staff Training																									
Project Management	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Financial Management	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Monitoring and Evaluation	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Watershed Management	US$							25	-	-	-	25	28	-	-	-	28	3	22	3	28	10,0	10,0	10,0
Subtotal Staff Training								100	-	-	-	100	112	-	-	-	112	11	89	11	112			
6. Development of Project Administration System																									
Operational management system	US$							15	-	-	-	15	17	-	-	-	17	-	15	2	17	10,0	0,0	10,0
Financial control system	US$							25	-	-	-	25	28	-	-	-	28	-	25	3	28	10,0	0,0	10,0
Capacity building of local partners	US$							15	15	15	15	60	17	17	18	18	70	-	63	7	70	10,0	0,0	10,0
Subtotal Development of Project Administration System								55	15	15	15	100	61	17	18	18	115	-	103	11	115			
Total Investment Costs								306	19	15	15	355	341	22	18	18	399	125	234	40	399			
II. Recurrent Costs																									
A. Local Implementation Unit for Dinder National Park																									
1. Externally Recruited Full Time Contract Staff																									
FTP LIU Manager/Land Use Mngt Specialist	py	1	1	1	1	4	30,000	30	30	30	30	120	33	34	36	37	140	35	91	14	140	10,0	25,0	10,0
Social Facilitator/M&E Officer	py	1	1	1	1	4	24,000	24	24	24	24	96	27	28	28	29	112	28	73	11	112	10,0	25,0	10,0
Water Resources Engineer	py	1	1	1	1	4	24,000	24	24	24	24	96	27	28	28	29	112	28	73	11	112	10,0	25,0	10,0
Subtotal Externally Recruited Full Time Contract Staff								78	78	78	78	312	87	90	92	95	364	91	237	36	364			
2. Seconded Full Time Government Staff																									
Financial Controller	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Procurement Specialist	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Subtotal Seconded Full Time Government Staff								24	24	24	24	96	27	28	28	29	112	28	73	11	112			
3. Seconded Development Teams																									
Agriculture Extension Agent	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Forestry Extension Agent	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Range/Livestock Extension Agent	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Micro-finance Business Development Officer	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Subtotal Seconded Development Teams								48	48	48	48	192	54	55	57	59	224	56	146	22	224			
4. Salaries for Support Staff																									
Secretary	py	1	1	1	1	4	12,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Drivers	py	2	2	2	2	8	8,400	17	17	17	17	67	19	19	20	20	78	20	51	8	78	10,0	25,0	10,0
Office Helpers	py	2	2	2	2	8	6,000	12	12	12	12	48	13	14	14	15	56	14	36	6	56	10,0	25,0	10,0
Subtotal Salaries for Support Staff								41	41	41	41	163	46	47	48	50	191	48	124	19	191			
5. O&M Cost																									
Vehicles O&M	US$							20	20	20	20	80	22	23	24	24	93	23	61	9	93	10,0	25,0	10,0
Equipment	US$							8	8	8	8	30	8	9	9	9	35	9	23	4	35	10,0	25,0	10,0
Rent	US$							8	8	8	8	30	8	9	9	9	35	9	23	4	35	10,0	25,0	10,0
Utilities	US$							5	5	5	5	20	6	6	6	6	23	6	15	2	23	10,0	25,0	10,0
Translation service contracts	US$							10	10	10	10	40	11	11	12	12	47	12	30	5	47	10,0	25,0	10,0
Subtotal O&M Cost								50	50	50	50	200	56	57	59	61	234	58	152	23	234			
Total Recurrent Costs								241	241	241	241	963	269	277	285	294	1 125	281	731	112	1 125			
Total								546	260	256	256	1 318	610	299	303	312	1 524	407	965	152	1 524			

\b Water dispensers and other items.

Summary Divisions		Other Accounts				Expenditures by Financiers (US$ '000)									
	Expenditure					The Government					Principal Donor				
Component	Account	Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method	2008	2009	2010	2011	Total	2008	2009	2010	2011	Total
C_PROJECT_MANAGEMENT	CIVIL_WORKS	PMU_CW	PRINCIPAL_DONOR (80%)	WORKS_MS	NCB_PM (100%)	7	-	-	-	7	27	-	-	-	27
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	4	-	-	-	4
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	3	-	-	-	3
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	3	-	-	-	3
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	3	-	-	-	3	13	-	-	-	13
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	0	-	-	-	0	0	-	-	-	0
						6	-	-	-	6	24	-	-	-	24
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	18	-	-	-	18	71	-	-	-	71
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	1	-	-	2	4	4	-	-	7
						19	1	-	-	20	75	4	-	-	79
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
C_PROJECT_MANAGEMENT	EQUIPMENT	PMU_GOODS	PRINCIPAL_DONOR (80%)	GOODS_EQUIP	NCB_PM (100%)	1	-	-	-	1	2	-	-	-	2
						2	-	-	-	2	9	-	-	-	9
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TR	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TRAINING	CON_SRVCS_PM (100%)	6	-	-	-	6	22	-	-	-	22
						22	-	-	-	22	89	-	-	-	89
C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	3	-	-	-	3	13	-	-	-	13
C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	6	-	-	-	6	22	-	-	-	22
C_PROJECT_MANAGEMENT	TA	PMU_TA_TR	PRINCIPAL_DONOR (80%)	TECH_ASSIST	CQ_PM (100%)	3	3	4	4	14	13	14	14	15	56
						12	3	4	4	23	49	14	14	15	92
						68	4	4	4	80	273	17	14	15	319
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	7	7	7	7	28	27	28	28	29	112
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	5	6	6	6	22	21	22	23	23	90
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	5	6	6	6	22	21	22	23	23	90
						17	18	18	19	73	70	72	74	76	291
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
						5	6	6	6	22	21	22	23	23	90
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
						11	11	11	12	45	43	44	45	47	179
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	4	4	4	4	16	15	15	16	16	63
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	SALARIES	UNIDENT_1_PM (100%)	3	3	3	3	11	11	11	11	12	45
						9	9	10	10	38	36	38	39	40	152
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	4	5	5	5	19	18	18	19	20	75
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	7	7	7	7	7	28
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	7	7	7	7	7	28
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	1	1	1	1	5	4	5	5	5	19
C_PROJECT_MANAGEMENT	O_AND_M	PMU_OC	PRINCIPAL_DONOR (80%)	O&M_COSTS	UNIDENT_1_PM (100%)	2	2	2	2	9	9	9	9	10	37
						11	11	12	12	47	45	46	47	49	187
						54	55	57	59	225	215	222	228	235	900
						122	60	61	62	305	488	239	242	250	1 219

Sudan Watershed Management Project

Contents

Revised on December 16, 2007 in Ankara by Suha Satana for final submission to ENTRO by SWECO et al.

