

**DRAFT**

**WETLANDS EDUCATION AND AWARENESS MATERIALS  
FOR COMMUNITIES**

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# UNIT 1: OUR WETLANDS: A SOURCE OF WEALTH

## *Introduction*

In this exciting Unit, you will learn what we mean by a wetland and its characteristics, the roles wetlands play and how we can benefit from them, including their contribution to our livelihoods. You will also look at the different types of wetlands, the threats they face, and the suggested course of action. In addition, you will be introduced to concept of wise use of wetlands and how to value wetland benefits. It will become clear that wetlands can be a source of wealth if utilized wisely.

As a member of the community, it is important for you to appreciate the role of wetlands in our daily lives so that your actions and those of other people do not destroy our wetlands.

### **Here are a few questions to keep in mind as you read this unit:**

- Give examples of wetlands in your area and how members of the community benefit from them.
- What are the major threats to wetlands and how can they be addressed?
- In which way can wetlands be source of wealth for your community?
- In the past, wetlands were regarded as wastelands. Why is this inaccurate perception?

### **Learning outcomes**

By the end of this unit, you should be able to:

- Define the term wetland and give the different types of wetlands
- Explain the roles and benefits of wetlands
- Explain how wetlands can help to reduce poverty among members of your community
- Identify threats to wetlands in your area and design strategies to solve them
- Apply the different techniques learnt to the valuation of wetland resources

### **Main concepts**

- Wetlands are of different types
- Wetlands contain valuable resources and attributes which can be utilized to improve our lives
- Wetlands are facing a number of threats which need to be addressed

### ***Understanding our wetlands***

We have all interacted with areas that may be flooded temporarily or permanently and contain plants or animals that are able to thrive grow well even when there is no rain. These areas are known as wetlands. Many people in the Nile basin region and in other parts of the world seem not to understand what wetlands are. Despite their importance, wetlands are among the most affected and degraded of all ecological systems partly because of their indirect benefits to local communities. Such benefits are less visible and most people take them for granted or do not know about them.

Definitions of wetlands vary considerably but the Ramsar convention gives a more universal definition of wetlands as, “areas of marsh, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, brackish or salt. Wetlands are dynamic and complex habitats either continuously or periodically flooded by seasonal rains.

While most wetlands are natural sites, artificial water bodies such as fish ponds, reservoirs and artificial lakes are also included under the Ramsar definition in view of their ecological and cultural importance.

Wetland ecosystems are highly varied ecosystems where water accumulates for at least part of the year. Driven by the hydrological cycle, water is continuously being recycled through the land, sea and atmosphere in a process, which ensures the maintenance of ecological functions.

**Wetlands may be defined as areas where plants and animals have become adapted to temporal or permanent flooding with water that may be flowing or static.**

#### **ACTIVITY**

**Think for a moment about any wetland near you. What are the main plants and animals it contains? What other characteristics or features are common to it?**

- Wetlands occur in every country - from the tundra to the tropics. The World Conservation Monitoring Centre has suggested an estimate of about 5.7 million square kilometers - roughly 6% of the Earth's land surface. The greatest proportion is made up of bogs (30%), fens (26%), swamps (20%) and floodplains (15%), with lakes accounting for just 2% of the total.
- They exist as swamps, flood plains, seasonally flooded grasslands, edges and shallow waters of rivers and lakes, estuaries and coasted marshes, mangroves, creator lakes and peat bogs.
- They have characteristic flora and fauna with specified features for adapting to variability in hydrology, chemical composition, environmental physical characteristics like temperature, soil nature, sediment composition, etc.
- They are very fragile habitats, which are easily degraded in terms of ecological functioning, social and economic services and products provision.

### **Component parts of a wetland**

A wetland in its natural state is composed of four features. These include;

- Water
- Soils
- Plants
- Animals

### **Wetland water**

Water is the key element in wetlands i.e no water, no wetland. Water modifies soil types and influences flora and nutrient availability. Wetlands contain water that does not flow at all or flows slowly due to little or no slope. Wetland water comes from all sources including direct rain fall, the hydrological cycle and the rising groundwater.

## **Wetland soils**

Soils are the second vital component of wetlands. The wet characteristic of wetlands has a profound impact on its soils. Wetland soils are waterlogged permanently or seasonally and are often subjected to a fluctuating water table. Water logging creates anaerobic conditions, which in turn result in structural and chemical properties that are very different from dry land soils.

Wetland soils have a high organic matter, which gives them a darkish colour. Wetland soils may also have high clay content. The high organic matter binds wetland soils together. Once lost, the soil falls apart and can easily be carried away by water.

Wetland soils are often wrongly considered to be good for agricultural production because of the water availability and nutrient content in the organic matter. However, their productivity is linked to the water logging. Once the water is drained, the structure and chemical properties alter very quickly. The organic matter breaks down, resulting in an overall breakdown of the soil structure and a quick loss of nutrients.

## **Wetland flora and fauna**

Wetlands are one of the most diverse ecosystems in the world. A wide range of plants and animals live at least, part of their life cycle in wetlands. However, life in wetlands is not easy, and many plants and animals have evolved special adaptations to survive with soggy soil, fluctuating water and little oxygen. Plants are a vital part of the ecology of the wetland and form the basis for many of its beneficial functions such as; flood control, food and habitat for fauna.

Wetland fauna includes microbes and animals. Microbes are the smallest in size but play a vital role in nutrient cycling as the main decomposer organisms in the system. Swamp plants are normally unavailable to many animals because of the physical nature of the swamps and because they are very fibrous. These are broken down by mechanical and microbial action, becoming more nutritious and available to smaller animals. It is important to note that organic material from a swamp provides both physical support and food for a major food web outside the swamp.

The macro-fauna, although large and often conspicuous, are relatively unimportant in the functioning of wetland ecosystems.



## **Wetlands and the hydrological cycle**

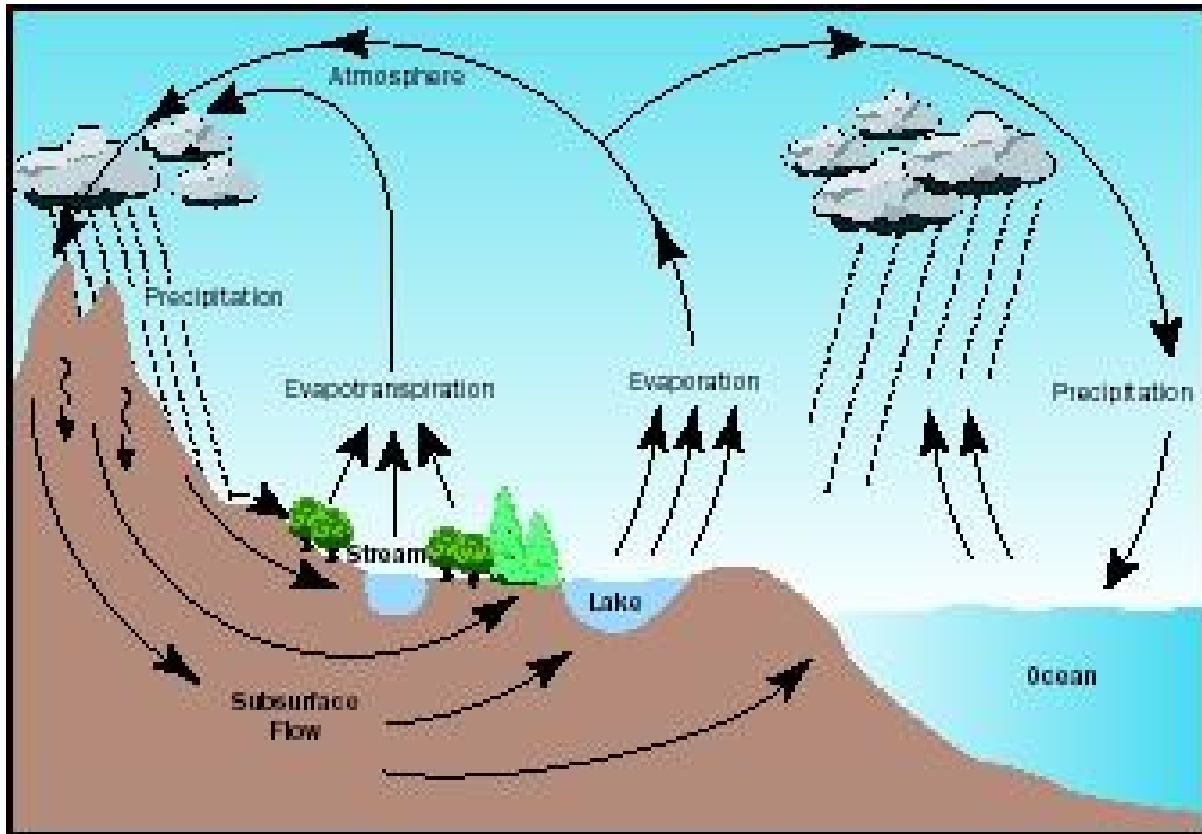
It is important to note that water is continually moving from one water reservoir to another. This movement of water is called the **hydrologic cycle**. The hydrological cycle involves three main phases and these include; **precipitation** (in form of rain, hail dew and frost or snow), **evaporation** (from land, water bodies and plant surfaces) and **surface and ground water run off**.

- Precipitation involves all processes by which water moves from the atmosphere to the earth's surface.
- Evaporation is the process by which water returns to the atmosphere as water vapour

Water that falls to earth as precipitation follows many paths on its way back to the atmosphere. Precipitated water may be intercepted and taken up by plants; it may infiltrate the soil; or it may flow over the land surface or through the subsurface to reach streams, lakes, wetlands, and ultimately the ocean. Some of the discharged water is evaporated from surfaces and transpired by plants to reenter the atmosphere, and the hydrological cycle continues.

Wetlands are an integral part of the hydrological cycle, playing a key role in the provision and maintenance of water quality and quantity as the basis of all life on earth. They are often interconnected with other wetlands, and they frequently constitute rich and diverse transition zones between aquatic ecosystems and terrestrial ecosystems such as forests and grasslands. Wetland ecosystems, by definition, depend on water to maintain their ecological functions.

A simplified illustration of the hydrologic cycle is shown in the figure below



The hydrological cycle renews the flow and quantity of water in rivers, aquifers, lakes and all other freshwater ecosystems. These are complex ecosystems, the boundaries of which are often in a state of flux. Wetlands are therefore easily affected by external events. Nutrient and sediment loads, for example, are frequently moved from one site to another and from one habitat to another. Thus, nutrients obtained in the headwaters of a stream may find their way into lakes or fens. Minerals and nutrients not absorbed by living freshwater organisms may find their way into the marine ecosystem, often thousands of kilometers from where they first entered the water. While the fluid nature of such exchanges guarantees a continued renewal of energy, it also represents a major potential hazard since many harmful agents (pesticides, fertilizers or other chemicals) can also be easily and rapidly transported to other areas where they might have an adverse impact on the environment.

It is widely accepted that wetlands have a significant influence on the hydrological cycle. Wetlands have therefore become important elements in water management policy at national, regional and international level. There are many examples where Wetlands reduce floods, recharge groundwater and other global water balance aspects.

#### **Activity**

- Identify and discuss the various human activities that could have a big impact on the hydrological cycle in your area.
- With reference to the hydrological cycle illustrated in the figure above, discuss the role wetlands play in the maintenance of the water balance.
- In groups of six people, discuss the various ways in which climate change could have a significant impact on the hydrological cycle. Share your answers with other groups and draw up a joint class list of impacts of climate change on the cycle.

#### **Wetland formation**

Wetlands are formed where water is retained or delayed within catchments. The crucial ingredients for wetland formation are water and a place for it to collect. Rainfall and dew, which precipitate on the catchments and do not return to the atmosphere by either evaporation or transpiration, flow downhill through the catchments towards its lowest point. This may be in a depression or basin or where the slope along the valley is very slight. A wetland therefore develops where water collects and soil beneath becomes waterlogged and anaerobic.

Wetland vegetation then develops, and as it becomes established, the speed of water flowing through the wetland reduces. This lower speed then results in the sedimentation of suspended silt in the water. This in turn promotes more vegetation growth and further reduction in water speed, and thus the wetland continues to expand slowly sideways across the valley.

### *Types of wetlands in our area*

Wetlands are of many types and they can be grouped in many ways for example. However five major types of wetland are generally recognized:

- **Marine** (coastal wetlands including coastal lagoons, rocky shores, and coral reefs);
- **Estuarine** (including deltas, tidal marshes, and mangrove swamps);
- **Lacustrine** (wetlands associated with lakes);
- **Riverine** (wetlands along rivers and streams); and
- **Palustrine** (meaning “marshy” - marshes, swamps and bogs).
- In addition, there are **human-made wetlands** such as fish and shrimp ponds, farm ponds, irrigated agricultural land, salt pans, reservoirs, gravel pits, sewage farms and canals.
- **Seasonal and permanent wetlands**
- **Reed swamps, grassland swamps or march depending on the dominant vegetation**

Wetlands are found in the entire Nile basin region. Eastern Africa is estimated to have one third of all wetlands in Africa, Most of them (75%) being in Sudan, Uganda, Kenya, Tanzania, Rwanda, Burundi, Egypt and Ethiopia. Also contains many wetlands that are associated with rivers and lakes. About 10% of Uganda’s total land area (23,000km<sup>2</sup>) contains wetlands. Usually at the edges of lakes or rivers we have wetlands with distinct vegetation from that found on either land or water.

Below is a picture of the wetlands

A	B

Q What type of wetlands do you think is A and B and why?