Sudan
Watershed Management
Disbursement Accounts by Financiers
(US$ Million)

	Government		Principal Donor		Other Donors		Total		For.	Local (Excl.	Duties &
	Amount	%	Amount	%	Amount	%	Amount	%	Exch.	Taxes)	Taxes
A. Lower Atbara Area											
Civil Works	0,47	15,0	1,73	55,0	0,94	30,0	3,14	8,9	1,64	1,19	0,31
Machinery and Equipment	0,10	15,0	0,38	55,0	0,21	30,0	0,69	2,0	0,48	0,14	0,07
TA and Training	0,82	15,6	2,91	55,0	1,56	29,4	5,28	15,1	0,40	4,35	0,53
Credit Lines	0,09	15,0	0,33	55,0	0,18	30,0	0,59	1,7	-	0,53	0,06
Operating Costs	0,04	15,0	0,13	55,0	0,07	30,0	0,23	0,7	0,06	0,15	0,02
Subtotal Lower Atbara Area	1,52	15,3	5,47	55,0	2,95	29,7	9,94	28,3	2,58	6,36	0,99
B. Dinder National Park Area											
Civil Works	1,27	37,6	-	-	2,12	62,4	3,39	9,7	1,70	1,36	0,34
Machinery and Equipment	0,24	25,0	-	-	0,72	75,0	0,95	2,7	0,67	0,19	0,10
TA and Training	0,74	22,9	-	-	2,49	77,1	3,23	9,2	0,34	2,56	0,32
Credit Lines	0,07	25,0	-	-	0,22	75,0	0,30	0,8	-	0,27	0,03
Operating Costs	0,12	22,9	-	-	0,42	77,1	0,55	1,6	0,14	0,36	0,05
Subtotal Dinder National Park Area	2,45	29,1	-	-	5,96	70,9	8,41	24,0	2,84	4,73	0,84
C. Ingessana Area											
Civil Works	0,99	15,0	3,62	55,0	1,98	30,0	6,59	18,8	3,28	2,65	0,66
Machinery and Equipment	0,08	15,0	0,29	55,0	0,16	30,0	0,53	1,5	0,37	0,11	0,05
TA and Training	0,45	15,0	1,66	55,0	0,91	30,0	3,02	8,6	0,16	2,55	0,30
Credit Lines	0,03	15,0	0,10	55,0	0,05	30,0	0,18	0,5	-	0,16	0,02
Operating Costs	0,12	15,0	0,43	55,0	0,24	30,0	0,78	2,2	0,20	0,51	0,08
Subtotal Ingessana Area	1,66	15,0	6,10	55,0	3,33	30,0	11,10	31,6	4,01	5,98	1,11
D. Project Management Unit											
Civil Works	0,02	20,0	0,09	80,0	-	-	0,12	0,3	0,06	0,05	0,01
Machinery and Equipment	0,20	20,0	0,79	80,0	-	-	0,99	2,8	0,53	0,37	0,10
TA and Training	0,16	20,0	0,63	80,0	-	-	0,79	2,3	0,04	0,67	0,08
Operating Costs	0,75	20,0	2,99	80,0	-	-	3,74	10,7	0,94	2,43	0,37
Subtotal Project Management Unit	1,13	20,0	4,51	80,0	-	-	5,64	16,1	1,56	3,52	0,56
Total PROJECT COSTS	6,76	19,3	16,08	45,8	12,25	34,9	35,09	100,0	11,00	20,59	3,51

Sudan
Watershed Management
Components by Financiers
(US$ Million)

	Government		Principal Donor		Other Donors		Total		For.	Local (Excl.	Duties &
	Amount	%	Amount	%	Amount	%	Amount	%	Exch.	Taxes)	Taxes
A. Institutional Strengthening											
1. Strengthening of Supporting Institutions	0,57	17,4	1,13	34,4	1,58	48,3	3,28	9,3	0,48	2,47	0,33
2. Strengthening of Beneficiary Organization and Community Participation	0,32	16,8	0,68	35,6	0,90	47,6	1,90	5,4	0,10	1,61	0,19
Subtotal Institutional Strengthening	0,89	17,1	1,80	34,8	2,49	48,0	5,18	14,8	0,59	4,07	0,52
B. Integrated Watershed Management and Development											
1. Water Resources Development	2,01	22,7	3,63	40,9	3,23	36,4	8,87	25,3	4,16	3,82	0,89
2. Agriculture Intensification and Diversification	0,48	16,6	1,33	46,3	1,07	37,1	2,87	8,2	0,76	1,83	0,29
3. Improvement of Rangelands	0,58	18,4	1,15	36,5	1,43	45,1	3,16	9,0	0,80	2,05	0,32
4. Afforestation and Reforestation	1,24	18,1	2,59	37,8	3,02	44,0	6,85	19,5	3,01	3,16	0,69
5. Promotion of Alternative Energy	0,15	25,0	-	-	0,44	75,0	0,59	1,7	0,03	0,50	0,06
6. Small Holder Mining Management and Mitigation	0,29	15,0	1,06	55,0	0,58	30,0	1,93	5,5	0,10	1,64	0,19
Subtotal Integrated Watershed Management and Development	4,75	19,6	9,77	40,2	9,76	40,2	24,28	69,2	8,85	13,00	2,43
C. Project Management	1,13	20,0	4,51	80,0	-	-	5,64	16,1	1,56	3,52	0,56
Total PROJECT COSTS	6,76	19,3	16,08	45,8	12,25	34,9	35,09	100,0	11,00	20,59	3,51

Sudan
Watershed Management
Expenditure Accounts by Financiers
(US$ Million)

	Government		Principal Donor		Other Donors		Total		For.	Local (Excl.	Duties &
	Amount	%	Amount	%	Amount	%	Amount	%	Exch.	Taxes)	Taxes
I. Investment Costs											
A. Civil Works	2,82	21,1	5,40	40,5	5,13	38,4	13,35	38,0	6,68	5,34	1,34
B. Machinery and Equipment	0,29	19,3	0,85	56,1	0,37	24,6	1,52	4,3	1,07	0,30	0,15
C. Seed and Seedlings	0,35	19,2	0,58	31,9	0,88	48,9	1,80	5,1	1,26	0,36	0,18
D. Training	1,18	17,7	2,84	42,5	2,65	39,8	6,67	19,0	0,67	5,34	0,67
E. Technical Assistance	0,87	17,0	2,31	44,9	1,96	38,1	5,15	14,7	-	4,64	0,52
F. Community Initiative Fund	0,22	17,3	0,55	42,4	0,52	40,3	1,29	3,7	-	1,16	0,13
Total Investment Costs	5,74	19,3	12,53	42,1	11,52	38,7	29,79	84,9	9,67	17,14	2,98
II. Recurrent Costs											
A. Operation and Maintenance Costs	1,03	19,3	3,55	67,0	0,73	13,7	5,30	15,1	1,33	3,45	0,53
Total Recurrent Costs	1,03	19,3	3,55	67,0	0,73	13,7	5,30	15,1	1,33	3,45	0,53
Total PROJECT COSTS	6,76	19,3	16,08	45,8	12,25	34,9	35,09	100,0	11,00	20,59	3,51

Sudan
Watershed Management
Financing of Investment/Recurrent
(US$ Million)

	Financing				
	2008	**2009**	**2010**	**2011**	**Total**
I. Investment Costs					
The Government	1,80	2,13	1,29	0,53	5,74
Principal Donor	4,13	4,32	2,93	1,14	12,53
Other Donors	3,20	4,11	3,00	1,21	11,52
Total Investment Costs	9,13	10,56	7,22	2,88	29,79
II. Recurrent Costs					
The Government	0,21	0,25	0,28	0,29	1,03
Principal Donor	0,76	0,87	0,94	0,98	3,55
Other Donors	0,09	0,17	0,23	0,24	0,73
Total Recurrent Costs	1,06	1,29	1,45	1,51	5,30
III. Financial Charges					
Total Financing of Costs	10,19	11,85	8,67	4,39	35,09

Sudan
Watershed Management

Procurement Arrangements (US$ Million)	**Procurement Method**										
	International Competitive Bidding	**National Competitive Bidding**	**Local Competitive Bidding**	**Consulting Services**	**Consulting Services: CQ**	**Local Shopping**	**Limited Tender/Repeat Order**	**Other**	**Non Procurement Items**	**N.B.F.**	**Total**
A. Large Scale Works	8,12	-	-	-	-	-	-	-	-	-	8,12
B. Medium Scale Works	-	4,11	0,14	-	-	0,23	-	-	-	-	4,48
C. Goods and Equipment	-	0,64	-	-	-	-	-	-	-	0,57	1,21
D. Agricultural Inputs and Materials	-	-	-	-	-	1,40	-	-	-	-	1,40
E. Technical Assistance	-	-	-	-	3,90	-	-	-	-	-	3,90
F. Training	-	-	-	8,87	-	-	-	0,28	-	-	9,15
G. Farm Credit	-	-	-	-	-	-	-	1,29	-	-	1,29
H. Technical Services	-	-	-	-	-	-	0,23	-	-	-	0,23
I. Operating Costs											
1. Salaries	-	-	-	-	-	-	-	-	2,92	-	2,92
2. O&M Costs	-	-	-	-	-	-	-	-	2,38	-	2,38
Total	8,12	4,76	0,14	8,87	3,90	1,64	0,23	1,57	5,30	0,57	35,09
	-	-	-	-	-	-	-	-	-	-	-

NBF = Non-Bank funding, or 100% Government funded procurement
CQ = Consultant qualifications (easier than QCBS)
Limited Tender = Procurement from other government agencies.
Non Procurement Items: Items for which no procurement rule applies other than transparency and relevance of need.

Sudan
Watershed Management
Procurement Accounts by Years
(US$ Million)

	Totals Including Contingencies				
	2008	**2009**	**2010**	**2011**	**Total**
A. Large Scale Works	0,32	4,36	2,81	0,62	8,12
B. Medium Scale Works	0,73	1,74	1,53	0,48	4,48
C. Goods and Equipment	0,69	0,41	0,07	0,05	1,21
D. Agricultural Inputs and Materials	0,33	0,52	0,28	0,26	1,40
E. Technical Assistance	2,21	0,80	0,67	0,22	3,90
F. Training	4,57	2,34	1,35	0,89	9,15
G. Farm Credit	0,22	0,31	0,43	0,33	1,29
H. Technical Services	0,04	0,09	0,07	0,02	0,23
I. Operating Costs					
1. Salaries	0,70	0,72	0,74	0,76	2,92
2. O&M Costs	0,36	0,57	0,71	0,74	2,38
Total	10,19	11,85	8,67	4,39	35,09

Sudan
Watershed Management

Components Project Cost Summary	**(S. Pound Million)**			**(US$ Million)**			**% Foreign Exchange**	**% Total Base Costs**
	Local	**Foreign**	**Total**	**Local**	**Foreign**	**Total**		
A. Institutional Strengthening								
1. Strengthening of Supporting Institutions	4,83	0,82	5,65	2,41	0,41	2,83	15	9
2. Strengthening of Beneficiary Organization and Community Participation	3,21	0,19	3,40	1,61	0,09	1,70	5	6
Subtotal Institutional Strengthening	8,04	1,01	9,05	4,02	0,51	4,53	11	15
B. Integrated Watershed Management and Development								
1. Water Resources Development	8,12	7,14	15,27	4,06	3,57	7,63	47	25
2. Agriculture Intensification and Diversification	3,69	1,30	4,99	1,84	0,65	2,49	26	8
3. Improvement of Rangelands	4,05	1,36	5,41	2,03	0,68	2,70	25	9
4. Afforestation and Reforestation	6,69	5,21	11,90	3,35	2,60	5,95	44	20
5. Promotion of Alternative Energy	0,95	0,05	1,00	0,48	0,03	0,50	5	2
6. Small Holder Mining Management and Mitigation	3,14	0,17	3,30	1,57	0,08	1,65	5	5
Subtotal Integrated Watershed Management and Development	26,64	15,23	41,86	13,32	7,61	20,93	36	69
C. Project Management	7,07	2,71	9,77	3,53	1,35	4,89	28	16
Total BASELINE COSTS	41,74	18,94	60,69	20,87	9,47	30,34	31	100
Physical Contingencies	4,17	1,89	6,07	2,09	0,95	3,03	31	10
Price Contingencies	2,27	1,16	3,43	1,14	0,58	1,72	34	6
Total PROJECT COSTS	48,19	21,99	70,19	24,10	11,00	35,09	31	116

Sudan
Watershed Management
Expenditure Accounts by Components - Base Co
(US$ Million)

	:utional Strengthening		**Integrated Watershed Management and Development**									
	Strengthening of Supporting Institutions	**Strengthening of Beneficiary Organization and Community Participation**	**Water Resources Development**	**Agriculture Intensification and Diversification**	**Improvement of Rangelands**	**Afforestation and Reforestation**	**Promotion of Alternative Energy**	**Small Holder Mining Management and Mitigation**	**Project Management**	**Total**	**Physical Contingencies**	
											%	**Amount**
I. Investment Costs												
A. Civil Works	-	-	7,09	1,17	1,19	1,91	-	-	0,11	11,47	10,0	1,15
B. Machinery and Equipment	-	-	-	-	-	0,69	-	-	0,63	1,32	10,0	0,13
C. Seed and Seedlings	-	-	-	-	0,08	1,49	-	-	-	1,57	10,0	0,16
D. Training	0,81	0,93	0,25	0,65	0,28	1,27	0,25	0,83	0,60	5,86	10,0	0,59
E. Technical Assistance	0,69	0,57	0,29	0,68	1,15	0,60	-	0,18	0,35	4,50	10,0	0,45
F. Community Initiative Fund	-	0,20	-	-	-	-	0,25	0,65	-	1,10	10,0	0,11
Total Investment Costs	1,50	1,70	7,63	2,49	2,70	5,95	0,50	1,65	1,68	25,82	10,0	2,58
II. Recurrent Costs												
A. Operation and Maintenance Costs	1,33	-	-	-	-	-	-	-	3,20	4,53	10,0	0,45
Total Recurrent Costs	1,33	-	-	-	-	-	-	-	3,20	4,53	10,0	0,45
Total BASELINE COSTS	2,83	1,70	7,63	2,49	2,70	5,95	0,50	1,65	4,89	30,34	10,0	3,03
Physical Contingencies	0,28	0,17	0,76	0,25	0,27	0,60	0,05	0,17	0,49	3,03	-	-
Price Contingencies	0,17	0,03	0,47	0,13	0,19	0,31	0,04	0,12	0,26	1,72	9,1	0,16
Total PROJECT COSTS	3,28	1,90	8,87	2,87	3,16	6,85	0,59	1,93	5,64	35,09	9,1	3,19
Taxes	0,33	0,19	0,89	0,29	0,32	0,69	0,06	0,19	0,56	3,51	9,1	0,32
Foreign Exchange	0,48	0,10	4,16	0,76	0,80	3,01	0,03	0,10	1,56	11,00	9,1	1,00

Sudan
Watershed Management
Expenditure Accounts by Components - Totals Inc
(US$ Million)

	tutional Strengthening		**Integrated Watershed Management and Development**							
	Strengthening of Supporting Institutions	**Strengthening of Beneficiary Organization and Community Participation**	**Water Resources Development**	**Agriculture Intensification and Diversification**	**Improvement of Rangelands**	**Afforestation and Reforestation**	**Promotion of Alternative Energy**	**Small Holder Mining Management and Mitigation**	**Project Management**	**Total**
I. Investment Costs										
A. Civil Works	-	-	8,26	1,37	1,40	2,20	-	-	0,12	13,35
B. Machinery and Equipment	-	-	-	-	-	0,81	-	-	0,71	1,52
C. Seed and Seedlings	-	-	-	-	0,09	1,71	-	-	-	1,80
D. Training	0,92	1,04	0,28	0,74	0,32	1,46	0,29	0,95	0,67	6,67
E. Technical Assistance	0,79	0,64	0,33	0,76	1,34	0,68	-	0,21	0,40	5,15
F. Community Initiative Fund	-	0,22	-	-	-	-	0,30	0,77	-	1,29
Total Investment Costs	1,71	1,90	8,87	2,87	3,16	6,85	0,59	1,93	1,90	29,79
II. Recurrent Costs										
A. Operation and Maintenance Costs	1,56	-	-	-	-	-	-	-	3,74	5,30
Total Recurrent Costs	1,56	-	-	-	-	-	-	-	3,74	5,30
Total PROJECT COSTS	3,28	1,90	8,87	2,87	3,16	6,85	0,59	1,93	5,64	35,09
Taxes	0,33	0,19	0,89	0,29	0,32	0,69	0,06	0,19	0,56	3,51
Foreign Exchange	0,48	0,10	4,16	0,76	0,80	3,01	0,03	0,10	1,56	11,00