***Examples of Wetlands of International Importance***

In response to the Ramsar convention on wetlands of international importance, countries in the Nile basin region have gazetted the following sites as wetlands of international importance;

COUNTRY	WETLAND	DESIGNATION DATE
<b>UGANDA</b>	L .George	4/March/1988
	L. Nabugabo wetland system	11/Feb/2004
	L. Bisina wetland system	15/Sept/2006
	L. Mburo-Nakivali wetland system	15/Sept/2006
	L. Nakuwa wetland system	„

	L. Opeta wetland system	„
	Lutembe bay wetland system	„
	Mabamba bay wetland system	„
	Nabajjuzi wetland system	„
	Murchison falls-Alberta Delta wetland	„
	Sango-bay-Musambwa island-Kagera wetland system	„
<b>KENYA</b>	L. Nakuru	5/June/1990
	L. Naivasha	10/April/1995
	L. Bogaria	27/Aug/2001
	L. Boringo	10/Jan/2002
	L. Elmenteita	5/Sept/2005
<b>TANZANIA</b>	Malagarasi-Muyvozi wetlands	13/april/2000
	L. Natron	4/July/2001
	Rufigi-Mafia-Kulwa marine Ramsar site	29/Oct/2004
<b>D.R. CONGO</b>	Parc.national des virunga	18/Jan/1996
	Parc.national des mangroves	18/Jan/1996
<b>RWANDA</b>	Rugezi-Bulera-Ruhondo	1/Dec/2005
<b>SUDAN</b>	Sudd	5/June/2006
<b>EGYPT</b>	L.Bardawil	9/Sept/1988
	L.Burullus	9/Sept/1988

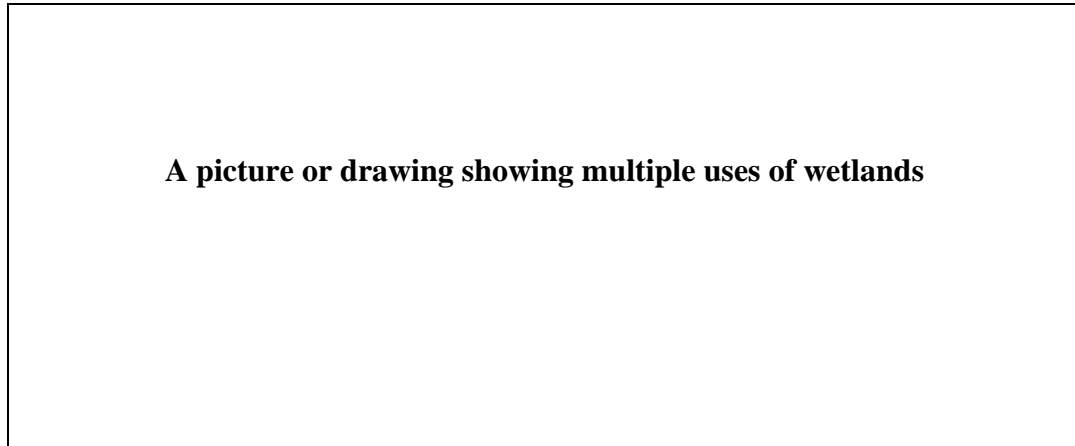


***The Sudd Wetland is one of the largest tropical wetlands in the world.***

*(Photo courtesy Sudan's Higher Council for Environment and Natural Resources)*

## ***Wetland Benefits***

A look at the picture below (Picture 3) and in groups, describe what is happening



Although some wetlands may be inaccessible, and are therefore seen as wastelands, there is growing recognition of their importance. Wetlands provide products (goods), services and attributes that are important to our well being. List the products provided by this wetland in the picture? Compare your list to that of your neighbor. Which one(s) did you not include?

Wetlands are among the most precious natural resources on earth, existing as multiple value systems. These highly varied ecosystems are natural areas where water accumulates for at least part of the year. Driven by the hydrological cycle, water in the wetland is continuously being recycled through the land, sea and atmosphere in a process which ensures the maintenance of ecological functions.

Wetlands are some of the most productive ecosystems in the world and indeed they are an important, and in many cases the exclusive source of natural resources upon which rural communities depend for food, medicine, building material, and dry season grazing.

The functions and services provided by wetlands are many and varied. They may be divided into either natural/ecological or socio-economic functions.

### **Ecological (natural) uses of wetlands**

These are the natural uses of a wetland which seem to be less visible (or hidden) to man and are always not appreciated until a wetland is lost. They may also be referred to as the indirect values of a wetland. They include the following;

- Flood control
- Ground water recharge
- Water filtration
- Habitat for flora and fauna
- Erosion control
- Sediment retention
- Carbon retention
- Climate modification

### **Flood control**

Wetlands play an extremely important role in reducing harmful and costly effects of the flow of storm-water. They slow down the speed of water flow from heavy rains. This reduction in speed lessens the harmful impacts and frequency of flooding during the wet seasons.

Wetlands act as natural sponges that trap and slowly release surface water over time. When water pours into a wetland after a storm, the wetland will flood, but it will do so slowly and over an extended period of time. This ability to store water in periods of heavy rainfall means that wetlands can help prevent flooding.

In areas where wetlands have been drained, heavy rains cause floods that damage crops, livestock, infrastructure and humans drown in the flood waters. Preserving wetlands therefore offers superior flood protection. Many cities in the Nile basin region have faced serious problems of floods in the recent past due to wetland degradation. For example in Sudan, Uganda, Kenya, Tanzania and Ethiopia, floods have been rampant.



**Groundwater recharge;** Wetlands play an important role in replenishing or “recharging” ground water supplies and maintaining ground water levels. By retaining the water for long, the wetland allows the water to infiltrate into the underground aquifer.

**Water filtration;** Wetlands have the remarkable ability to improve the quality of water by filtering runoff and removing sediment, nutrients, pesticides, metals, municipal sewage and other types of pollutants. This is so, because the speed of the water reduces as it enters the wetland while it filters slowly through the vegetation.

These pollutants that are often dissolved in water are absorbed by wetland plants and microorganisms in the soil. In many cases, this filtration process removes much of the water’s nutrient and pollutant load by the time it leaves a wetland, thereby improving the water quality.

### **Habitat for flora and fauna**

Wetlands provide important habitats to countless bird, fish, and native plant species. In fact, wetlands are some of the most productive ecosystems in the world. They provide a habitat for more aquatic and terrestrial species on an area basis than any other habitat type, making them to be among the most ecologically important ecosystems on earth.

The abundant vegetation and shallow water provide diverse habitats for wildlife species of plants and animals, including fish. Aquatic plant life flourishes in the nutrient-rich wetland environment and energy converted by the plants is passed up the food chain to fish, bird and other wildlife and to humans as well.

### **Erosion control**

The wetland ensures that the flow of water is slowed down. This allows the region down stream of the wetland to receive less erosive force of water runoff that would result in soil and stream bank degradation.

### **Sediment retention**

Materials that are eroded from the surrounding catchment by rainfall and carried into wetlands by surface runoff can be trapped in the filtration and sedimentation processes that occur in wetlands. Sediment retention prevents downstream resources of dams, farmland, rivers and lakes from being silted up. Retention of sediment also helps to cleanse the water. Sediment retention by wetlands generally benefits those down stream. Facilities such as water storage dams and irrigation schemes that would fill with sediment are protected from in-filling and their lifespan increased. However, it may also gradually lead to in-filling of the wetland resulting eventually into dry land conditions.

### **Carbon retention**

Wetlands absorb carbon dioxide from the atmosphere through photosynthesis by wetland plants thus acting as carbon sinks. In carrying out photosynthesis, wetland plants convert atmospheric carbon dioxide into biomass. This retention of carbon dioxide greatly reduces global warming of the atmosphere.

### **Climate modification**

Wetlands modify local and regional climate by evaporating enormous quantities of water into the atmosphere. This process of evaporation reduces air temperature and increases humidity thus providing cool climate. Wetlands therefore act as local “air conditioners”. Dust in the atmosphere is reduced, and the air quality is improved. The presence of a wetland also helps to trigger rainfall in its catchment.

### **Socio-economic uses of wetlands;**

These are the direct benefits of wetlands to man that seem to be visible and appreciated. Despite these direct benefits, wetlands are still undergoing serious degradation. These uses include the following;

#### **Water supply**

Water is the most important product of wetlands. Water is a daily commodity that occurs in all wetlands, permanently or seasonally. Wetlands retain water for long periods thus making it available for local people and domestic animals. The water supplied by wetlands is free and

clean. Generally the wetland water is used for, rural and urban domestic use, livestock and industrial use and for irrigation.

### **Fish production**

Wetlands have a great importance and potential in fisheries. Large amounts of fish are present in wetlands which provide valuable protein to local communities. This is especially important for those who would be unable to afford other sources of proteins. The common types of fish found in wetlands include, the catfish, lungfish, and some tilapia. Wetlands also act as breeding and nursery grounds for commercial fish species, including tilapia and the Nile perch. Thus, the fish biomass in the lakes depends upon the existence of fringing wetlands.

### **Provision of craft and building materials**

Wetlands provide a variety of craft and building materials such as reeds, grasses, sedges, papyrus and palm trees that are usually harvested for thatching and mulching or processed into domestic items such as baskets, mats and furniture. Crafts add beauty to the home, reinforce culture and provide employment and income when sold.

Timber, sand and clay are often extracted from wetlands in many areas of the Nile basin region as building materials. Wetland sand and clay are used for bricks, tiles and pottery, while wetland trees are used for doors, roof supports furniture and fences.

### **Livestock grazing**

The parts of wetlands, where the soil is permanently or seasonally moist are often used as grazing areas for livestock especially during the dry season. For example the Sudd wetland in southern Sudan supports large numbers of domestic animals during dry seasons.



Migratory mammals depend on the Sudd wetland for their dry season grazing. (Photo courtesy Sudan's Higher Council for Environment and Natural Resources)

### **Recreation and eco-tourism**

The diversity of wetland biological communities has a potential for earning tourism income. Some wetlands can be developed for recreation and eco-tourism, especially in national parks. There are many recreational activities that are dependent on wetlands such as hunting, bird watching, boating, and wildlife photography.

### ***Wetland valuation: Rationale, techniques and procedures***

In simple terms, wetland valuation means putting a monetary value on the products that are sold e.g. firewood, papyrus, fish, sand, etc. Economists and decision makers normally focus on these values. The total economic value of wetlands however extends far beyond the value of raw materials and physical products. A holistic economic valuation technique must therefore be employed.

If researchers are to value wetland uses and decision-makers are to take these into account when making policies that affect wetlands, then a framework for distinguishing and grouping these values is required. The concept of *total economic value* (TEV) provides such a framework and there is an increasing consensus that it is the most appropriate one to use. Simply put, total

economic valuation distinguishes between *use* values and *non-use* values, the latter referring to those current or potential) values associated with an environmental resource which rely merely on its continued existence and are unrelated to use. Typically, use values involve some human ‘interaction’ with the resource whereas non-use values do not. The total economic valuation framework, as applied to wetlands, is illustrated in the Table below.

Generally, wetlands have intrinsic attributes, perform functions, and produce goods and services. Some of these are of primarily local interest, but others have regional, national or international importance. In summary, wetlands represent considerable ecological, social, and economic value. The box below shows wetlands values-derived from attributes, functions, goods and services classified into four categories i.e.; direct values, indirect values, option values and non-use values.

- **Direct value:** these are extractable resources of the wetland, which can be used directly and often processed and traded.
- **Indirect values:** these are non -extractable services, which cannot be removed from the wetland directly, but do produce benefits to users.
- **Option values:** this is a value obtained from a wetland by retaining a claim on future use.
- **Heritage value:** this is a value placed on the ability to pass the wetland on to future generations, and let them have the choice to use it the way they want.
- **Existence value:** this is a value derived from knowing that the wetland is there.

<i>Direct Values</i>	<i>Indirect values</i>	<i>Option Values</i>	<i>Non-Use Values</i>
These are production and consumption goods.e.g.	These are ecosystem functions and services. e.g.	This is premium placed on possible future uses and applications of wetlands. e.g.	This is an intrinsic significance of a wetland. e.g.
Fish	Water quality		Cultural
Fuel Wood	Water flow	Pharmaceutical	Aesthetic value
Building poles	Water storage	Agricultural	Heritage value
Sand, gravel, clay	Water purification	Industrial	Bequest value
Thatch	Water recharge	Leisure	Existence value
Water	Flood control	Water use	

Wild foods	Storm protection		
Medicines	Nutrient retention		
Agriculture/cultivation	Micro-climate regulation		
Transport recreation	Shore stabilization		

**Question**

1. Which other products, services and attributes can you add?
2. In groups, discuss how wetlands community if property used
3. In which ways can wetlands be or problem to the people in the community?

**Question**

**Can you think of examples of such animals and plants and what your community uses them for?**

**Please note**

**Wetlands can also modify or affect our climate. You may have noticed how cool you feel when you pass near a wetland, even when the day is hot**

**Economic Value of a wetland**

This is determined by and in a market. In the market, the potential buyer sets a price they are willing to pay, and the seller sets the price they are willing to accept. An acceptable price for both parties is taken to be the market price hence the economic value of a given product. This applies to scarce goods according to the economic theory.

For services of wetlands not traded in the market like consumptive products, other valuation

**Activity 3: Wetland market products value assessment.**

- With reference to a local wetland, identify possible market products.
- Make a list of these products and attach a market price for each.
- Make a simple survey of the market products value of your local wetland in a specified period.

techniques are employed to determine their economic value.

The economic value of a given wetland includes direct values, indirect values, option values, heritage values and existence values. To determine the total economic value of a wetland, the values of all the components of the wetland must be established.

### **Valuation techniques**

#### **➤ Market prices method.**

This involves the use of prevailing prices for goods and services traded in domestic or international markets. Market prices reflect the private willingness to pay for wetland costs and benefits that are traded (e.g., fish, timber, fuel wood, recreation). They may be used to construct financial accounts to compare alternative wetland uses from the perspective of the individual or company concerned with private profit and losses. Price data are relatively easy to obtain.

The advantage of this method is that the Market imperfections and/or policy failures may distort market prices which will therefore fail to reflect the economic value of goods or services to society as a whole. Seasonal variations and other effects on prices need to be considered when market prices are used in economic analysis.

#### **➤ Efficiency (shadow) prices method.**

The efficiency prices method involves the use of market prices but adjusted for transfer payments, market imperfections and policy distortions. May also incorporate distribution weights, where equality concerns are made explicit. Shadow prices may also be calculated for non-marketed goods.

Efficiency prices reflect the true economic value or opportunity cost, to society as a whole, of goods and services that are traded in domestic or international markets (e.g., fish, fuel wood, peat). The disadvantage of this method is that the derivation of efficiency prices is complex and

may require substantial data. Apparently, ‘artificial’ prices may not be accepted by decision-makers.

➤ **Hedonic pricing method.**

In this method, the value of an environmental amenity (such as a view) is obtained from property or labour markets. The basic assumption is that the observed property value (or wage) reflects a stream of benefits (or working conditions) and that it is possible to isolate the value of the relevant environmental amenity or attribute.

Hedonic pricing has potential for valuing certain wetland functions (e.g., storm protection, groundwater recharge) in terms of their impact on land values, assuming that the wetland functions are fully reflected in land prices.

The disadvantage of this method is that Application of hedonic pricing to the environmental functions of wetlands requires that these values are reflected in surrogate markets. The approach may be limited where markets are distorted, choices are constrained by income, information about environmental conditions is not widespread and data are scarce

➤ **Production function approach.**

This method estimates the value of a non-marketed resource or ecological function in terms of changes in economic activity by modeling the physical contribution of the resource or function to economic output.