Sudan
Watershed Management
Project Components by Year -- Base Costs
(US$ Million)

	Base Cost				
	2008	**2009**	**2010**	**2011**	**Total**
A. Institutional Strengthening					
1. Strengthening of Supporting Institutions	0,90	0,67	0,83	0,43	2,83
2. Strengthening of Beneficiary Organization and Community Participation	1,67	0,01	0,01	0,01	1,70
Subtotal Institutional Strengthening	2,57	0,68	0,84	0,44	4,53
B. Integrated Watershed Management and Development					
1. Water Resources Development	0,67	4,09	2,54	0,34	7,63
2. Agriculture Intensification and Diversification	0,87	0,83	0,55	0,23	2,49
3. Improvement of Rangelands	0,48	0,85	0,76	0,62	2,70
4. Afforestation and Reforestation	2,05	2,17	1,12	0,61	5,95
5. Promotion of Alternative Energy	0,08	0,17	0,14	0,11	0,50
6. Small Holder Mining Management and Mitigation	0,26	0,57	0,45	0,37	1,65
Subtotal Integrated Watershed Management and Development	4,40	8,68	5,56	2,28	20,93
C. Project Management	2,16	0,95	0,91	0,87	4,89
Total BASELINE COSTS	9,13	10,30	7,32	3,60	30,34
Physical Contingencies	0,91	1,03	0,73	0,36	3,03
Price Contingencies	0,15	0,52	0,62	0,43	1,72
Total PROJECT COSTS	10,19	11,85	8,67	4,39	35,09
Taxes	1,02	1,18	0,87	0,44	3,51
Foreign Exchange	2,07	4,48	3,11	1,34	11,00

Sudan
Watershed Management
Project Components by Year -- Totals Including Contingencies
(US$ Million)

	Totals Including Contingencies				
	2008	**2009**	**2010**	**2011**	**Total**
A. Institutional Strengthening					
1. Strengthening of Supporting Institutions	1,00	0,76	0,98	0,53	3,28
2. Strengthening of Beneficiary Organization and Community Participation	1,86	0,01	0,01	0,01	1,90
Subtotal Institutional Strengthening	2,87	0,78	0,99	0,54	5,18
B. Integrated Watershed Management and Development					
1. Water Resources Development	0,74	4,71	3,01	0,41	8,87
2. Agriculture Intensification and Diversification	0,97	0,96	0,66	0,29	2,87
3. Improvement of Rangelands	0,54	0,97	0,90	0,76	3,16
4. Afforestation and Reforestation	2,29	2,49	1,33	0,74	6,85
5. Promotion of Alternative Energy	0,09	0,20	0,16	0,14	0,59
6. Small Holder Mining Management and Mitigation	0,29	0,65	0,54	0,45	1,93
Subtotal Integrated Watershed Management and Development	4,92	9,99	6,59	2,78	24,28
C. Project Management	2,41	1,09	1,08	1,07	5,64
Total PROJECT COSTS	10,19	11,85	8,67	4,39	35,09

Sudan
Watershed Management
Project Components by Year -- Investment/Recurrent Costs
(US$ Million)

	Totals Including Contingencies				
	2008	**2009**	**2010**	**2011**	**Total**
A. Institutional Strengthening					
1. Strengthening of Supporting Institutions					
Investment Costs	0,83	0,40	0,48	-	1,71
Recurrent Costs	0,17	0,37	0,50	0,53	1,56
Subtotal Strengthening of Supporting Institutions	1,00	0,76	0,98	0,53	3,28
2. Strengthening of Beneficiary Organization and Community Participation					
Investment Costs	1,86	0,01	0,01	0,01	1,90
Subtotal Institutional Strengthening	2,87	0,78	0,99	0,54	5,18
B. Integrated Watershed Management and Development					
1. Water Resources Development					
Investment Costs	0,74	4,71	3,01	0,41	8,87
2. Agriculture Intensification and Diversification					
Investment Costs	0,97	0,96	0,66	0,29	2,87
3. Improvement of Rangelands					
Investment Costs	0,54	0,97	0,90	0,76	3,16
4. Afforestation and Reforestation					
Investment Costs	2,29	2,49	1,33	0,74	6,85
5. Promotion of Alternative Energy					
Investment Costs	0,09	0,20	0,16	0,14	0,59
6. Small Holder Mining Management and Mitigation					
Investment Costs	0,29	0,65	0,54	0,45	1,93
Subtotal Integrated Watershed Management and Development	4,92	9,99	6,59	2,78	24,28
C. Project Management					
Investment Costs	1,51	0,17	0,13	0,09	1,90
Recurrent Costs	0,89	0,92	0,95	0,98	3,74
Subtotal Project Management	2,41	1,09	1,08	1,07	5,64
Total PROJECT COSTS	10,19	11,85	8,67	4,39	35,09
Total Investment Costs	9,13	10,56	7,22	2,88	29,79
Total Recurrent Costs	1,06	1,29	1,45	1,51	5,30

Sudan
Watershed Management
Expenditure Accounts by Years -- Base Costs
(US$ Million)

	Base Cost				Foreign Exchange		
	2008	**2009**	**2010**	**2011**	**Total**	**%**	**Amount**
I. Investment Costs							
A. Civil Works	1,12	5,63	3,72	1,00	11,47	50,0	5,73
B. Machinery and Equipment	0,54	0,28	0,28	0,21	1,32	70,0	0,92
C. Seed and Seedlings	0,47	0,67	0,27	0,15	1,57	70,0	1,10
D. Training	3,50	1,29	0,71	0,37	5,86	10,0	0,59
E. Technical Assistance	2,35	1,04	0,75	0,36	4,50	-	-
F. Community Initiative Fund	0,20	0,27	0,36	0,27	1,10	-	-
Total Investment Costs	8,18	9,19	6,09	2,36	25,82	32,3	8,34
II. Recurrent Costs							
A. Operation and Maintenance Costs	0,95	1,12	1,22	1,23	4,53	25,0	1,13
Total Recurrent Costs	0,95	1,12	1,22	1,23	4,53	25,0	1,13
Total BASELINE COSTS	9,13	10,30	7,32	3,60	30,34	31,2	9,47
Physical Contingencies	0,91	1,03	0,73	0,36	3,03	31,2	0,95
Price Contingencies	0,15	0,52	0,62	0,43	1,72	33,8	0,58
Total PROJECT COSTS	10,19	11,85	8,67	4,39	35,09	31,3	11,00
Taxes	1,02	1,18	0,87	0,44	3,51	-	-
Foreign Exchange	2,07	4,48	3,11	1,34	11,00	-	-

Sudan
Watershed Management
Expenditure Accounts by Years -- Totals Including
(US$ Million)

	Totals Including Contingencies				
	2008	**2009**	**2010**	**2011**	**Total**
I. Investment Costs					
A. Civil Works	1,25	6,47	4,40	1,22	13,35
B. Machinery and Equipment	0,61	0,32	0,34	0,26	1,52
C. Seed and Seedlings	0,52	0,78	0,33	0,18	1,80
D. Training	3,90	1,49	0,84	0,45	6,67
E. Technical Assistance	2,62	1,20	0,89	0,44	5,15
F. Community Initiative Fund	0,22	0,31	0,43	0,33	1,29
Total Investment Costs	9,13	10,56	7,22	2,88	29,79
II. Recurrent Costs					
A. Operation and Maintenance Costs	1,06	1,29	1,45	1,51	5,30
Total Recurrent Costs	1,06	1,29	1,45	1,51	5,30
Total PROJECT COSTS	10,19	11,85	8,67	4,39	35,09

Sudan
Watershed Management
Expenditure Accounts Breakdown
(US$ Million)

	Base Cost				Physical Contingencies				Price Contingencies				Total Incl. Cont.				Base Costs + Price Cont. on Base Costs	Physical Cont. Plus Price Cont. on Physical Cont.
	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total	For. Exch.	Local (Excl. Taxes)	Duties & Taxes	Total		
I. Investment Costs																		
A. Civil Works	5,73	4,59	1,15	11,47	0,57	0,46	0,11	1,15	0,37	0,29	0,07	0,73	6,68	5,34	1,34	13,35	12,14	1,21
B. Machinery and Equipment	0,92	0,26	0,13	1,32	0,09	0,03	0,01	0,13	0,05	0,01	0,01	0,07	1,07	0,30	0,15	1,52	1,38	0,14
C. Seed and Seedlings	1,10	0,31	0,16	1,57	0,11	0,03	0,02	0,16	0,06	0,02	0,01	0,08	1,26	0,36	0,18	1,80	1,64	0,16
D. Training	0,59	4,69	0,59	5,86	0,06	0,47	0,06	0,59	0,02	0,18	0,02	0,23	0,67	5,34	0,67	6,67	6,07	0,61
E. Technical Assistance	-	4,05	0,45	4,50	-	0,41	0,05	0,45	-	0,18	0,02	0,20	-	4,64	0,52	5,15	4,68	0,47
F. Community Initiative Fund	-	0,99	0,11	1,10	-	0,10	0,01	0,11	-	0,07	0,01	0,08	-	1,16	0,13	1,29	1,17	0,12
Total Investment Costs	8,34	14,89	2,58	25,82	0,83	1,49	0,26	2,58	0,50	0,75	0,14	1,39	9,67	17,14	2,98	29,79	27,08	2,71
II. Recurrent Costs																		
A. Operation and Maintenance Costs	1,13	2,94	0,45	4,53	0,11	0,29	0,05	0,45	0,08	0,21	0,03	0,32	1,33	3,45	0,53	5,30	4,82	0,48
Total Recurrent Costs	1,13	2,94	0,45	4,53	0,11	0,29	0,05	0,45	0,08	0,21	0,03	0,32	1,33	3,45	0,53	5,30	4,82	0,48
Total	9,47	17,84	3,03	30,34	0,95	1,78	0,30	3,03	0,58	0,96	0,17	1,72	11,00	20,59	3,51	35,09	31,90	3,19

SWECO

Eastern Nile Technical Regional Office

WATERSHED MANAGEMENT FAST TRACK IN SUDAN

ANNEX 7
Terms of References

ra02e 2005-01-17

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SWECO

List of Content

1 ToR PCU Staff

Job Title: FTWMP Project Coordinator

Duty Station Khartoum - Project Coordination Unit (PCU)

Duration: 1-year with possibility of renewal subject to satisfactory performance

Reporting to: Project Steering Committee of the FTWMP in Sudan

Main Function: The Project Coordinator will work under the direction of the Project Steering Committee, and will be responsible for the management of the PCU of the FTWMP and timely effective implementation of the project in Sudan.

Duties and Responsibilities:

- Oversee project preparation and coordinates all consulting services engaged in the process;
- Supervise the preparation of the Operational Manual (OM) for the FTWMP;
- Implement the FTWMP with all due diligence and efficiency, applying appropriate administrative, financial and technical management methods;
- Coordinate and ensure the timely preparation and implementation of the institutional capacity building, community mobilisation and IWMDIs;
- Implement the FTWMP in accordance with the applicable provisions of the proposed FTWMP OM, while maintaining the PSC and the Coordinating Agency (ENTRO) informed on progress and potential delays;
- Co-ordinate and work with relevant federal ministries, State-level government authorities, local government institutions, international agencies, non-governmental organizations, community-based organizations and local communities in order to ensure the smooth execution of the project activities;
- Supervise the timely development and implementation of the PCU's MIS for managing in real time key information about the FTWMP activities and performance for use in program supervision and evaluation;
- Maintain necessary documentation and accounts giving the facts of all expenditures related to the FTWMP;

- Compile and prepare quarterly and annual progress reports as well as completion reports and audit reports of the FTWMP project accounts to be submitted for the review by the PSC and the Coordinating Agency (ENTRO);
- Ensure that proposed project activities within the FTWMP are screened against environmental guidelines in order to identify those classified EA Category B for further review and monitoring of the implementation of the appropriate mitigation measures;
- Supervise all the activities of the FTWMP, including its field activities and ensure that monitoring is carried out efficiently, rapidly, and in a transparent manner;
- Supervise all procurement transactions as well as the selection of contractors, suppliers and service providers;
- Participates in all project reviews.
- Review in consultation with the concerned states and localities, the modalities for community-driven implementation of the environment and agriculture, rangeland, water development and other components. These modalities will be incorporated in the Operation Manual and updated from time to time based on lessons learned.
- Providing training and on-the-job assistance to the LIUs in the area of project management and natural resources management.
- Together with FTWMP LIU Managers prepare the terms of reference for the detailed surface and groundwater studies, locality mapping and locality and use plans.
- Design the M&E system and co-ordinate with Localities Implementation Units (LIUs), other implementing agencies and other related agencies with assessment functions at all levels to ensure that verifiable data is supplied, analyzed and reported.
- Elaborate a detailed implementation log frame – process, outputs, outcomes, impact – in compliance with World Bank's modalities; as the basis for the participatory monitoring systems;
- Set out the procedures for quarterly management appraisals to ensure that the conclusions are recorded for the PCU, incorporated in the Annual Work Plans and Budgets (AWPBs) and reported to the PSC;
- Establish the timing and systems for the annual participatory monitoring workshops, including arrangements for ensuring fair representation of all participants, the target group and women;
- Work with the Project implementing partners to ensure that all service contracts include: specifications of the internal monitoring required of the service provider; the systems of reporting; and the penalties for failure to report as specified;
- Assist participants and service providers in setting up and using the monitoring and evaluation systems;
- Prepare the overall framework, in co-ordination with the LIUs Managers and Social Facilitators, for direct monitoring of the Project

and execution of the AWPBs through computerized management information systems established within the PCU and LIUs;

- Prepare the framework for performance and benefit monitoring; results and impact evaluation, which will be based largely on the participatory monitoring process; designing the necessary surveys, studies and enquiries that will be undertaken by the agency contracted to perform evaluations; and take the lead in the contracting and supervision of the technical assistance and consulting inputs required; and

Minimum Job Requirements:

- Post-graduate degree in Natural Resources Management or other relevant fields (watershed management or water resources management) with at least ten (10) years of relevant experience in participatory planning and community-driven development;
- Ability to deal with international financial institutions (IFIs) and donor agencies as well as substantial work experience in project management;
- Experience in managing contracts and developing, monitoring and managing projects funded by IFIs;
- Experience in local capacity building and working with local government, CBOs and NGOs is highly desirable;
- Fluent in spoken and written English and good command of Computer Programs and Applications;
- Demonstrated ability to build, manage and work in a team;
- Strong interpersonal and communication skills.