Production function approach is widely used to estimate the impact of wetlands and reef destruction, deforestation and water pollution, etc., on productive activities such as fishing, hunting and farming. This method however, requires explicit modelling of the ‘dose-response’ relationship between the resource or function being valued and some economic output. Application of the approach is most straightforward in the case of single use systems but becomes more complicated with multiple use systems. Problems may arise from multi-specification of the ecological-economic relationship or double counting

➤ **Related good method.**



It involves the use of information about the relationship between a non-marketed good or service and a marketed product to infer value. The *barter exchange approach* relies on actual exchange of non-marketed goods. The *direct substitute approach* simply assumes that a marketed good can be substituted for a non-marketed good. The *indirect substitute approach* also relies on a substitute good, but if the latter is not exchanged in the market, its value is inferred in terms of a change in economic output (i.e., the direct substitute approach combined with the production function approach).

These approaches may provide a rough indicator of economic value, subject to data constraints and the degree of similarity or substitutability between related goods.

The barter exchange approach requires information on the rate of exchange between two goods. The direct substitute approach requires information on the degree of substitution between two goods. The indirect substitute approach requires information on the degree of substitution and on the contribution of the substitute good to economic output.

➤ **Constructed market techniques.**

This involves the measure of willingness to pay by directly eliciting consumer preferences. This technique directly estimates Hicksian welfare measure - provides best theoretical measure of willingness to pay. However, practical limitations of constructed market techniques may detract from theoretical advantages, leading to poor estimates of true willingness to pay.

➤ **Cost-based valuation.**

This is based on assumption that the cost of maintaining an environmental benefit is a reasonable estimate of its value. To estimate willingness to pay:

It is easier to measure the costs of producing benefits than the benefits themselves, when goods, services and benefits are non-marketed. Approaches are less data and resource-intensive.

The disadvantage of this technique is that these second-best approaches assume that expenditure provides positive benefits and net benefits generated by expenditure match the original level of benefits. Even when these conditions are met, costs are usually not an accurate measure of benefits.

➤ **Travel cost approach.**

The travel cost approach derives willingness to pay for environmental benefits at a specific location by using information on the amount of money and time that people spend to visit the location. Other techniques exist but we shall not go into them.

### **Discussion Questions**

1. With special reference to your country, describe the importance of wetlands economic valuation.
2. How does economic valuation of wetlands help the economic policy makers in making sustainable development choices?
3. Prepare a 30 minutes presentation that can effectively convince a panel of politicians in your country to reverse their decision of allocating an urban wetland to investors ready to construct a multi-million dollar flower farm with hundreds of job opportunities.

### ***A systematic Guide to Undertaking a Valuation Study***

There are seven practical steps, which must be followed to undertake an economic valuation of a wetland. These are presented and described below.

#### ***Seven steps to conducting a valuation study***

1. **Choose** the appropriate assessment approach (impact analysis, partial valuation, total valuation)
2. **Define** the wetland area and specify the system boundary between this area and the surrounding region
3. **Identify** the components, functions and attributes of the wetland ecosystem and rank them in terms of importance (e.g., high, medium, low)
4. **Relate** the components, functions and attributes to the type of use value (e.g., direct use, indirect use and non-use)
5. **Identify** the information required to assess each form of use (or non-use) which is to be valued and how to obtain the data
6. **Use** available information to quantify economic values, where possible.
7. **Implement** the appropriate appraisal method, e.g., cost-benefit analysis (CBA).

### **Step 1: choosing the appropriate assessment approach**

There are three approaches: impact analysis; partial valuation; and total valuation. If the problem is a specific external impact, such as effluent polluting a wetland, *impact analysis* will be appropriate. If the problem is the necessity of making one choice between wetland use options, including conversion of the wetland to residential land or diversion of water upstream of the wetland to intensive irrigation, then a *partial valuation* would be the correct approach. Sometimes the problem is more general. For example, developing a national conservation strategy may require assessment of the total net benefits of the wetland system. In this case, a *total valuation* should be undertaken.

#### ➤ **Step 2: defining the wetland area**

The boundary of the wetland may already have been defined for political purposes, such as gazettelement as a National Park or Ramsar site. No definitive methodology exists to delineate the boundary scientifically. This will be the first task for the multi-disciplinary team based on maps of flood extent, soils, agricultural use and vegetation.

#### ➤ **Step 3: identifying and prioritizing components, functions and attributes**

The third step involves using various data sources, including scientific studies, consultancy reports and national resource inventories, to produce a more definitive list of components, functions and attributes present in the wetland, and then to place them in order of importance. This may be in rank order, say 1 to 10, or expressed as being of high, medium or low importance. The major components, functions and attributes are discussed in other chapters. Clearly, no single wetland will exhibit all of these, and it is important for the multidisciplinary team to work together to identify the key components, functions and attributes of the wetland being studied and to use all available ecological, hydrological and economic information to score these various characteristics.

The distinction between components, functions and attributes is directly useful from an economic perspective, but scientists from other disciplines may have some difficulty with these concepts. Regardless of whether these characteristics or others are used, it is important that all

members of the team understand their meaning and work together to establish priorities for valuation amongst themselves.

➤ **Step 4: relating components, functions and attributes to use value**

The fourth step is to determine whether each of the components, functions and attributes is associated with a direct use, indirect use or non-use. Interviews with local communities, census data and consultancy reports are usually good sources of information on direct use. More detailed scientific investigation is usually required to uncover the indirect use values, concentrating on the physical links between wetland system functioning and the economic activities affected. Some of the intangible values – option and existence values – may be more difficult to determine, and it will often be up to the multidisciplinary team to use its best judgment, keeping in mind the difficulties of quantifying these values.

➤ **Step 5: identifying and obtaining information required for assessment**

The fifth step involves identifying and obtaining information required for the valuation. Different physical, chemical and biological data will be required depending on the values that are to be assessed and the methodology for collecting and analyzing the data must be specified. The range of data to be collected can be extremely diverse. For example, it may include fish population status, numbers of rare species, rates of groundwater recharge, and amounts of flood storage, degree of nutrient retention or coastal protection and so forth. Information on the extent and rate of various human uses of the wetland must also be collected.

The types of data may again be diverse, including agricultural yields, fish catches, tourist use or reduction in annual damage from storms or floods. A variety of collection methods and sources may be required. Obtaining agricultural and fisheries yields, for example, may involve interviews with fishermen and farmers, collection of statistics from government offices and visits to markets. Travel agents or tour companies could provide data on tourism in general, whilst parks and protected areas will know visitor numbers. Insurance agencies may have information on flood and storm damage in the area, whilst environmental authorities may collect water quality data.

Information is required on all inputs and outputs for all economic activities that are either directly or indirectly supported or protected by wetland ecological functions. This will include the economic costs of the inputs (e.g., labour-time, materials, and physical assets) and the prices of the outputs (products). On the inputs, a distinction needs to be made between purchased inputs (e.g., tools, licenses, hired labour) and non-cash inputs (e.g., use of their own or family labour and borrowed tools). Similarly, distinction must be made between outputs which are marketed (e.g., rice sold at the local market) and those which are non-marketed (e.g., fish eaten at home).

Information is required on the producer prices, the final market prices, the transportation, and other intermediary costs of marketed products. For non-marketed products, it is necessary to know their rates of consumption, and it may be helpful to obtain information on the market price of any substitute or alternative product.

The information required to assess non-use or preservation values is extremely difficult to collect for developing countries and may require specific studies to estimate willingness to pay. If such analysis is beyond the scope of the study, assessment of such values may warrant a qualitative rather than quantitative approach. This can be approached through interviews with local people and those outside the area who have a connection with it.

More general social and economic data should also be collected on communities living within the wetlands or where they benefit from, or are affected by, wetland functions. For example, this may include population growth rates, income levels, credit facilities and rates of interest, inflation and exchange rates.

Data collection should begin with a *literature survey* of available statistics, existing studies, and their analysis for the region, which may yield some of the required information. Next, any site surveys of specific economic activities should be undertaken. In the first instance, a *rapid rural appraisal* based on brief farmer or producer interviews and group participation may be relevant

to collecting basic information on human uses and economic data. More detailed *baseline surveys* may be required for in-depth data collection for actual valuation purposes. In all cases, it is important to be clear in advance about the information required to avoid collecting ‘data for data’s sake’.

➤ **Step 6: quantifying economic values**

In this step, the appropriate valuation techniques should be selected and implemented. There are many sophisticated techniques, such as contingent valuation and hedonic pricing, which are being applied to value temperate wetland functions, products and attributes, and such methods are increasingly being implemented especially in tropical regions. Although alternative approaches are available, some of these may yield extremely inaccurate valuation estimates. Care must therefore be exercised in choosing a technique which is theoretically sound but which is also appropriate to the circumstances where it will be applied.

➤ **Step 7: implementing the appropriate appraisal method**

In the final step, the economic analysis of the wetlands should be placed in the appropriate framework as selected during the planning for the study. An example is *cost-benefit analysis* (CBA), which normally involves calculating, on an annual basis the benefits and costs of conserving the natural wetland functions, products and attributes over a selected time period. The three most common methods for comparing costs and benefits are *net present value*, *internal rate of return* and *benefit-cost ratio*. Any valuation should be subject to a sensitivity analysis, which defines the variation in results arising from different assumptions or benchmark values used in the study, such as discount rates.

However, CBA is not the only possible appraisal method available, and other frameworks, such as environmental impact assessment, multi-criteria analysis and risk assessment may also require economic valuation as part of the assessment procedure. Initial planning of the study should

determine which framework for assessing costs and benefits is desirable, as the choice of framework may affect all seven steps of the analysis.

### ***Threats and Impact to wetlands***

The following are some of the major activities that degrade or negatively affect the quality of our wetlands:

- **Drainage:** This is an activity that denies water access for or residence in a wetland. Water drainage can be in form of
  - Diversion of water to prevent it from entering the wetland
  - Water removal by digging drainage channels
  - Excess removal of water for industrial, agricultural or other use.
  - Damming of upstream water sources
  - In filling with municipal industrial solid waste in a landfill situation or with earth, murrum or rocks in a land-making process.
  - Planting trees or other plants with high water demand with the aim of lowering the water table e.g. Eucalyptus and sugarcane.



Figure 1: Picture of the drainage channels in a wetland used for cultivation in Ethiopia

#### **ACTIVITY**

- In groups of 5-6, discuss the likely impacts of drainage of wetlands to communities living in adjacent areas.
- Draw a programme detailing how you organize activities to sensitize the members of your community about the dangers of excessive drainage of wetlands. Your programme should include practical solutions or alternatives for the people.

➤ **Encroachment:** This means taking part of the wetland and utilizing it for a specific purpose. This changes the natural state and the functions of the wetland. Encroachment may be in form of activities such as large scale agriculture, live stock grazing and watering, fishing (including aquaculture), in-filling for industrial and residential developments, mining for minerals and materials e.g. sand and clay, and road and railway construction.

➤ **Over exploitation of resources (over-harvesting):**

This involves large scale harvesting of wetland products which is not sustainable i.e. an act which comprises the wise-use concept for now and future generations e.g. over harvesting papyrus and rattans for crafts, etc.

➤ **Some activities are off-site / away from the wetland but within the surrounding (catchment).** The impacts of these activities affect the quality, quantity and timing of water entering the wetland.



Some activities that pollute water lead to the decline of quality e.g. sewage discharge, effluents from septic tanks of oil, etc. Land use activities also affect the quantity of water flowing into the wetland.

Despite the usefulness of wetlands, pressure has been exerted on them in both rural and urban areas. Many wetlands have been converted to land for industrial or agricultural use, residential areas, waste disposal points etc. This causes wetland degradation. By wetland degradation we mean a major alteration of the wetland features which adversely affect its functioning.

The main impacts and indicators of wetlands degradation include;

- Increased flooding
- Outbreak of water borne diseases e.g. cholera
- Pollution of surface and under ground water
- Loss of biodiversity (especially plants and animal resources due to over harvesting).
- Hydrological effects such as increased water flow due to drainage channels, decreased water retention time, water quality deterioration, etc.

### **Wise Use concept**

In the past our forefathers and mothers utilized environmental resources, including wetlands wisely. Their approaches were holistic and included integrating wetland messages into their livelihood strategies through folklore stories, riddles and myths. Often, conservation messages were embedded in spiritual beliefs. For example, putting scarce or critical resources such as wetlands under the care of spirits would ensure their conservation. Today we have revived the concept of “wise use “to mean using the resource in such a way that even those generations to come will benefit from it.

It is now widely recognized that wetland play an important role in our lives. However, some of their functions and products are now under threat due to human activities. These activities include extensive drainage of wetlands to create room for farm land, sand and clay extraction for construction, drainage and infilling for establishment of factories and, the dumping of wastes

into wetlands. Use of wetlands for agriculture if done prudently does not destroy wetlands and can be beneficial to communities by ensuring food security. The main challenge is however how to ensure that drainage is not done for a prolonged period of time and that we do not excessively use synthetic fertilizers and pesticides that will contaminate water from the wetland. In the past, it was considered prudent to drain wetlands to meet the growing need for land and to destroy the breeding places of vectors such as mosquitoes and snails. However, we no longer consider this as the best way of utilizing and ensuring that wetlands continue to serve their functions.

The ‘wise use of wetlands’ is a term borrowed from Ramsar convention and states: “their sustainable utilization for the benefit of humankind in a manner that will ensure the maintenance of the natural properties of the wetland ecosystem.” This definition introduces terms that need clarification. Sustainable utilization is defined by Ramsar as human use of a wetland so that it may yield the greatest continuous benefit to people of the present generation while maintaining its potential to meet the needs and aspirations of future generations. Natural properties of the wetland ecosystem, is defined by Ramsar as those physical, chemical and biological components, such as water, soil, plants, animals and nutrients and the interactions between them.

**Wise use of wetlands means the use of wetland resources in a manner that will ensure that the rate of recovery is faster than that of harvest so that not only do we benefit but also the future generations**

Despite the importance of wetlands and the fact that in some countries they are held in trust for the common good, it does not mean that they should not be used. On the contrary, wetlands should be actively and properly (wisely) managed to help sustain the people and the economies of the Nile basin countries.

Wise use of wetlands would result in our wetlands functioning well and in supporting our development goals. This means the countries of the Nile basin would have fulfilled their international obligations on wetlands. It also implies that most of the wetland issues would be prioritized in the national development plans of the Nile basin countries.

### **ACTIVITY**

Think for a moment about the wetlands in your area and your practices/ activities and those of your.

- List down those activities that can be grouped under “wise use of wetlands “ and those that “threaten wetlands”
- Prepare a talk to your community members on the reasons for the wise use of wetlands.
- In groups, discuss why it is difficult to ensure wise use of wetlands in

## **ACTIVITY**

Examine the picture below (Picture 4) and describe some of the activities that can destroy the wetland.

- Which of these activities are taking place within your own community?
- Which other activities are taking place other than those shown in the picture that is destroying wetlands in your area?
- Suggest ways of preventing these destructive activities your community aware of the dangers of destroying wetlands
- Prepare a list of the benefits and dangers of draining wetlands.

## ***Unit Summary***

In this Unit we have;

- Defined the term wetland
- Explained how wetlands are formed
- Given examples of wetlands in the Nile basin region
- Explained their roles, values and uses
- Critically analyzed the rationale for wetland valuation
- Evaluated the major threats to wetlands and their impacts in the Nile basin region

In this unit, you have successfully learnt about what wetlands are and their roles and benefits to us. You now know that wetlands are areas which are permanently or seasonally covered with water and which have unique plants and animals that are specially adapted to these conditions. As we stated earlier, there are many types of wetlands and their classification will depend on the criteria used.

Wetlands are extremely valuable to society. Wetlands can decrease flooding, remove pollutants from water, recharge ground water, protect shorelines, provide habitat for wildlife, and serve important recreational and cultural functions. If wetlands are lost, the cost of replacing them can be extremely expensive, if at all possible. It is therefore important to ensure that they are conserved.

Wetland economic valuation can be defined as the attempt to assign quantitative values to the goods and services provided by wetland resources, whether or not market prices are available to assist us. However, such a definition goes only part way. We must be more specific about what economists mean by the term *value*. The economic value of any good or service is generally measured in terms of what we are willing to pay for the commodity, less what it costs to supply it. Where a wetland resource simply exists and provides us with products and services at no cost, then it is our *willingness to pay* alone which describes the value of the resource in providing such commodities, whether or not we actually make any payment. This is the principle basis of wetland evaluation.

The need for economic valuation of wetlands impacts and assets arises for pursuing efficient policies and investing in efficient projects and programmes. At the most general level of intergenerational concern, valuation is still required for wise use and conservation considerations. There are many activities which can lead to wetland destruction such as infilling as when we construct roads or buildings, drainage for agricultural land and over exploitation of products. Degraded wetlands are not able to perform the various roles effectively and will not supply products that we can use to alleviate poverty.

## STUDY QUESTIONS

- What are wetlands?
- Describe how wetlands are formed.
- In which way can wetlands be source of wealth for your community?
- In the past, wetlands were regarded as wastelands. Why is this inaccurate perception?
- Discuss the likely consequences of wetland degradation to the communities in your country

### *Important points to remember*

- Wetlands are important because they provide services and products that are important to us. Wetlands support the livelihoods of many people in the region
- Our actions can lead to the destruction of wetlands.
- Wetlands are a common good in many parts of the Nile basin and as such communities have a responsibility towards their conservation.

## ACTIVITY

- In groups, discuss and draw up plan of how your community can wisely use the wetland for the benefit of the currently populations but also future generations
- Discuss the various approaches/ strategies that you will awareness of the importance of wetlands to you community, particularly the youth.

### *Further reading*

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## UNIT 2: WETLAND MANAGEMENT PLANNING

### *Introduction*

Having looked at wetlands and their roles and functions in the development of our communities, this module will now focus on our roles in their conservation and management. In this module, we will focus on the roles and responsibilities of various people within the community in the management of our precious wetlands, conflict resolution, and the implementation of management interventions.

This clarification of roles and responsibilities should bring our talents or skills together to ensure effective wetland management. It will also reduce the tendency for members of our communities to leave the care of our wetlands to other people, particularly extension workers. This is particularly true when it becomes evident to us that most wetlands are interconnected and may be shared by different administrative units or even countries.

### **Here are some questions to keep in mind as you go through this unit/ module:**

- What do we understand by “stakeholders in wetlands management?”
- Can you name the different categories of stakeholders in your area/country?
- As a member of the community, what are your roles and responsibilities in wetland management?
- Give an example of a wetland that is shared between two countries in the Nile basin region.

### **Specific learning outcomes**

By the end of this module, you should be able to:

- Explain the meaning of the concept “wetland management planning”
- Explain why it is important for the different stakeholders to use wetlands wisely
- Give the roles and responsibilities of various actors within the community in the conservation and management of wetlands
- Apply various interventions in order to effectively conserve and manage wetlands in your area.

### **Main Concepts**

- There are many categories of stakeholders involved in wetland management

- Wetlands should be wisely used to ensure their continued contribution to this and future generations (sustainable development)
- When we all know our roles and responsibilities within the community, there will be effective wetlands management
- There are a number of management interventions that are available to us

### ***Wetland management planning***

A wetland management plan outlines the direction and actions which are required to ensure wetlands remain health. Therefore a management plan helps in achievement of objectives, while protecting the benefits that wetlands bring. Wetlands function as integral parts of the general landscape. Understanding how wetlands work is essential to the process of developing a wetland management plan. Most actions taken to protect wetlands involve both the wetland and adjacent wetland areas. Management of the adjacent areas reduces negative effects of land use practices on wetlands.

There are four basic steps involved in preparing a wetland plan

- Inventory and assessment of wetland resources
- Define values, goals and objectives
- Implement a course of action that will protect wetlands and meet objectives
- Monitor the effectiveness of your actions

### **Wetland inventory**

Wetland management planning involves taking decisions about the wetlands in consideration. Descriptions and documentation of the wetland characteristics is important. This inventory should include the extent and type of wetland, its condition/health and also the condition/health of the surrounding areas. Information on aspects such as; number of wetlands in the area, total area of the wetlands, how many of these are temporary, seasonal or permanent, are these wetlands part of a main water body or isolated; is important.



### *The condition/health of the wetland*

This refers to ability of the wetland to perform its functions. The assessment of the condition/health can be based on physical, hydrological and vegetative factors. The vegetative factor (types of species of plants) provides the greatest insight into the condition of wetlands. The wetland condition can be assessed by looking at either a representative area of the wetland or a critical area.

### **Examples of indicators used assessing wetland conditions**

- How much ground is covered by vegetation? If less than 85% determine why?
- How much of the shoreline is protected by vegetation with deep binding root mass? Plant species in the category of woody vegetation, bulrushes and sedges have good root systems. If 85% of the shoreline is covered by these species, it is a good indication.
- How much soil in the wetland is exposed due to human disturbance or land use practices? More than 5% is problematic.
- Are there any invasive species or noxious weed?
- Are undesirable plants dominant in the vegetation?
- Is there a diversity of sizes and species of trees and shrubs? The roots of trees and shrubs hold soil together and prevent erosion. It is also important to note the presence of young plants as they replace older ones.
- Is the woody vegetation heavily browsed? If there is high browsing, regeneration of shrubs may be impaired.
- It is equally important to look at the surrounding areas of the wetland. Information to answer questions such; are the surrounding areas cultivated or grazed? What is the size of the individual fields, Are wetlands used for grazing? Has drainage affected wetland water supply?

- In case the surrounding areas are cultivated; how close does cultivation come to the wetland? If grazed, are the pastures native or artificial? Is grazing pressure uniformly distributed? Do stocking rates much foraging ability?

*Wildlife habitat*

What kind of birds and animals are commonly present?

Checklist for the wetland condition

Attribute	Score (%)
Plant cover of wetland attribute	
Shoreline with deep binding root mass	
Exposed soil the wetland margin	
Invasive species	
Undesirable species	
Diversity of shrubs/trees	
Browse on woody vegetation	
Dead or decadent woody vegetation	
Artificial control of water	

**Defining values or goals**

Clearly stating what you value the wetland for and what your objectives are is vital to the development of a wetland management plan. Values and objectives are useful in setting realistic management goals. The goals relate to information from assessment of the wetland and the surrounding areas. The goals provide a sense of direction, guide the actions needed and are a basis for measuring success. There are varying reasons for conserving and protecting wetlands. The common ones include; livestock forage, wildlife habitat, erosion control, recreation opportunities and water source among others. However, due to limited time and resources, priorities need to be set so that so values and objectives are split into short and long term.

### **Implement a course of action that will protect the wetland**

A majority of wetlands exist as agricultural landscapes and most management plans tend to reflect this. The information collected during inventory and set objectives helps in deciding upon the best set of land use management practices for a given wetland. Management considerations for land use activities include grazing and wetlands, cultivation and wetlands and wetland drainage. Managing wetlands for grazing requires that the wetland plant communities are grazed in a controlled manner. These include considerations such as timing, intensity, and frequency of grazing. Also important is the stocking rate, fallow period and rotation among others.

### **Monitor the effectiveness of your actions**

This is a continuous process after the management plan has been implemented so as to assess the effectiveness. It is necessary to revisit the assessment of the wetland to check for change in condition of the wetland or any evidence that change is taking place. This can give an indication of the effectiveness or success of the plan. Continued periodic evaluation ensures that actions have desired effects and wetlands remain healthy.

### ***Stakeholder involvement in wetland conservation***

The principle of wise use integrates the conservation of wetlands with sustainable use for the health and well-being of people through an integrated management approach. This is achieved through facilitation of equitable and effective participation of all stakeholders (government, local communities, NGOS, private sector and academicians) in decision making about how resources of wetlands can be managed.

The goal of ensuring that wetland resources are utilized for the benefit of all the people will depend on the voluntary support of the local people and that willingness to implement appropriate regulations. The extension staff and law enforcement officers can not enforce good wetland practices all over the region and without the support of the local people. In order to increase community support may be obtained by;

- Making people to see and receive the immediate and long term benefits of wise management of wetlands.

- Increasing their levels of awareness and cultivating positive values and attitudes towards wetlands.
- Making people to effectively participate in designing and monitoring strategies that will ensure wise management of wetlands.

### **ACTIVITY**

- Think for a moment of other ways in which support for the conservation of wetlands can be increased in our community.
- Which factors have tended to erode the willingness and support of the local people in the conservation of wetlands in your area

### ***Stakeholder identification and analysis***

The management and conservation of wetlands involves many people and organizations. These collectively are what are known as stakeholders. When the stakeholders are clear about their roles, it will become easier to monitor and evaluate their activities in the conservation and management of the wetlands. The following are key stakeholders in the conservation and management of wetlands:

- The general community
- Resource User groups
- Community leaders
- Extension staff
- Administrative leaders
- Non governmental organizations/community based organization
- Government agencies
- The Nile basin initiative

Very often there are conflicts in the use of wetland resources by the different stakeholders. As members of the community, it is your responsibility to ensure that for the different categories of stakeholders, their needs are identified and met. However, these needs could cause conflicts between the different stakeholders. For example, some farmers may need the wetland for cultivation while pastoralist may need for the provision of water. The same wetland may still provide some members of the community with materials for basketry. In order to ensure that wetlands are utilized wisely, all the needs of different stakeholders should be taken care of and conflicts resolved. The following are steps that should be taken to resolve a conflict:

- Identify and define the conflict as a community
- Formulate alternative interventions as a community
- Evaluate the various interventions for effectiveness in terms of feasibility and sustainability
- Put forward a resolution and implement it
- Monitor and evaluate the implementation of the resolution
- Reconvene to plan for alternative intervention where necessary

The resolution of conflicts requires the full participation of all the stakeholders and local leadership that is seen to be fair to all. Participation is encouraged when there is a general feeling that it will benefit participants. The use of participatory approaches is crucial here. Participatory approaches are characterized by the following:

- Bottom-up rather than the traditional top-down focus i.e. the decisions to be taken by the leaders are derived from the views of the members
- It involves building a consensus on whatever decisions one arrives at
- The people or participants feel empowered to take decisions
- It takes into consideration indigenous knowledge and technology, and is sustainable

There are various forms of participation. The members of the community may have varying roles in the management of the wetland. For instance, some may mobilize the community members for meetings, while others may provide leadership. Participation levels can be classified in a number of other different ways. One of the suggestions is given below:

It may be:

- Nominal i.e. there is almost no participation of the people as their leaders simply inform them what to do about wetlands issues
- Moderately interactive in which the level of participation by the majority of the community members is fairer than in nominal participation
- Interactive participation in which the decision-making process is driven by the majority of the community members.

### ***Roles and responsibilities of various stake holders in the conservation and management of wetlands***

#### **A. The roles of the local communities**

Members of local communities particularly those living near wetlands have an obligation to play an important role in the conservation and management of wetlands. To the communities living adjacent to wetlands, wetlands are an integral part of their lives for they provide the people with fish, water and other materials that are needed almost daily. As the main users and beneficiaries of the wetland, the community can play the following roles;

- (i) Help ensure wise use of wetlands so as to minimize wetland abuse.
- (ii) Help strengthen the management of wetlands by providing the necessary information on wetland characteristics or features.
- (iii) Help the relevant people to map the boundaries of the wetland
- (iv) Develop wetland management plans with the help of the relevant agencies or NGOs and to prioritize things which need urgent attention
- (v) To be vigilant and to act as watchdogs to report people who break the laws on wetlands. They should also take interest in the changes occurring in the wetland particularly if they threaten the lives of the people.
- (vi) Influence the local administrators to make byelaws that will strengthen the conservation and management of wetlands. However, one of the challenges is the inability of the local people to interpret laws relating to wetlands.

**B. The roles of community leaders**

The leaders within the community should play the following roles;

- (i) To help in the formulation of byelaws on wetland conservation and management.
- (ii) To convene meetings of the local community on wetland issues and concerns so as to seek a collective solution.
- (iii) To link communities with the extension staff or other government or non government agencies for effective management of wetlands.
- (iv) To interpret wetland laws and policies to the local people or to invite appropriate resource persons to do so.
- (v) Where possible, to collect and properly utilize funds that may be obtained for use by communities to assist them to conserve wetlands
- (vi) To initiate wetland awareness meetings among the local communities.

**C. The roles of resource user groups**

The resource user groups should play the following roles;

- (i) To ensure proper use of wetland resources.
- (ii) To convene meetings of the resource user group on wetland issues and concerns so as to seek a collective solution.
- (iii) To link up with the extension staff or other government or non government agencies for effective management of wetlands.
- (iv) Where possible, to collect and properly utilize funds that may be obtained from the user groups to assist them in their livelihoods and to conserve wetlands
- (v) To initiate wetland awareness meetings among the local communities.

**D. The roles of extension staff**

Extension staff is the technical group of people who are well qualified to implement wetland management policies. Some of their key responsibilities include;

- (i) Draw up wetland management plans for implementation by the various stakeholders.
- (ii) To conduct wetland awareness activities on various issues including the dissemination of information about wetlands.