Job title: PCU Financial Controller

Duty Station: Khartoum

Duration: 1-year with possibility of renewal subject to satisfactory performance

Reporting to: FTWMP Project Coordinator

Main Function: Financial management and reporting

Duties and Responsibilities:

- Prepares disbursement schedules for reviews and follow-ups by the Project Steering Committee for the FTWMP as well as the Coordinating Agency. Recommends disbursements for review by FTWMP Executive Manager for further processing;
- Tracks all committed funds and disbursements made under the FTWMP-funded projects;
- Prepare and monitor an operating budget for the PIU including its sub-national offices;
- Develops and implements the World Bank financial management system to include: (i) Financial reports; (ii) Project progress reports; and (iii) Procurement management;
- Develops and implements the accounting control procedures for the disbursement of the proceeds of the FTWMP;
- Maintains proper accounting and administrative records for all the FTWMP-funded project activities;
- Ensures the proper integration of accounting information in the MIS;
- Prepares the annual budget of the FTWMP-funded projects based on the Annual Procurement Plan;
- Consolidates and reports the financial status and performance of all the FTWMP-funded projects on a monthly basis;
- Maintains records and accounts to reflect the PCU's operation and financial condition;

- Submits requests for advance payments, specifying the amount of funds needed for the first quarter, accompanied by a cash-flow forecast based on the budgeted activities;

- Submits monthly reconciliation of the Project Account accompanied by a copy of the bank statement;

- Facilitates the visits by the project supervision staff in assistance with ENTRO to review the accounting and procurement documentation and records and to ensure also compliance with the governing procedures.

- Maintaining and keeping up-to-date the Project's accounts, including the general ledger and analysis and petty cash books, and the computerized accounting system.

- Maintaining the system of financial control of contractors, including payments, collation of contractor financial returns and approvals against contractor performance.

- Safekeeping and updating all salaried and wages staff records, including personal particulars, pay rates, recreation leave entitlements and recreation leave and sick leave taken.

- Reconciliation of the Project Accounts and Special Accounts, and the timely preparation of all routine financial statements and Statements of Expenditures and Withdrawal Applications for submission to MFNE and the Coordinating Agency (ENTRO).

- Supervising the use and reconciliation of all Localities Accounts.

- The timely payment of staff salaries and wages, and allowances, and disbursement of funds to the Localities and contractors.

Minimum Job Requirements:

- Post-graduate degree in Business Administration, Finance or Accounting.
- At least eight (8) years of experience in financial management.
- Proficiency in written and spoken English.
- Good command of Computer Programs and Applications.
- Familiarity with and capacity to utilize accounting software capable of producing reports to comply with World Bank requirements.

2 ToR LIU Staff

Job title: FTWMP LIU Manager/ Land Use Management Specialist for Lower Atbara and Bau and a Ranger/National park management specialist for the Dinder LIU

Duty Station: Locality level

- **Nile State:** Ed Damer locality
- **Sennar State:** Dinder National Park Management Unit
- **Blue Nile State:** Bau locality

Duration:
One year subject to renewal based on satisfactory performance

Reporting to: FTWMP Project Coordinator

Main Function: Lead FTWMP Project implementation at the Locality level/Dinder Level, with Extensive travel in the field, and be responsible for the management and technical backstopping of the environment management and agriculture/range/ water development components of the FTWMP within the specified locality. .

Duties and Responsibilities:

- Ensure community-driven implementation of the environment and agriculture, range, water development interventions.
- Providing training and on-the-job assistance to the LIU in the area of natural resources management and integrated land use planning.
- Training service providers and community organizations on the environmental management and of water and range resources.
- Together with FTWMP Project Coordinator prepare the terms of reference and supervising the implementation of natural resources survey, surface and groundwater studies, and the environmental monitoring system.
- Analyzing, on the basis of the environmental monitoring system and the groundwater and surface water monitoring, matters of land use planning, and proposing suitable areas for rangeland development and distribution of water points.
- Preparing extension pamphlets related to the natural resources management strategy in the Programme area.
- Ensuring that benefit of IWMDIs activities accrue equitably to women, poor households and pastoralist communities.

- Act as Secretary in the Locality Steering Committee (LSC);
- Establishing the Locality Implementation Unit in the Locality;
- Responsible for the day-to-day management and co-ordination of all the Project activities undertaken by the Locality, other line ministries and NGOs, as the case may be. This includes supervising all procurement and financial management transactions by the LIU and Locality staff.
- Implementing the consultative planning and project operations executing systems at Locality level.
- Setting-up the schemes for mobilization, engaging and arranging the related orientation and training to Locality staff and CBOs members;
- Ensuring timely preparation of IWMDIs in accordance with community articulated needs and the FTWMP guidelines
- Monitor the environmental impact of the FTWMP funded subprojects and documents best practices in community based environmental management and environmental protection
- Ensuring that all contract obligations are met, following-up on component progress, and making the necessary contacts and efforts to ensure that implementation meet the Project targets;
- Acting as the communication channel from the field to the PCU and providing feedback on the activities undertaken in the project;
- Supervising and consolidating the annual work plans and budgets from CBOs level and consolidate LIU Annual Work Plan & Budget (AWPB) ; and
- Controlling the budget at Locality level and safeguarding against Project funds and assets misuse.

Minimum Job Requirements:

- University Degree in land use and/or natural resources management or related field (watershed management or water resources management).
- A minimum of 10 years of implementation experiences in rural land use management and development, UN and/or NGOs projects;
- For Dinder 10 years of experience in park management
- Fluent in written and spoken English.
- Computer skills;
- Familiar with the geographical and social aspects of the locality.

Job title: LIU Social Facilitator/M&E Officer

Duty Station: Locality level

- **Nile State:** Ed Damer locality
- **Sennar State:** Dinder National Park Management Unit
- **Blue Nile State:** Bau locality

Duration: 1-year with possibility of renewal subject to satisfactory performance

Reporting to FTWMP LIU Manager

Main Function: Facilitation and monitoring of all activities linked to the implementation of the FTWMP-funded project activities with particular emphasis on community mobilization, participation, engagement, inclusion, accountability, self-monitoring and evaluation, ownership, and sustainability.

Duties and Responsibilities:

- Responsible for the timely and appropriate community mobilisation and CBO formation, including mobilisation of semi-nomadic and nomadic pastoralists groups.

- Responsible for the timely and appropriate formulation of the base-line assessment, the identification of the social aspects of the Community Land Use Management and Environmental Plans (CLMPs) and corresponding Integrated Watershed Management Development Interventions (IWMDIs);

- Participate actively in the monitoring by community organizations of the project indicators especially with regards the carrying capacity of the range, biodiversity of the range, costs and benefits accruing to various types of households from the regulated access to rangeland and water (by wealth of the household, gender of household head and type of livelihood). The findings of the monitoring will form the basis of the presentations and discussions of the policy forum held on annual basis by the project.

- Ensures that all project interventions are planned and implemented in a gender sensitive and participatory manner;

- Participates in the selection of supporting agencies and service providers (NGOs etc)

- Undertake Develops monitoring and evaluation procedures and establishes a monitoring and reporting system that would facilitate the compilation of quarterly and yearly progress reports;

- Monitors the Local FTWMP performance using results-oriented monitoring instruments to evaluate the achievement of results and performance targets. Indicators to include input, output and process indicators;

- Informs decision-makers of adjustments to the project design and Operations Manual when necessary, and highlights achievement of results;

- Provides conflict mediation assistance when deemed necessary

- Ensures that the poor and in particular the poor permanently nomadic groups are given due attention and inputs from the project

- keeps in touch regularly and assess the capacity of the community level groups and travels with the nomadic pastoralists as and when necessary

- Undertakes regular field visits to audit the execution of the activities of the various FTWMP-funded project activities;

- Ensures the incorporation of environmental and social issues in the analysis of the FTWMP-funded project performance;

- Documents and validates the learning experience from the evaluation exercise;

- Aggregates output and process and indicators into sectors or components order to identify measurable achievements for the projects and thus serve as a basis for program evaluation.

- Undertakes qualitative studies to understand processes and impacts, and to determine the extent to which needs are being satisfied;

- Manage and update the Management Information System (MIS) for the FTWMP;

- Provides capacity building training for supporting trainer.

Minimum Job Requirements:

- Post-graduate degree in sociology, social-anthropology, anthropology, or other relevant social sciences.
- At least eight years (8) years of working directly with communities on community-based projects.
- Management experience for at least three (3) years.
- Experience working with semi-nomadic and nomadic pastoralists
- Proficiency in written and spoken English.
- Strong command of Computer Programs, Applications and management of database.

Job Title: LIU Water Resources Engineer

Duty station:

- **Nile State:** Ed Damer locality
- **Sennar State:** Dinder National Park Management Unit
- **Blue Nile State:** Bau locality

Duration: Allocated by state/ locality for 1-year with possibility of renewal subject to satisfactory performance

Reporting to LIU Manager

Main function : The Main function of the of the LIU Water Resources Engineer is to provide engineering and environmental expertise in day – to –day operations of the LIU under the FTWMP project /subprojects and to coordinate with the locality /state entities of GoS and NGOs, stakeholders, CBOs and different partners at his designation to facilitate the achievement of the project activities .

Duties and responsibilities:

- To ensure full compliance and adhere to the FTWMP OM , Policies and guidelines.
- Prepare ToRs for feasibility studies, preliminary design and detail design.
- Ensure that the designs of works will be based on most appropriate technology and standards
- Reviews and advice on technical specification and engineering designs prepared by consultancy firms (or any other entity) and participate in reviewing technical sections of the tender documents
- Undertakes close supervision to carry out technical audits during the implementation FTWMP funded projects activities
- Undertake coordination between concerned authorities at the local and state levels
- To ensures that appropriate environmental mitigation measures are incorporated in the design and implementation of FTWMP funded subprojects activities at the locality level
- Monitor the environmental impact of the FTWMP funded subprojects and documents best practices in community based environmental management and environmental protection.
- Participate in and organize training sessions to local entities on proper operation and maintenance of the facilities to ensure sustainability and demonstrate to communities the importance of proper environmental management at the local level.

- Participate in the evaluation process for contractors and consultants for technical assistance and studies
- Ensure that that the estimated costs of FTWMP funded subprojects will be reasonable as per market rate
- Facilitates the carrying out of technical audits on a random basis by the PIU and / or the ENTRO supervision missions
- Ensures that the land or the right of way required for construction and civil works under the proposed subprojects will be acquired pursuant to the laws and regulations of the World Bank social and resettlement guidelines.

Minimum job requirement:

- B. Sc degree in civil Engineering
- From 10 years experience in engineering work in relevant activities
- Past experience with similar project will be an asset
- Fluent in spoken and written English
- Good command in relative computer applications

Job Title: LIU Procurement Officer

Duty Station:

- **Nile State:** Ed Damer locality
- **Sennar State:** Dinder National Park Management Unit
- **Blue Nile State:** Bau locality

Duration: Allocated by state/ locality for 1-year with possibility of renewal subject to satisfactory performance

Dual Reporting to: LIU Manager & PIU Procurement Officer

Main Function:

Under the FTWMP Guidelines and Regulations and the supervision of the LIU Manager and the PIU Procurement Officer, the LIU Procurement Officer is mainly responsible to carry out the local procurement activities under the FTWMP at the locality level, to prepare tender documents, to participate in the evaluation of tenders and contract awards, PP and other duties related to his job.

Duties and Responsibilities:

- Procures goods and services or works locally at his designation, in accordance with the World Bank procurement procedures as stipulated in detail in the FTWMP Operations Manual (OM);
- Implements the FTWMP-funded subproject activities either directly or by engaging the services of third party contractors/consultants;
- Prepares procurement documents and participates in the evaluation process for contractors and consultants for technical assistance and studies, evaluation of bids with recommendations for contract awards and preparation of documentation for contract signing and payments.
-
- Develops and maintains an updated procurement plan (PP);
- Maintains accurate procurement records, including all actions and documents for review by the ENTRO's supervision missions. This includes advertisement, preparation of bids, invitation to bid, record of bid submissions, bid opening, evaluation of bids, contract award and performance of the contracts (keeping up-to-date procurement records) ;

- Ensure quality compliance of the procured goods and to be in line with budget, necessary approvals & verification and PP, receiving and dispatching;

- Plan, organize and maintain any stores/warehouse/supply system and records ;

- To establish a roster of potential local suppliers, contractors and consultants containing contact information, business information, performance, experience, staff, references and evaluations from other projects/FTWMP sub-projects as stipulated in the OM.
- To provide with feed back, progress and status report for all procurement activities within his locality as deems appropriate.

- To assist in identifying, gaps, weaknesses, lesson learns and setting procurement training and capacity building needs and fostering transparency and procurement best practices and concepts.

Minimum Job Requirements:

- University degree in: Economics , Business Administration or commercial studies or any relevant discipline ,
- Five to Seven (5-7) years experience in procuring goods, services and works for social development projects or relevant activities or Ten to 12 (10-12) years for secondary school certificate holder.
- Good knowledge of procurement procedures.
- Experience in contract management an asset.
- Fluent in spoken and written English preferred.
- Good command of Computer Programs and Applications is a must.

Job Title: LIU Financial Officer

Duty Station:

- **Nile State:** Ed Damer locality
- **Sennar State:** Dinder National Park Management Unit
- **Blue Nile State:** Bau locality

Duration: Allocated by state/ locality for 1-year with possibility of renewal subject to satisfactory performance

Dual Reporting to: LIU Manager & PIU Financial Officer

Main Function: Financial management and reporting

Duties and Responsibilities:

- Prepares disbursement schedules for reviews and follow-ups by the Locality Steering Committee and PIU Financial Officer. Recommends bank disbursements and cash forecast for review by LIU Manager/ PIU Financial Officer for further processing.
- Tracks all committed funds and disbursements made from Locality Project Account.
- Prepare and monitor an operating budget for the LIU.
- Implements the FTWMP financial management system to include:

  (i) Financial reports. (ii) Project progress reports.
- Implements the accounting control procedures of the project in all payments and withdrawals.
- Maintains proper accounting and administrative records for all the FTWMP-funded subprojects activities.
- Ensures the proper integration of accounting information in the accounting system.
- To create and follow cash account for each subproject if needed for petty cash and other cash payment (advance pay).
- Prepares the annual budget of the LIU based on the Annual Plans.

- Consolidates and reports the financial status and performance the LIU and subprojects on a monthly basis.

- Maintains records and accounts to reflect the LIU operation and financial status.

- Submits requests for advance payments, specifying the amount of funds needed for the first quarter and for each month accompanied by a cash-flow forecast based on the budgeted activities.

- Submits monthly reconciliation of the Locality Project Account accompanied by a copy of the bank statement.

- Facilitates the visits by the PIU and MFNE missions, in addition to ENTRO supervision missions to review the accounting and procurement documentation and records and to ensure also compliance with the governing procedures.

Minimum Job Requirements:

- University degree in Business Administration, Finance or Accounting.
- At least five (5) years of experience in financial management.
- Proficiency in written and spoken English.
- Good command of Computer Programs and Applications namely MS Excel and MS Access.

Job Title: Seconded Staff /Seconded Development Team: 1) Forestry Officer, 2) Agriculture Officer and 3) Livestock Officer

Duty Station:

- **Nile State:** Ed Damer locality
- **Gedref State:** Gedref locality
- **Sennar State:** Dinder locality.
- **Blue Nile State:** Bau locality and AL Roseries locality

Duration: Allocated by /state/ locality for 1-year with possibility of renewal subject to satisfactory performance

Dual Reporting to: LIU Manager

Each **Team** will consist of an average of 3 -4 members including:

(a) a range and/or forestry extension agent;

(b) a livestock husbandry extension agent;

(c) an agriculture extension agent,

(d) a Micro-finance/business development officer.