- (iii) Carryout wetland inventories
- (iv) Helping to carry out environmental impact assessment (EIA) before a major activity is done on a wetland.
- (v) Helping to train community leaders or members of the local community to manage and conserve wetlands.
- (vi) Helping to establish community based wetland management structures
- (vii) Monitoring and evaluating wetland related activities.

**E. Roles of administrative leaders**

Administrative leaders may include heads of district or provinces, regions or other units as defined in the individual countries within the Nile basin region. Administrative leaders can play the following roles;

- Assist in the formulation of byelaws which apply to the specific administrative units.
- Prioritizing wetland issues in the administrative units.
- Facilitating and participating in the formulation of unit wetland management plans.
- Coordinating some activities on wetlands
- Raising funds to facilitate the implementation of unit work plans outside the country, such as among donors.

**F. Roles of NGOs / CBOs**

NGOs can supply both technical and financial assistance in wetland management at many levels.

- **Drawing up management plans**  
NGOs usually have technical staff, and can therefore facilitate and participate in drawing up wetland management plans.
- **Finance**



Sometimes NGOs do not have enough staff to implement activities but they can still help by, for example, financing reputable organizations and firms to carry out wetland conservation and management activities.

- **Awareness and training activities**

The need for training and awareness information is great and can not be accomplished by the ministry of NWP alone. NGOs tend to be close to the community. They are also often well equipped with facilities and technical staff. They therefore can play an important part in training and awareness.

Most NGOs have grassroots representative and enjoy the good will of the local people. They command respect, and their messages are taken seriously. NGOs can therefore facilitate awareness campaigns like radio and TV talk shows and demonstrations on wise use practices.

- **Providing wetland management materials**

NGOs can often produce publish and distribute wetland management and conservation materials for the communities they serve. These may be posters, leaflets, booklets, etc.

- **Supporting the establishment of wetland management structures**

Many NGOs have an organized structure with different levels of responsibility and activity. These can be reference points for communities and government in choosing the best structure for wetland management and conservation. Because they are experienced in management structures, they can also give useful advice on management of a particular wetland.

- **Monitoring and evaluating**

When NGOs participate in projects on sustainable use and management of wetlands, they need to monitor and evaluate how resources are spent. This establishes what has been achieved and identifies areas for further input.

## **G. Roles of the private sector**

The private sector can supply both technical and financial assistance in wetland management at many levels.

- **Drawing up management plans**

The private sector can facilitate and participate in drawing up wetland management plans.

- **Finance**

The sector can finance the implementation of wetland management and conservation activities. The idea of a corporate image is now common among members of the private sector

- **Awareness and training activities**

Some awareness and training activities could be funded by the private sector through awareness campaigns like radio and TV talk shows and demonstrations on wise use practices.

- **Providing wetland management materials**

Like the NGOs, the private sector can produce, publish and distribute wetland management and conservation materials for use by the various stakeholder.

- **Monitoring and evaluating**

The sector can participate in projects on sustainable use and management of wetlands, they need to monitor and evaluate how resources are spent.

## **H. The role of government wetland conservation and management agencies**

The government wetland programmes in the region require increasing support at all levels, including from local administration units, non governmental institutions, communities and individuals for the realization of their objectives. The government agencies can play the following roles:

- Ensuring that wetlands remain high on the government agenda and that any developments in wetlands are related to national goals and objectives.
- The recognition that wetland management requires local, national and even international cooperation. Most wetlands cross or divide two, three or more local administrative units or countries. The cross-boundary situation is worsened by the fact that many local and national boundaries follow the centerline of wetland water courses.
- Analysis and dissemination of research data.
- Formulate policies, laws, regulations and guidelines that relate to the objectives of wetland management.
- Development of clear wetland management criteria for classifying wetlands according to their suitability for specific users with or without modification.
- Wetland management guidelines and techniques based on the assessment of the wetland stock at local and national level and its potentials for use. These should be regularly updated from research data.
- Conducting training, information and awareness campaigns to keep managers, potentials users, developers and the public up to date and able to manage wetlands according to the latest information.
- Providing overall support, implementation of international agreements relating to wetlands.
- Developing an effective system for cross border wetland management within the Nile basin area.

**I. The role of the wetland and biodiversity conservation component of the Nile Tran boundary action project (NTEAP)**

The Nile basin initiative (NBI) is a partnership of riparian states of the Nile, Burundi, Democratic republic of Congo, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, and Uganda. The NBI's shared vision is to "achieve sustainable socioeconomic development through the equitable utilization of and benefit from the common Nile basin water resources".

The Nile Trans boundary environmental action project (NTEAP) is one of the eight projects under the Nile basin initiatives (NBI) whose aim is to provide a strategic environmental framework for the river basin. One of the ways NTEAP meets its objectives is by conducting studies that improve the understanding of the relationship between water resources development and the environment so as to enhance basin wide cooperation and capacities for better environmental management of Nile basin resources.

The wetland and biodiversity conservation component of the Nile Trans boundary action project (NTEAP) is aimed at enhancing the understanding of wetlands function in sustainable development and to demonstrate an improved management at selected Trans-boundary wetlands sites. The component builds on nationally focused wetland conservation and management initiatives within the Nile basin and uses the network of existing centers of knowledge and experience to provide a trans-boundary overlay of set perspectives to complement national wetlands conservation programmes.

In the tables below, you will clearly see the focus of the various stakeholders in wetland management displayed as cards.

Stakeholder cards

<b>Central Government</b>	<b>National Investment authority</b>	<b>Investors</b>
<p>The municipality has little industrial development and wants to expand its industrial base. The local municipal council is firmly behind the development. There is an economic recession taking place, so the municipality needs to attract new development. Local mayors in the regional municipality are opposed to the establishment of a greenbelt around the area since this would limit development in their jurisdictions.</p>	<p>Its purpose is to attract new business and industry to the area and help maintain the economic health of the region. It has already attracted several new businesses to develop at the proposed business park. They have put lots of work and economic resources into planning this project and don't want to start from square one again. They consider the land swap proposed by the region to be a poor solution since it will set the project back too far to replan on another site. They claim the business park can still be built while preserving part of the wetland and it will also create green space in the form of recreational areas around the new office buildings.</p>	<p>They want development to continue and are interested in creating an environmentally attractive community but are not especially concerned with the ecological level of preserving habitats and species and creating a green buffer zone. They support the business park development but are not adamant about maintaining it on the current proposed site.</p>

<p><b>Regional Government</b></p> <p>Regional government is interested in 'greening' the region and designating special ecological areas for protection, such as a greenbelt in the official regional plan. They have instituted a planning process to identify these special areas, but the process is not completed. Sympathetic to protecting the wetland, the region is offering a 'solution' in the form of a land swap of some of its own less ecologically sensitive land in the affected municipality.</p>	<p><b>Local Environmental Organization</b></p> <p>Interested in saving green spaces and special natural areas. They are opposed to the business park development and want the entire wetland to be protected within a greenbelt around the region. They also want an immediate moratorium on development generally. The group is involved at the regional level and has good experience and expertise in this process. The organization is supported by 1 000 which includes several ecological scientists and environmental experts.</p>
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<p><b>Local Conservation Authority</b></p> <p>Its mandate is to improve and maintain the environmental health of watersheds. They want to see the whole wetland protected with a buffer zone around it. REDCO and the municipality want the Conservation Authority to de-list this wetland from their proposed protected list. The Conservation Authority is not prepared to de-list it but might be persuaded to protect less of it. They have an “open mind”.</p>	<p><b>Local Community Groups</b></p> <p>Their concerns are basic — controlling pollution in the water and air, having good and well-maintained infrastructures and keeping taxes down. Their environmental concerns are at the level of recycling programmes and water filtration and sewage treatment. The members have different concerns. This community organization has been involved in many similar issues and is an old hand at regional politics and the planning process. They are very confident.</p>
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### ***Principles of Wetlands Management***

Wetland management is based on aims and guiding principles, which are normally drawn from the broad aims and broad objectives of this undertaking.

The overall aim for promoting the conservation of wetlands is to sustain their ecological and socio – economic functions for the present and future well being of the people. In support of this aim, governments in the region should strive to achieve the following goals;

- Establish principles by which wetland resources can be optimally used, and ensure that their productivity is maintained,
- End existing unsustainable exploitative practices,
- Maintain a biological diversity either in the natural community of plants and animals or in the diverse agricultural activities.

- Promote the integration of wetland functions in economic development programs such as forestry, agriculture, fisheries, wildlife and aim at sound environment management

To achieve the above goals, three guiding principles are advised to individual governments:

- a) The conservation of wetlands must consider the overall development strategies and activities.
- b) Wetland conservation must adopt a coordinated and cooperative approach involving all the concerned people and organizations in the country, including the local communities.
- c) The present attitudes and perceptions of the people in the Nile Basin regarding wetland needs to be change.

### ***Management Approaches***

A brief overview on the common wetland management approaches are outlined below.

#### **1. Drainage of wetlands**

In instances where drainage has occurred on a large scale due to pumping, excavation of water channels and perhaps combined with excessive growing of trees and or building dams upstream of a wetland, such modifications should be avoided. Government requires that some wetlands which have already been drained should be allowed to regenerate.

#### **2. Environmental sound management.**

Sometimes, the management of a natural resource may be debatable in line with whether its use causes adverse effects on the environment or not. A typical example is the production of bricks from clay soils. This may lead to deforestation around the brick – making kilns (areas) since they may cut the trees to burn the brick. However, the smoking of fish using papyrus (which could sustainably be harvested) may be environmentally sound and can reduce the exploitation of fuel wood supplies in the area. In such scenarios, since most users of wetland resources do not take into account other aspects of the environment, only those uses that have been proved to be non – destructive to

wetlands and their surroundings are encouraged. These include water supply, fisheries, wetland edge gardens and grazing.

### **3. Sustainable use of wetlands.**

Sustainable use of wetland is understood as utilization which ensures that the products or services derived from that use are available at some foreseeable future. For example, yields from fishing or harvesting of papyrus, should be set at a level that can be maintained for the foreseeable future. To achieve that, wetlands need to be utilized in such a way that they do not lose traditional benefits and one's decision to use wetlands must consider the requirements of all other users in the community.

### **4. Conservation of wetlands**

Wetlands are important habitats for a variety of biological resources, some of which depend entirely on wetlands for their survival. Their conservation would preserve indigenous species of plants and an animal is essential for the future biodiversity. Many attributes of wetlands remain to be discovered earning them ecological importance. For many of the Nile basin countries, internationally recognized wetlands have been established. Other important wetlands outside those that are internationally recognized also need to be protected. For that to happen, fully "protected wet land areas" of important biological diversity, should be established. Also, some wetlands may be for partially exploited and used for research. Protected wetlands should be left in their natural state without any disturbance from humans.

### **5. Water supply and effluent treatment**

Any wetland serving as a source of water supply or receiving effluent as part of a designated service to any human settlement should be declared a fully protected wetland from encroachment, drainage or modification.

### **6. Tenure and use**

Many wetlands in the Nile basin region belong to the public but contrary to what might be expected from this ownership status, some of them have been leased. Government consequently loses control of any protective or conservatory requirements. All wetlands

therefore should be taken as public resources and should not be leased to individuals or organization except under certain circumstances.

Communal use should be permitted only once the environmental conservation and sustainable principles and strategies are adhered to. The communal use may be terminated by the government if it is found that the laws governing the use of wetlands are violated.

All future land tenure documents including maps and layouts should indicate whether the area contains a wetland and accordingly exclude these wetlands from tenure. The layout should be advertised in the local authority where land is to be given out for a specified period.

#### **7. Environmental impact assessment (EIA) and monitoring**

Development activities in general tend to impact upon natural resources and environment in various ways. Assessment and evaluation of such impacts helps to minimize the economic and social costs preventing damage before occurrence as compared to restoring a degraded wetland. In view of this, all planned new wetland development will be subjected to an EIA process to determine the required environmental controls and be monitored regularly there after to assess their impact.

#### **8. Developing public awareness**

Very often wetlands are degraded because the public does not appreciate the diversity of values and functions of wetlands. Public awareness is therefore essential in creating a commitment and positive attitude towards conservation and sustainable utilization of wetland resources. Public awareness campaigns on wetlands resources in co – operation with other natural resources sectors should be carried out at local and national levels. Such media as leaflets, posters, radio, and television could be employed and all should give guidelines for wetlands developers.



## **Trans-boundary cooperation**

Many challenges have to be surmounted before being able to successfully establish trans-boundary co-operation. These challenges are due to a number of factors such as;

- Differences in legislation
- Differences in policy goals
- Political differences
- Differences in governing structures
- Lack of knowledge of each others language
- Lack of financial resources
- Social and cultural differences
- Lack of structural agreements on the implementation of trans-boundary co-operation

In most cases, cooperation begins informally, with private contacts between wetland managers on both sides of the border, based on a common interest in the sustainable management and/or protection of the area concerned.

However, to formalize a trans-boundary cooperation agreement, governmental level support is required. Due to the difficulties mentioned above, this can be a time consuming and sometimes frustrating process, which may include set backs in what has been achieved. Managers, scientists and planners concerned with trans-boundary wetlands must be encouraged to cooperate directly with their colleagues across the border as a bottom-up approach appears to be the best guarantee for successful trans-boundary cooperation. International workshops, exchange programmes, conferences and training courses provide excellent opportunities for initiating cooperation.

## **Financing trans-boundary wetland management**

Trans-boundary cooperation is not only important because of the protection of biodiversity values, but is also required to establish political stability. However, financial mechanisms support projects aiming to enhance trans-boundary wetland management may be a challenge.

Cooperation on the development and implementation of joint projects on integrated trans-boundary wetland management, including the establishment of a trans-boundary wetland monitoring network would be a good gesture.

The Nile is the longest river in the world, combining the Blue Nile that rises in the highlands of Ethiopia, and the White Nile, which rises in the Equatorial Great Lakes region of East and Central Africa. The 3.2 million sq kilometers of the river basin contains all or part of the territory of ten countries - Burundi, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda, totaling at least 140 million people. Countries upstream are well watered while many of those downstream remain arid and heavily dependent on the Nile, a situation which has led to conflict over centuries. Accords signed by Britain and Italy in 1929 and 1959, respectively, awarded control of the Nile Waters to Egypt alone, creating conflict with countries which insist on being involved in the management of the waters of the Nile. In 1992, the Council of Ministers from the Nile Basin countries began an initiative to promote co-operation and development.

The **Nile Basin Initiative** was established in February 1999 to bring together governments of the ten riparian states in order to prepare coordinated development projects to benefit the poor, involving water, energy and agriculture. IUCN, WWF and World Bank hosted a workshop to investigate the establishment of an International Discourse on the Nile, held at the IUCN Headquarters in Gland, Switzerland. The idea was to involve civil society in planning and development in order to ensure that the developments coincide with the wishes of the Nile Basin peoples. Subsequent meetings underscored the need for the international discourse to continue for several years.