Duties and Responsibilities:

The staff members will be assisting the following:

- Undertaking community screening and selection,
- Conducting awareness and mobilisation campaigns within their field of specialisation,
- Implementing farmers' training sessions and field days,
- Assisting community organizations in the participatory planning and implementation of IWMDIs and CIF activities, in managing water facilities and range protected areas. They will also assist community organizations in planning and monitoring their development plans.

At least two members of the development team will be women. The development team members will be deployed from the existing staff at locality or state level. The deployment of staff will be competitive at state level.

3 TOR External Auditor

3.1 The Scope of the Audit

3.1.1 General

The World Bank Guidelines states that the Borrower shall establish, and thereafter maintain, a financial management system, including records and accounts, and prepare financial statements in accordance with consistently applied accounting standards, acceptable to the World Bank, adequate to reflect the operations, resources and expenditures related to the Project
Therefore, the PCU is required to prepare annual financial statements, which should be audited by external auditors.

The audit will be carried out in accordance with International Auditing Standard and will include such tests and controls and the auditor may consider it necessary in the circumstances. In conducting the review, the auditor should pay special attention to:

- Whether all external funds have been used in accordance with the relevant legal agreement, with due attention to economy and efficiency to the intended purpose.
- Whether counter part funds have been provided and used in accordance with the legal agreement.
- Whether goods and services have been procured according to the procedure and relevant financing agreement.
- All necessary supporting documents, records and accounts have been kept in respect of all project expenditures.
- The financial statements should be prepared in consistent with the World Bank Audit Guidelines.
- The audit period covers the calendar year and the Audit is a financial audit.

3.1.2 Project Financial Statements

The project financial statement should include:

- Summary of funds received – the IFI's, and GOS's

- Summary of Expenditures shown under the main project headings and by main categories for the current calender year and accumulated to date.
- A balance sheet showing accumulated fund of the project, bank balances, other assets of the project and project liabilities (if any)

3.1.3 Statements of Expenditure (SOE)

Statements of Expenditure are also very important aspect of the audit. Therefore, in conducting the audit of the project's financial statements the auditor should pay special attention to those expenditures for which withdrawal applications for the replenishments of the SA were made according to the procedure (DCA; and World Bank Disbursement Manual)

A separate reference is required in the opinions of the auditors on the eligibility of the claimed expenditures. The review of the SOE should:

- Determine that the borrower has maintained adequate supporting documents to support claims from the IFI
- Asses the adequacy of accounting and internal control systems to monitor expenditures and their validity
- Verify that expenditures are eligible for financing under the Grant Agreement
- Identify any ineligible expenditure (if any) and report specifically.

There should be an annex in support of the expenditures using SOE procedures listing individual SOE withdrawal applications by reference number and amount. The total withdrawals under SOE procedure should be added to expenditures financed by the World Bank under other procedures, which together will be equal to total expenditures financed by the World Bank.

3.1.4 Special Account (SA)

The objective of a SA audit is to enable the auditor to form an opinion on the compliance with the World Banks procedures and the balance of the SA, at the calendar year end. The audit should examine the eligibility and correctness of financial transactions during the period under review and fund balances at the end of such

period, the operation and use of the SA in accordance with credit agreement, and the adequacy of internal control.

The statement of SA should comprise:

- Deposit and replenishments received from the IFIs
- Payments substantiated by withdrawal applications for eligible expenditures in concurrence with legal documents.
- Interest that may be earned from the balances and which belong to the borrower and
- The remaining balance at the end of each fiscal year – end.

The statement of the SA should be shown in the notes to the financial statements. There is no need to express a separate opinion on the audit of the SA.

3.2 Reports

3.2.1 Short Form Reports

The annual auditors' reports will include an opinion on the project financial statements, and should include there in a separate opinion on the accuracy and eligibility of those expenditures withdrawn under SOE procedures.

The auditor should submit his/her reports to the borrower's designated agent rather than to any staff member of the project entity.

3.2.2 Management Letter

In addition to the audit reports, the auditor will prepare a management letter to be submitted together with the audit reports. This letter will:

- Give comments and observation on the accounting records, systems and controls that has been examined during the course of the audit.
- Identify specific deficiencies and areas of weaknesses in systems and controls that have come to his attention and make recommendations of improvement.
- Report on the degree of compliance of each of the financial covenants of the loan and/or grant agreement and give comments (if any), on internal and external matters affecting such compliance.
- Mention the period covered by the opinion

- Communicate maters that have come to his attention during the audit and that might have a significant impact on the implementation of the project and
- Any other matters that the auditor considers pertinent to the financiers.

3.3 Available Information, and Facilities

The auditor will be given access to all legal and financial documents, (including books of account, legal agreements, minutes of committee meetings, bank records and contracts, etc…) correspondences, all employees of the PCU, LIUs and any other information he/she may deem necessary in association with the project. The auditor will also have a right of access to bank and depositories, consultants, contractors and other persons or firms engaged in the project management.

The auditor will obtain direct confirmation of amounts disbursed and outstanding at the Coordinating Agency (ENTRO), and of amounts disbursed under the Grant.

The auditor will be provided an office (to the extent that the project avails) for the entire period of conducting the audit work.

3.4 Obligation of the Auditor

In addition to the duties and responsibilities addressed in the scope of the audit; the auditor is expected to perform the following:

- Should assign competent, qualified and well experienced staff in auditing the accounts of the project comparable in size and complexity to the entity being audited.
- Should be completely impartial and independent from all aspects of management or financial interests in the entity being audited or those of its implementing/supervising agency or directly related entities. The auditor could not, during the period covered by the audit nor during the undertaking of the audit, be employed by, serve as a consultant or have any financial or close business relationships with any senior participant in the management of the project so that not to compromise its independence.

3.5 Submission of audit reports

The annual audited financial statements along with the management letter should be submitted to the PCU not later than two months (agreed upon) the receipts of the draft accounts to the external auditors from the PIU.

4 ToR Detailed Studies Water and groundwater resources assessment

4.1 Background

The detailed programming study has confirmed water availability for proposed interventions. However, the study also recommends that future land use planning should be based on continuous water resources assessment for improved integrated planning as well as project safe guarding and monitoring purposes.

4.2 Approach

The studies will be undertaken by utilizing staff of the State MAARI and related institutions for the studies. The actual selection of individual members (one for each state) rests with the concerned ministries. The work will be undertaken under the supervision of the LIU Managers and coordinated by the FTWMP Project Coordinator.

4.3 Tasks

- Rainfall levels, variability and trends.
- Analysis of rainfall data and surface water runoff for the dense drainage system.
- Surface runoff, drainage patterns, rainfall runoff relationship over the major catchments areas and quantification of runoff volume, measuring discharge of wadis and Khors.
- Hydro-geological analysis i.e geophysical investigations (geo-electric surveys)of the different groundwater aquifers, their characteristics, extension and estimate of the renewable safe water yield.
- Groundwater, the main water-bearing formations, water table depth, water yield and quality, aquifer recharge.
- Assessment of water resources potential in the Programme area.
- Inventory of existing water sources (boreholes, Hafirs, dams, dug wells) their productivity, efficiency, the required rehabilitation including civil engineering work, and new water sources as well as considering their sustainability.
- Development of groundwater as well as surface water flow, operation, maintenance, rehabilitation and management arrangements, prospects for irrigated farming.

- Evaluation of the potential of utilizing seasonal water courses for domestic and agricultural purposes, and rehabilitation of vegetation resources; this should include construction of dams and their impact on downstream users.
- Identification of coverage level in water supply and the actual deficit to be bridged taking into account both quantity and quality aspects.
- Projection of future demand for human and livestock in both urban and rural communities.
- Prepare a base map from available maps.