International Discourse on the Nile River Basin is designed to promote broad based dialogue, and sharing of views on development in the Nile River Basin. This occurs mainly through the Nile Basin Initiative with a wide ranged of national, regional and international levels. The discourse covers a broad range of themes including poverty alleviation, conflict resolution, the environment and development.

### ***Unit summary***

In this unit, you have reviewed the concept of wetland stakeholders and established how to carry out stakeholder identification and to resolve conflicts. You have also successfully clarified the roles of the different stakeholders in wetland conservation and management.

Key stakeholders that were identified for wetland management and conservation include local communities, extension staff, local leaders, administrative leaders, NGOs/CBOs, Government agencies and the Nile Basin Initiative. The important lesson we have learnt is that all stakeholders need to play their roles actively in order to ensure effective management and conservation of wetlands. However, participation of communities in the management and conservation of wetlands depends on many factors including use of participatory approaches, empowerment levels and the perceived benefits of participation.

### ***Important points to remember***

- Wise use of wetlands is important in ensuring sustainable development.
- The main stakeholders in wetland management are local communities, extension staff, local leaders, administrative leaders, NGOs/CBOs, Government agencies and the Nile Basin Initiative.
- Key stakeholders in the conservation and management of wetlands have various roles
- The Nile Basin Initiative is an important intervention in the management of the Nile basin waters, including its wetlands

### **ACTIVITY**

- In groups, discuss and draw up plan of how your community can wisely use the wetland for the benefit of the currently populations but also future generations
- Discuss the roles of various stakeholders in the conservation and management of wetlands.
- What factors have influenced the level of participation of the various stakeholders in the conservation and management of wetlands?

### ***Further reading***

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- Stuart, N.S., Adams, R.J. and Jenkins, M.D. 1990. Biodiversity in Sub Saharan Africa and its Islands: Conservation, Management and Sustainable Strategy Programme. Occasional Paper of the IUCN Species Survival Commission No.6.

## **UNIT 3: GUIDELINES AND REGULATIONS ON COMMUNITY USE OF WETLANDS**

### ***Introduction***

This is yet another exciting unit which you should become familiar with. This Unit covers what the Ramsar convention on wetlands is, why countries join the Ramsar convention, what commitments are expected of contracting parties joining the convention and the Ramsar concept of wise use of wetlands. It also looks at the meaning of a policy, the benefit of having a policy and how a national wetland policy can assist governments. As a policy maker it is important for you know the legislation governing wetlands and what is involved in enforcement of the policy.

It will become clear that wetland use needs to be regulated if they are to provide various products and to continue playing their vital roles and functions. As a member of the community, it is important for you to appreciate the importance of the various regulatory policies which guide the management of our wetlands so that your actions and those of other people do not destroy our wetlands.

### **Here are a few questions to keep in mind as you read this unit:**

- Explain what is meant by the Ramsar Convention.
- Give examples of policies that guide wetland conservation and management in your country?
- Explain the role of policies in wetlands management
- Give examples of wetland resource user guidelines and their importance in your country
- Give examples of Indigenous Technical Knowledge and its application to wetlands management

### **Learning outcomes**

By the end of this unit, you should be able to:

- Explain What is meant by the Ramsar Convention
- Give examples of policies that regulate wetland conservation and management
- Explain the roles and benefits of wetland resource user guidelines
- Give examples of ITK that can be used in the management of wetlands
- Identify threats to wetlands in your area and design strategies to solve them

**Main concepts**

- The Ramsar Convention is an important agreement for the management and conservation of wetlands of international importance
- Wetland policies at local, national, regional and international levels help in the management and conservation of wetlands
- ITK is an important tool in the management and conservation of wetlands

***What is the Ramsar Convention on Wetlands?***

The convention on wetlands is an intergovernmental treaty adopted on 2<sup>nd</sup> February 1971 in the Iranian city of Ramsar on the southern shore of the Caspian Sea. It is the first modern global intergovernmental treaties on conservation and wise use of natural resource. Over the years the convention has broadened its scope from Waterfowl Habitat to cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well being of human communities

The convention entered into force in 1975 and as of August 2006, 1,610 Wetlands of International Importance, totaling 145.2 million hectares, have been designated and consisting of 152 contracting parties. The administration of the convention is entrusted to a secretariat called the “Ramsar Bureau” which is housed in the headquarters of IUCN- The world conservation Union in Gland, Switzerland.

**Why do countries join Ramsar convention?**

Membership in the Ramsar convention attracts:

- Endorsement of the principles the convention represents hence facilitating the development of national level of policies and actions, including legislation that helps nations make best use of their wetland resource.
- Presents opportunity for a country to make its voice heard in the principle intergovernmental forum on the conservation and wise use of wetlands.
- Bring access to the latest information and advice on application of the conventions internationally accepted standards for instance identifying wetlands of international

importance, guidelines on application of the wise use concept and guidelines on management planning in wetlands.

- Bring increased publicity and prestige for wetlands designated for the list of wetlands of international importance hence possibility of support for conservation and wise use measures.
- Brings access to expert advice on national and site related problems of wetland management and conservation through contacts with Ramsar Bureau personnel and consultants.
- Encourages international co-operation on wetland issues and brings the possibility of support for wetland projects through the conventions small grants fund and other support agencies

### **What are the commitments of parties joining the Ramsar Convention?**

The treaty involves four main commitments

#### 1. listed sites

The first obligation is to designate at least one wetland for inclusion on the list of wetlands of international importance and to promote its conservation and wise use. Selection of the wetland should be based on the wetlands significance in terms of ecology/ Botany, Zoology, Limnology or Hydrology. Guidelines for site identification are already in place.

#### 2. wise use

Include wetland conservation considerations in their national land use planning. Guidelines on how to achieve wise use have been approved by the conference of contracting parties.

#### 3. reserves and training

Establish nature reserves in wetlands and promote training in the fields of wetland research, management, and wardening.

#### 4. international co-operation

Consult with other contracting parties about implementation of the convention especially concerning transfrontier wetlands, shared water systems and shared species

#### **Unit Activity 1**

- *Briefly give an overview of the Ramsar convention, stating clearly its mission and objectives.*
- *With reference to any country in the Nile basin region, find out the extent to which the Ramsar convention has been implemented.*
- *Which countries in the Nile basin region have not ratified the convention and what reasons do they give for not doing so.*

### ***Overview of the implementation of the Convention in Africa***

The achievements and major challenges towards the implementation of the convention in the Nile basin region and Africa at large are as follows;

#### **Achievements**

The major achievements of the convention include the following;

- Increased membership and increased Ramsar site designations, confirmed or in the process
- Development of national wetland policies and strategies, finalized or in the process
- Development and implementation of management plans, already in place or being prepared
- Establishment of coordination mechanisms at national level, including National Ramsar/Wetlands Committees
- Progress in capacity building in some countries
- Most countries have designated more than one Ramsar Site since the last COP.
- Most countries are in the processes of developing or reviewing wetland policies and legislation. For example, South Africa is preparing specific legislation to enable full



Ramsar implementation, including designation of Ramsar sites that are not protected areas.

- Most countries have National Ramsar/Wetlands Committees and others are in the process of having one, for example, Kenya is considering establishing a broader Kenya Wetlands Forum.
- Most countries have developed or are in the process of developing management plans for their Ramsar sites.
- For those countries with environmental legislation, Environmental Impact Assessment (EIA) has been incorporated in the legislation.
- Previous efforts in designation of Ramsar Sites have been directed at designating protected areas, as observed in Kenya, South Africa and Zambia. However, a focus to designating unprotected wetlands as Ramsar sites is gaining momentum.
- Most countries are in the process of or are planning to undertake inventories.
- Most countries are involving local communities at the lowest appropriate level and other sectors in wetlands conservation and management through formation of management committees.

## **Challenges**

The main challenges still prevailing include:

- Accession to the Convention of the remaining countries in the sub-region
- Need for further policy development and implementation
- Adoption of legislative frameworks to allow full implementation of the Convention
- Communication within the region
- Conflicting sectoral policies
- Better knowledge of wetland values
- Further increasing the profile of the Convention to ensure more political support for wetland conservation and wise use.
- The need to mainstream wetland issues.
- To put policies into practice and to effectively enforce environmental legislation.

- Cross-sectoral cooperation in implementing the wise use principle.
- How to balance development activities and wise use.
- How to enhance local communities' livelihoods as an incentive to wetlands management.

### **Way forward**

- The need to have an overall legislation for management of wetlands in the region.
- The need to emphasize stakeholder's involvement in wetland management, in particular the local communities and the private sector, including using incentives to do so.
- The need to build capacity in terms of training and funding for wetland management.
- The need to reinforce education and public awareness in wetland management.
- The need to harmonize existing policies and legislations
- The huge costs of combating alien invasive species in wetlands constitute a high priority to address.
- Legal status of the Convention and Ramsar Sites in Contracting Parties: need for specific enabling legislation for the implementation of the Ramsar Convention.

### **Unit Activity 1**

- *Briefly give an overview of the Ramsar convention, stating clearly its mission and objectives.*
- *With reference to any country in the Nile basin region, find out the extent to which the Ramsar convention has been implemented.*
- *Which countries in the Nile basin region have not ratified the convention and what reasons do they give for not doing so.*

### ***Wetlands of international importance***

The Ramsar convention requires contracting parties to designate at least one wetland of international importance. Some criteria have been put in place for identifying these wetlands.

Article 2.2 of the convention provides that;

*“Wetlands should be selected for the List on account of their international significance in terms of ecology, botany, zoology, limnology or hydrology” and indicates that “in the first instance, wetlands of international importance to waterfowl at any season should be included”.*

The process of adopting specific criteria for the identification of internationally important wetlands began in 1974, but the first official Criteria were agreed at COP1 in 1980. In 1987 and 1990, the Conference of the Parties revised the Criteria further, and at COP6 in 1996, the Parties added new Criteria based on fish and fisheries. The Criteria were reorganized into two groups – based upon representativeness/uniqueness and upon biodiversity – by the *Strategic Framework and guidelines for the future development of the List* and at COP9 (2005) a ninth Criterion was added to cover wetland-dependent non-avian animal species.

Recognizing that cases may arise where a Ramsar site was designated for the List prior to the adoption of the latest version of Criteria and may no longer meet any of those current Criteria, or where a Ramsar site has subsequently lost the ecological values for which it was originally designated, the practice has been that the Secretariat, in consultation with the Contracting Party concerned, evaluates what measures might be necessary to extend, enhance or restore the wetland’s functions and values to the degree that it would qualify for inclusion in the List.

Where there is no possibility of extension or enhancement/restoration of its functions or values, the Contracting Party concerned instructs the Secretariat to remove the site from the List, and the Party then applies the provisions for compensation, as provided in Article 4.2 of the Convention. This has only occurred in a very few cases.

The designation of a wetland in this respect is governed by eight specific criteria. A wetland should be considered internationally important if it:

- Contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.
- Supports vulnerable, endangered, or critically endangered species or threatened ecological communities;

- Supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographical region.
- Supports plant and/or animal species at a critical state in their life cycles, or provides refuge during adverse conditions;
- Regularly supports 20,000 or more water birds.
- Regularly supports one percent (1%) of the individuals in a population of one species or sub-species of water bird;
- Supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity;
- Either is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, within the wetland or elsewhere, depend.
- Regularly supports one percent (1%) of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species.

Basing on the above criteria, member countries of the Nile basin region have designated the following sites as wetlands of international importance.

COUNTRY	WETLAND	DESIGNATION DATE
UGANDA	L. George	4/March/1988
	L. Nabugabo wetland system	11/Feb/2004
	L. Bisina wetland system	15/Sept/2006
	L. Mburo-Nakivali wetland system	15/Sept/2006
	L. Nakuwa wetland system	„
	L. Opeta wetland system	„
	Lutembe bay wetland system	„
	Mabamba bay wetland system	„
	Nabajjuzi wetland system	„
	Murchison falls-Alberta Delta wetland	„
	Sango-bay-Musambwa island-	„

	Kagera wetland system	
<b>KENYA</b>	L. Nakuru	5/June/1990
	L. Naivasha	10/April/1995
	L. Bogaria	27/Aug/2001
	L. Boringo	10/Jan/2002
	L. Elmenteita	5/Sept/2005
<b>TANZANIA</b>	Malagarasi-Muyvozi wetlands	13/april/2000
	L. Natron	4/July/2001
	Rufigi-Mafia-Kulwa marine Ramsar site	29/Oct/2004
<b>D.R. CONGO</b>	Parc.national des virunga	18/Jan/1996
	Parc.national des mangroves	18/Jan/1996
<b>RWANDA</b>	Rugezi-Bulera-Ruhondo	1/Dec/2005
<b>SUDAN</b>	Sudd	5/June/2006
<b>EGYPT</b>	L.Bardawil	9/Sept/1988
	L.Burullus	9/Sept/1988

### **Unit Activity 2**

- *With reference to any country in the Nile basin region, identify the wetlands that have been designated as Ramsar sites (wetlands of international importance)*
- *With specific reference to each wetland, what criteria have been considered for identifying them?*
- *Using the knowledge obtained, which other wetlands in the country of your choice do you think can qualify as Ramsar sites.*

## ***Policies and Wetland Conservation***

It is important to recognize that the process of establishing and implementing wetland policy at a national level may take time and needs adequate consultants to overcome barriers such as scarce financial resources or institutional reluctance to change ways of doing government business . To be effective, a national wetland policy must be wide in scope and not just a wildlife protection policy. A number of opportunities for resolving issues and achieving wetland conservation are identified below.

### 1. Establishing wetland conservation objectives in government policies:

State, provincial and municipal governments have rarely recognized the value of wetland conservation in their policies and programmes. The lack of government direction results in:

- Wetland loss because decisions to convert wetlands to other land use not related to conservation policies
- Lack of accountability by agencies charged with stewardship of wetlands
- Lack of guidance to decision maker who balance the advantages and disadvantages of land use decision
- Failure to enforce existing policies where they are in place

A national wetland policy can assist government agencies in establishing accountability for actions and modifying policies to the benefit of wetland ecosystems.

### 2. Enhancing Coordination and Communication among Government Agencies:

Jurisdiction over wetlands in most governments is spread in different departments and agencies. The need is not for one agency to look after wetlands, the need is to stress better communication. A national wetland policy can be the mechanism to enhance and promote effective coordination and communication among agencies.

### 3. Creating Incentives to Conserve Wetlands:

The national wetland policy can be a tool to foster implementation of new and better economic and sectoral incentives and to retire factors and disincentives that lead to wetland decline.

#### 4. Fostering Better Wetland Management after Acquisition or Retention:

Non governmental organisations, local communities, private landowner, government agencies often have difficulty managing wetlands. Personnel costs are often high and managers are not familiar with methods to raise revenue from the use of wetlands in an ecological sensitive manner. The national wetland policy is an opportunity to address these factors and find solutions.

#### **Why Are Wetland Policies Needed?**

A wet land policy draws considerable attention to wetland issues particularly by legislators and the public. Articulation of clear goals and objectives for wetlands identifies clear responsibility of the government and an expectation that the government will actually deliver on these commitments.

#### **What is a wetland policy?**

A policy has been defined as “a collection of principles which indicate intended and acceptable activity or direction for an organisation or government”. Any policy must be viewed as a statement of the considerations which will guide both rational decision and actions.

A wetland policy will reflect attitudes, express desired principles, state intentions, show what choices have been made about strategic directions, make commitments, provide a focus for consensus, express concerns and provide advice, and make roles and responsibility clear. A national wetland policy will function as a framework that enables clear conclusions to be drawn about what actions are required and what end result is expected.

It is the policy of the governments in the Nile basin region should be to promote the conservation, sustainable management and wise use of wetlands by all stakeholders for the benefit of present and future generations. Adoption of the Wetlands Policy means that the governments, in their decision-making will give explicit consideration to the biophysical requirements of wetlands with the goal of ensuring their sustainable management.

## **Goal of the Policies**

Policies should assist in the protection of wetlands in good condition, rehabilitate degraded wetlands where feasible, and support appreciation of wetlands by:

- protecting wetland biodiversity, functions and services;
- protecting social and economic benefits of wetlands;
- providing flow regimes that mimic natural conditions, where possible;
- providing wetlands with water of appropriate volume and quality;
- limiting further fragmentation and reconnecting wetland systems;
- preventing or limiting catchment activities that impact upon wetlands;
- protecting the cultural heritage and spiritual significance of wetlands;
- rewarding wetland managers who improve the condition of wetlands; and
- promoting the importance of wetlands to the community.

## **Principles governing the Policies**

The governments should achieve these goals by adopting the following principles:

- Wetlands are valued as significant parts of landscapes - their conservation and management are most appropriately considered at the catchment scale.
- Appropriate water regimes and water quality needed to maintain or restore the ecological sustainability of wetlands will be provided through the implementation of water management plans.
- Wetlands of international, national, state and regional significance will be identified and conserved.
- Land use and management practices will maintain or rehabilitate wetland habitats, processes and cultural values.
- Degraded wetlands and their habitats will be rehabilitated and their ecological processes restored as far as is practicable.
- The potential impacts of climate change will be considered in long term strategies for water resources and land use.



- Continued research into wetland ecology will be encouraged to better support water and land use planning and management.
- Natural wetlands should not be destroyed or degraded. When social or economic imperatives in the public interest result in a wetland being degraded or destroyed, the rehabilitation or construction of a compensatory wetland that supports similar biodiversity and ecological functions will be required.
- Purpose-built wetlands will not be constructed on the site of viable natural wetlands.
- Cooperation and incentives among land managers, government authorities, catchment management authorities, non-government organizations and the general community is essential for effective wetland management, and will be encouraged.

### ***International and regional policies on wetlands***

Little has been done in formulating regional policies, but internationally various conventions related to conservation of biological diversity have helped in providing policy guidelines for wetland conservation.

### **International agreements and conventions related to wetlands**

Six international conventions that focus on biodiversity issues including wetland conservation have been put in place. They include;

- Convention on Biological Diversity (CBD)
- Convention on Conservation of Migratory Species (CMS)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- International Treaty on Plant Genetic Resources for Food and Agriculture
- Ramsar Convention on Wetlands
- World Heritage Convention (WHC)

Each of the above conventions and agreements works to implement actions at the national, regional and international level in order to reach shared goals of conservation and sustainable

use. In meeting their objectives, the conventions have developed a number of complementary approaches (site, species, genetic resources and/or ecosystem-based) and operational tools (e.g., programmes of work, trade permits and certificates, multilateral system for access and benefit-sharing, regional agreements, site listings and funds).

### ***National Wetland Policies and Institutions***

A significant proportion of the activities undertaken within the Ramsar system has been directed towards the establishment of a clear policy framework for the conservation and wise use of wetlands, and a crucial indicator of the success achieved by the Convention concerns the extent to which such principles have been embraced at the national level.

The adoption and implementation of a national wetland policy has emerged as one of the highest Ramsar priorities, and recently approved guidelines are intended to assist in that regard. While in 1993 only two parties (Canada and Uganda) had formally adopted such policies, by 1999 the number had expanded to 22. A further 31 indicated that such policies were currently under development, while 24 others advised that such instruments were planned for the near future.

Uganda is the only country in the Nile basin region known to have made a national wetlands policy. Other countries such as Kenya are in the process of making one.

Examples of National Wetland Policies include;

- **Canada:** The Canadian Federal Government Policy on Wetland Conservation, 1991
- **Australia:** The Wetlands Policy of the Commonwealth Government of Australia, 1997
- **Ghana:** A National Wetlands Conservation Strategy, 1999
- **Greece:** National Strategy for Wetland Resources, 1999
- **New Zealand:** New Zealand Wetlands Management Policy, 1986
- **Trinidad and Tobago:** National Policy and Programs for Wetlands, 2002
- **Turkey:** 2003-2008 National Wetlands Strategy for Turkey, 2002

- **Uganda:** National Policy for the Conservation and Management of Wetland Resources, Uganda, 1995

In some of the Nile Basin countries, we have specific agencies or bodies charged with the responsibility of overseeing the implementation of policies and legislation on wetland management and conservation. In Uganda, for example, the Wetlands Inspection Division has done a commendable job in ensuring increased awareness and training of Ugandans. Through its activities, important policies and legislation have been enacted. A national policy for the conservation and management of wetlands in the country was enacted and is being implemented. In other countries, the ministries of land, water and environment and agencies such as National Environment Management Authority and Environment Protection Agencies are responsible. The exact mandate will vary from country to country.

**Unit Activity 3:**

- Before you read further, identify any national, regional or local policies that your country has put in place in response to the Ramsar convention
- What agencies and institutions are responsible for overseeing wetland conservation and management in your country?
- What are they mandated to do and how effectively are they carrying out their responsibilities?

***Wetland laws, byelaws and regulations***

As a policy maker/implementer, it is important that you articulate the role of wetland laws and regulation in the conservation of wetlands so that the decisions you make and the actions of other stake holders are in harmony with the wise use concept and sustainable development.

Wetlands have been identified as one of the key life support system on this planet in concert with agricultural lands and forests. This has been key theme in evolving global support and political commitment for sustainable development and environmental conservation of wetlands. Wetland laws and regulations are a key feature in the implementation of the wise use concept of the Ramsar convention. However developing and implementing wetland laws and regulations that promotes wetland conservation and management remains an elusive goal for many countries.

Wetland laws and regulations involve strategies and programs of action; they reflect goals objectives and aims which have been directed by policy. Implementing agencies/lead agencies are the ones usually tasked with the overall enforcement of the laws and regulation governing the conservation of wetlands. Implementing agencies/ Lead agencies usually have a broad mandate for natural resources management to orchestrate coordination and communication about wetlands.

The implementing agencies require assistance and training to understand what the wetlands laws and regulations say and mean, who is in charge, what expertise is available and where, how roles and responsibilities are distributed, and many related questions. The wetlands laws and regulations must be useful to stakeholders and wetland resource users. Thus they targeted at the managers of wetlands: this could be government agencies, local communities, public or private landowners, and other stakeholders.

In Uganda the wetland laws and regulation mostly cover; wetland drainage, sound environmental management, sustainable use, conservation, water supply and treatment, land use and ownership, restoration of sites, environmental impact assessment and monitoring, public awareness, research and inventory, capacity building, international actions, legislation and institutional arrangements.

Depending on the country, conservation and wise use measures may be contained in national and sub national laws and regulations on environmental protection, nature conservation, protected areas, environmental impact assessment and audits, land-use planning, coastal management,

water resource management or pollution control. At the local level, customary laws and community-based institutions may be relevant.

Wise use cannot be effectively promoted without appropriate legal and institutional frameworks at local and national level. Statutory and customary laws establish principles and rules for personal and corporate conduct and determine ownership and user rights for land, water and natural resources and applicable taxation. Legislation can be used to require assessment and control of activities and development which may adversely affect wetlands, in accordance with the principle of prevention; to set standards to minimize impairment of land, water and air resources; to monitor compliance; and to punish illegal practices.

Law makes it possible to confer special status on wetlands or catchments, to require cross-sectoral planning on wetland issues and to safeguard the rights of indigenous and local communities to information and participation in wetland management. A legal basis is necessary for most non-regulatory measures such as financial incentives for stewardship by individuals or communities.

Legislation defines the rights and duties of public authorities and agencies with regard to wetland conservation and wise use, including in relation to other States, and lays down the conditions under which financial support may be provided for specific activities. It can authorize the use of judicial review of actions undertaken by public agencies which damage wetlands and can permit civil law proceedings to be brought against natural or legal persons where wetlands have been harmed. It may provide for remedies such as payment of damages and/or mandatory restitution or compensation.

Law thus establishes the framework in which scientists, planners, managers and environmental economists make strategic and operational choices and in which communities and other stakeholders exploit wetland resources.

### ***Wetland resource user guidelines***

Policies and laws are usually the basis upon which guidelines for wetland resource users are based. Guidelines can be grouped into two categories:

(a) **Technical Guidelines:** Have to do with ensuring ecosystem functions and productivity.

For example, information such as:

- How to modify the wetland without destroying its ecosystem,
- Creating buffer zones of unmodified wetland vegetation along banks of open water channels,
- The protection of the catchment area, consideration and classification of the physical and biological characteristics of the wetland etc.

(b) **Basic Guidelines:** These have to do with what the law states about wetlands and development. For example:

- What do the policies and laws say about wetland use?
- Who oversees the utilization of wetlands?
- What must one do in order to carry out a development activity on a wetland etc?

Wetlands can be classified on the basis of priority classes that are assigned depending on their roles and functions. They include:

- Class I Vital (Critical) wetlands: These are wetlands of great importance and need immediate and effective management. They provide essential services, goods or attributes for which there is no alternative economically viable source. They include Ramsar and other protected wetlands, those that provide water supply, those that prevent flooding, ecologically unique wetlands etc.
- Class II Vital wetlands: They have the same characteristics as the Class I wetlands but are currently not under development or degradation, although they still require a high level of protection
- Class III Valuable (Critical) wetlands: These provide essential resources but are available from alternative sources. They are classified as critical because they are subject to on-going degradation, which jeopardizes the of their attributes or existence.

- Class IV Valuable wetlands (Not critical): These are defined as per Class III above but are not subject to on-going degradation
- Class V Various wetlands: These are not being subjected to any on-going degradation

### ***Role of indigenous knowledge in wetland conservation and management***

Prior to the introduction of western education, indigenous communities pursued many strategies for ensuring wise use of wetland resources. Their approaches were more holistic, and included integrating wetland conservation messages into their livelihood strategies through folklore, stories, myths and riddles. Indigenous education in this country, which was characterised by:

- (i) Its formal and occasionally non-formal nature
- (ii) Every person was to acquire knowledge, attitudes and skills from daily experience.
- (iii) All people, particularly the older members of the society were respected instructors.
- (iv). It was focused towards the preparation of learners for their role in society
- (v) It was practical through demonstration and the learners were expected to participate actively all the time.
- (vi). It provided gender specific knowledge, skills and values.
- (vii) It was also experimental involving the whole cycle of learning.

Indigenous Technical Knowledge (ITK) has a strong spiritual base. It is based on the understanding that the elements of matter which are classified as inanimate also have a life force. The marriage of spirit and ecology among many indigenous people over the years has given rise to sustainable utilisation of wetland and indeed all natural resources. Often spiritual explanations conceal functional ecological concerns and conservation strategies.

Many indigenous people have immense knowledge of plant and can accurately describe and classify hundreds of plants. Being knowledgeable about something means knowing its utility, holding its secrets and showing a sustained interest in it as revealed through ones actions. It,

therefore, depends not only on what one knows but equally on how one can explain that knowledge to another person and provide sufficient and reliable information about it so that the other person can attain the same benefits. This is analogous to Western Science which involves knowing basic facts, putting these into practice in experiments and communicating the results, and the knowledge gained from these experiments in journals or scientific meetings.

Some major impediments to the indigenous science include:

- (i) Its oral nature which results in loss of accurate information from one generation to another.
- (ii) The onslaught of the western culture
- (iii) The movement of people to towns, and changes in their value system

#### **ACTIVITY**

- Discuss the various indigenous or traditional ways of conserving wetlands in your community.
- Which factors have tended to erode the indigenous wetland management and conservation strategies in your community?
- What should be done to reconcile indigenous and modern conservation strategies?

#### ***Unit Summary***

In this unit, we have examined the Ramsar convention and wetlands of international importance. The Ramsar convention adopted in 1971, is an intergovernmental treaty that aims at ensuring conservation and wise use of wetlands. Several countries have responded to the convention by becoming parties to it and at least designating one site as a wetland of international importance.

International laws and policies are also in place and at national level; some countries have already formulated wetland policies while others are yet to do so. Several international



agreements and conventions related to wetlands such as CBD, CMS, WHC, CITES and AWEA are in place. We have also examined several examples of national wetland laws and policies with Uganda in the Nile basin region the only country with a wetland policy. Lastly we looked at Wetland resource user guidelines and the role of indigenous knowledge in wetland conservation and management.

### ***Further reading***

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## **UNIT 4: COMMUNICATION AND NET WORKING FOR WETLANDS AND BIODIVERSITY CONSERVATION**

### ***Introduction***

In this module, you will refresh your mind with the rationale for effective communication of wetland information and barriers to effective communication within the community setting. You will also examine the importance of local networks in the management of wetlands. In addition, you will examine the various communication strategies and their strengths and weaknesses. The Unit will also provide you with information on packaging and dissemination of wetland information and lobbying and advocacy at community level. Lastly, the Unit will deal with how to integrate new skills, ideas, experiences and lessons, and case studies in wetland management.

As a key stakeholder in the conservation and management of wetlands, it is important for you to communicate wetland information to the community and policy makers so that a more effective response is obtained. You are also a key technical person who is expected to provide practical advice on the best conservation and management strategies. As you proceed with this module, have the following questions in mind:

### **QUESTIONS**

1. Why is effective communication of wetland information a key aspect of wetland management?
2. What important considerations do you need to take into account for effective communication of wetland information to communities?
3. How do you best lobby and advocate for wetlands in your locality/country?
4. What are the best strategies and media to use when disseminating wetland information to:
  - Local communities?
  - Policy makers?
5. What is the importance of networks in wetland management?

## Learning Outcomes

By the end of this Unit, you should be able to:-

- (i) Give a rationale for disseminating wetland information to various stakeholders.
- (ii) Explain the factors which determine the effectiveness of dissemination strategies
- (iii) Give the common barriers to effective communication between the extension staff and the local communities.
- (iv) Design the most effective strategies for generating and disseminating wetland information to the different stakeholders
- (v) Give the importance of networking in the management of wetlands
- (vi) Design ways of integrating new skills, ideas, experiences, lessons and case studies in wetland management and conservation.

### ***What is communication and why is effective communication of wetland information necessary?***

When we interact with other people, we are able to successfully send our thoughts, feelings, ideas and information to them through speech, writing, bodily movements or signals. This is what we refer to as communication.

**“Communication may therefore be defined as the transfer of information from one person to another; from sender to the receiver.”**

Messages may sometimes get distorted because the person receiving it has perceived it differently. In this case, the communication has not been effective.

**“Effective communication may be defined as being able to successfully pass on the message (information) to the recipients or audience in such a way that the audience or recipients are able to accurately perceive what has been passed on to them.”**

Communication of wetland information to both the local communities and other stakeholders is critical because the current state of wetlands the world over is worrying. For instance, we have either degraded or destroyed more than 20% of the world’s major wetland eco-systems in the past decade or so alone and yet we know that wetlands are amongst the world’s most productive environments. They support high concentrations of bio diversity, and important store houses of genetic material.

The multiple roles of wetland eco-systems and their value to humanity have been increasingly understood and documented. This has led to an urgent desire to restore lost or degraded hydrological and biological functions of wetlands. Global fresh water consumption has risen as a result of population increase and the realization that wetlands are important and sometimes essential for the health, welfare and safety of people who live near them, has sent a signal for effective wetland conservation and management. This essentially calls for effective communication of conservation and management information.

Information on wetlands varies and includes:

- information on wetland features and characteristics
- Wetland roles, values and attributes
- Conservation and management of wetlands including policies, laws and guidelines

Think for a moment of the various stakeholders that your extension worker has to communicate wetland messages to.

- What kind of messages would you communicate to the different categories of stakeholders and why?
- Which medium would you choose for each of these categories of stakeholders?
- What are the essential ingredients of effective communication of wetland information?

### ***Packaging and dissemination of wetland messages***

Effective dissemination of wetland information is characterized by the following:-

- (i) **Identification of the target audience:** In particular, its characteristics such as age, sex, culture, education level and economic status are necessary because it is known that the characteristics of a target group will influence the formulation, packaging and delivery of the information. The youth, women and the elders in a community will have their priorities, and these must be borne in mind for effective communication of wetland information.
  
- (ii) **Selection and packaging of the message:** The message must be carefully selected for a particular audience and packaged so that it is attractive to them. For example, young people are more receptive to messages in form of cartoons, while the youth may like more empowering messages interlaced with activities that maintain interest. The packaging should also take into consideration the culture of the people to whom the message is being aimed at. There are instances when a conservation message has been rejected by people because it is not culturally sensitive.
  
- (iii) **Selection of the medium or mode of delivery:** As we stated above, it is important to select an appropriate medium for dissemination to a particular audience. This should take into consideration the coverage. For example using television may only result in reaching fewer people than the radio. The use of modern ICT facilities in the Nile basin countries is still largely restricted and may be confined to only some people in urban areas.

**(iv) Other considerations**

It is important to also take into account other considerations such as:

- The size of the audience
- The time of the day or even the day itself.

**ACTIVITY**

- What other factors should be taken into consideration before wetland information is disseminated to:
  - (i) Policy makers?
  - (ii) Local communities?
- Why is the day or time of the day important in effective communication of conservation messages to local communities?
- Think for a moment of other ways in which communication of wetland messages can be made more effective to communities that are unable to read and write.

***The media and dissemination tools***

There are several media and communication tools available for the dissemination of wetland information to various stakeholders. These include:

**(i) Awards**

Awards to excelling projects, communities, NGOs, CBOs, editors, journalists, etc in recognition to contributions to conserve wetlands

**(ii) Electronic Media**

These will include:

- Radio broadcasts

- TV coverage and talk shows
- Documentaries
- Project video films
- Internet services

**(iii) Print media**

- Newsletters
- Booklets
- Brochures
- Posters
- Calendars
- Newspaper pullout
- Workshop reports

**(iv) Dance and drama**

Drama/plays based on particular wetland themes

**(v) Events**

- Field excursions
- Expositions/ exhibitions
- Workshops , seminars and conferences
- National or regional campaigns

**(vi). Promotional items**

- T-shirts
- Caps
- Stickers
- Banners

**ACTIVITY**

- In groups, discuss the challenges of using various media and communication tools to effectively communicate wetland conservation and management issues

### ***Dissemination constraints***

Effective communication of wetland information has been hampered by the following:

- Lack of communication expertise and financial resources in some NGOs, CBOs, GOs and at community level to invest in communication activities
- Little appreciation of the value of effective communication at community level
- Limited technical staff to develop communication capacity of agencies involved in wetland conservation and management
- High levels of illiteracy among the wetland dependent communities which renders documentation difficult. Even in communities with fairly high literacy levels, the culture of reading is not well developed in the Nile Basin countries
- Lack of a clear communication strategy for the dissemination of wetland information at:
  - (i) Regional level (Nile basin region)
  - (ii) National (country) level
  - (iii) Local or Community level

#### **REMEMBER**

- A good communication strategy answers the questions
  - (iii) What communication actions should be taken
  - (iv) Which communication issues should be addressed
  - (v) How and where will the communication issues be addressed

Publicize wetland concerns at regional and national levels through participation in activities like the World Wetlands Day, and establish partnerships with agencies that have well developed communication infrastructure with the view to making use of their resources for communicating wetland information.. It is also important to participate in radio programmes like talk shows and debates, and to develop annual work plans and activities



At the local level, it is important to build capacity among individuals, groups or agencies involved in communicating wetland information, and to facilitate them to integrate communication activities in their work plans and budgets. Lastly, there should also be regular sensitization of communities on wetland issues through appropriate media.

### ***Benefits of effective dissemination of wetland information***

Effective communication of wetland issues to the different stakeholders could have the following benefits:

- Improved levels of participation of the different stakeholders in wetlands conservation and management
- Promotes ownership of wetland resources, particularly among members of local communities living adjacent to the wetlands. In this way, they would be obliged to ensure their conservation since they would realize their benefits to them.
- Strong decision-making and quick problem solving: The local communities and other stakeholders will be encouraged to act quickly on a matter that they have to address

#### **ACTIVITY**

- What are other benefits of effective wetland communication?
- What are the challenges faced by the technical staff in communication conservation messages to the people in your community?

### ***Integrating new skills, ideas, lessons and experiences into wetland management and conservation***

One of the biggest challenges facing wetland conservation and management appears to be how to integrate new skills, ideas and experiences into the various programmes. Research is often

done on various aspects of ecology and wetland management, but the information is hardly integrated into the mainstream activities of local communities. The challenge is how to:

- Adapt the findings to the mainstream activities
- Take care of the tendency to stick to what is known (risk averseness)

It may be necessary to carry out demonstrations on new knowledge and skills to communities before they integrate them into their conservation and management activities.

#### **ACTIVITY**

- What new skills and knowledge or experiences do you wish your community to adopt in wetland conservation and management?
- What are the challenges faced by the technical staff in ensuring the integration of new knowledge and skills into wetlands conservation and management in your community?

### ***Networking for wetland and biodiversity conservation***

Networking is an important aspect of wetlands education and awareness strategy. Basically, networking here refers to creating a system of communication between various individuals, groups or agencies involved or working in the area of wetlands conservation and management. Networking has the following advantages:

- It facilitates sharing of information on various aspects of wetlands. In particular, key activities, research findings or interesting bits of information can be shared between members of the network.
- It reinforces the desire to conserve and effectively manage wetlands. Examples of successful management strategies in one part of the country, region or other countries can

stimulate the desire among other network members to also replicate the success. In cases where there has been a failure, it could stimulate members of the network to seek to understand the underlying reasons for this failure so that they can avoid it themselves.

- Networks can influence policies and laws pertaining to wetlands through lobbying and advocacy
- Networks facilitate the gathering of people to address a particular burning issue on wetlands.
- Networks facilitate the management and conservation of trans-boundary wetland resources and flyway conservation. Trans-boundary wetlands require that a concerted effort is made by various stakeholders that share a wetland either in local administrative unit or across countries for the common good of all the people sharing the resource. Wetlands associated with River Nile require the efforts and commitment of various stakeholders in the Nile basin countries. The flyway conservation of birds and other migratory species would similarly involve many countries world over. For example, storks seasonally migrate from Europe to Africa and other countries of the south during winter. It is therefore important for a concerted effort by all people where the storks pass through on their journey.
- Networking also helps to build capacity among members of the network to perform various activities related to wetland conservation and management. It is usual to have members of different capacities sharing their knowledge and skills on wetlands, thus benefiting everybody involved.
- Networks help members to develop a shared vision and therefore a spirit of oneness. This is especially important for psycho-social support in the realm of wetland conservation and management.

## ACTIVITY

- Name some existing networks in wetlands and biodiversity conservation:
  - (i) In the Nile basin countries
  - (ii) In your country
- What are the goals of these networks and what has promoted and hindered their activities?
- In groups draw a plan of how you would establish a network, spelling out how you would convince people to join the network.

### *Lobbying and advocacy*

Lobbying on wetland matters may be defined as a concerted effort designed to influence government authorities, politicians, NGOs, and other stakeholders on matters pertaining to wetland conservation and management. A closely related word is advocacy. Wetland advocacy may be defined as the act of arguing or attempting to persuade others to support or carry out wetland conservation and management.

### Lobbying

Wetland issues in the Nile Basin region have not been well understood, even by our policy makers. It is therefore necessary to lobby them using a variety of techniques such as:

- Writing E-mails: Excellent but not every one has access to computers, particularly in the developing countries
- Letter writing: This is probably the most effective lobbying technique, particularly for policy makers as it is able to explain new or difficult wetland issues. It also suffers from the fact that some stakeholders may not be able to read and write.

- Phone calls: This is best when the issue is simple. It is often limited by time and can be expensive.
- Meetings: These can be organized on a particular wetland issue. However, mobilizing people can be difficult. It is even equally difficult to ensure that the people we are lobbying will attend the meetings. All in all, it is best to use a combination of techniques for most effective results.

During lobbying sessions, it is important to ensure that the message being conveyed is true as per scientific facts, and that one does not coerce or threaten people. The focus is to persuade other people to see your point of view. Be objective and recognize your biases. Often people resist other peoples' views because of lack of adequate information and the poor approaches used in disseminating messages.

### **Advocacy:**

1. **During advocacy it is important for you to assess the problem or issues at hand.** For example, establish what you want to change, who is affected by the problem, what compromises need to be made towards the resolution of the problem. Set your goals and search for the best outcome.

As mentioned above, be objective and avoid too much bias. Identify potential obstacles to getting the resolution that you are looking for. Weigh or evaluate them against your strengths. Identify your allies and those not on your side. Determine the advocacy technique to use such as print or electronic media

2. **Form an advocacy team based on the common cause.** Establish who shares with you wetland values and develop a common goal. Troubleshoot on potential conflicts in interest within the group and how to deal with them. Develop a structure for meetings and the decision-making process. Use talented people in the different aspects to bring about group synergy. Here, it is particularly important to maintain the group together.

3. **Gather sufficient information about the issue.** You may need to interview professional in the area of wetland conservation, visit libraries and TV documentaries. Examine what has been done before and understand the view points of the opponents of conservation.

4. **Choose your strategies.** Litigation and media scandals can be embarrassing and expensive. Seek compromises when these are best. Determine the best strategy to use such as legal action, dispute resolution, organized community action etc.
5. **Evaluate your strategies and prioritize your actions** to see if your advocacy goals and objectives were achieved.

### ***Unit Summary***

In this Unit, you have examined the rationale for effective communication of wetland information to various stakeholders. You have also examined some of the factors that determine effectiveness of dissemination of wetland information and the suitability of various media and communication tools. Furthermore you have looked at various lobbying and advocacy techniques and why they are necessary. Lastly, you looked at the importance of networks in wetland and biodiversity conservation, particularly for trans-boundary wetlands and flyway conservation.

### ***Important points to remember***

- Communication of wetland information is a two way process involving the sender and receiver
- Effective dissemination occurs when the desired response is elicited in the learner
- There are many factors that affect the effectiveness of disseminating wetland information, and some must be considered if we are to succeed in bringing home important aspects of conservation and management
- Effective communication of wetland information could result in improvements in the levels of wetland conservation and management.
- Advocacy and lobbying are essential in ensuring that the decisions affecting wetland management and conservation do not adversely affect the integrity of wetland ecosystems.
- Networking is reinforced through effective communication and is critical particularly for trans boundary wetlands

### ***Further reading***

1. Elroy Bois, Alex Muhwezi and Kelly West(2005). *From Conversion to Conservation: Fifteen Years of Managing Wetlands for People and the Environment in Uganda*. Kampala: Wetlands Inspection Division and IUCN Regional Office, Nairobi
2. Susan K. Jacobson (1999). *Communication Skills for Conservation Professionals*; Washington, DC: Island Press

## **GLOSSARY OF COMMON TERMS**

**Communication:** Sending of information or messages and receiving an appropriate response

**Communication strategy:** A detailed communication plan for achieving set goals by sharing information for the common good

**Network:** Part of a large group of individuals or agencies that work together by sharing information for the common good

**Wetland:** An area which is temporarily or permanently flooded with water and, which has peculiar plants and animals that are adapted to the conditions in this area

**Wetland degradation:** The action of rendering the roles and functions of a wetland less effective, for example, draining for farmland and infilling

**Wetland conservation:** Activities that ensure wise use of wetland resources in such a way as to ensure that the balance between harvest and renewal is observed and the integrity of the wetland is maintained.

**Seasonal wetland:** These are wetlands that are flooded during the wet season (seasonally).

**Stakeholder in wetland management:** Person or agency that is responsible or participates in the conservation and management of wetlands.

**Permanent wetland:** These are wetlands that are always flooded regardless of the season

**Wise use:** Using a resource in such a way that even those generations to come will benefit from it.