



Nile Basin Initiative



E. Nile Technical Regional Office (ENTRO)
Nile Basin Initiative Trust Fund / IDA

Eastern Nile Watershed Management Project Cooperative Regional Assessment (CRA) for Watershed Management

TRANSBOUNDARY ANALYSIS
ATLAS OF MAPS
ETHIOPIA



June 2007

The Consortium:



Tecsult International Limited



HYDROSULT Inc.
Consultants, Experts-Consells
Canada



Water B.V.
The Netherlands

In association with



Addis Ababa, Ethiopia



Cairo, Egypt

COMATEX NILOTICA

Khartoum, Soudan

ATLAS OF MAPS

ETHIOPIA

DISCLAIMER

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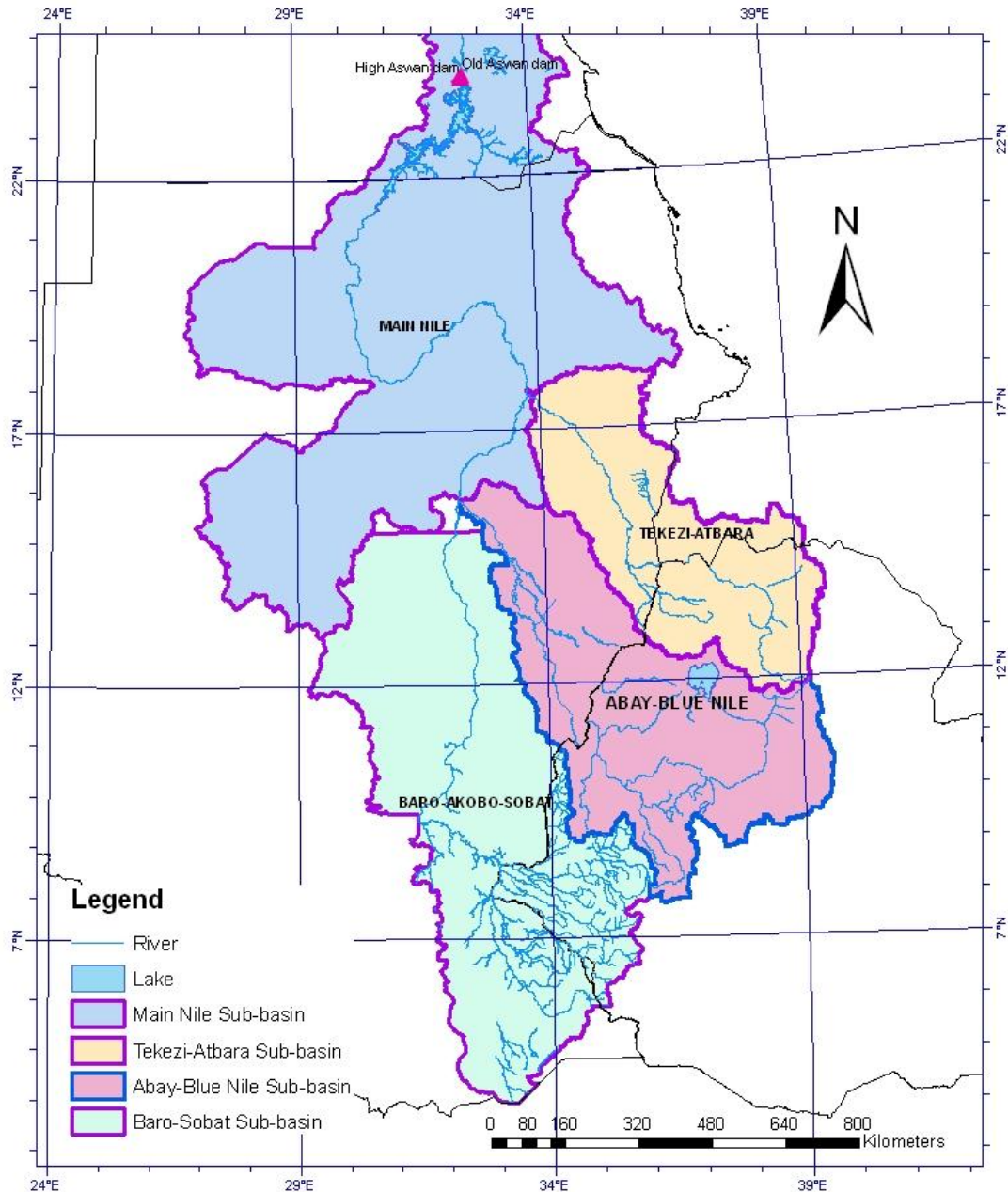
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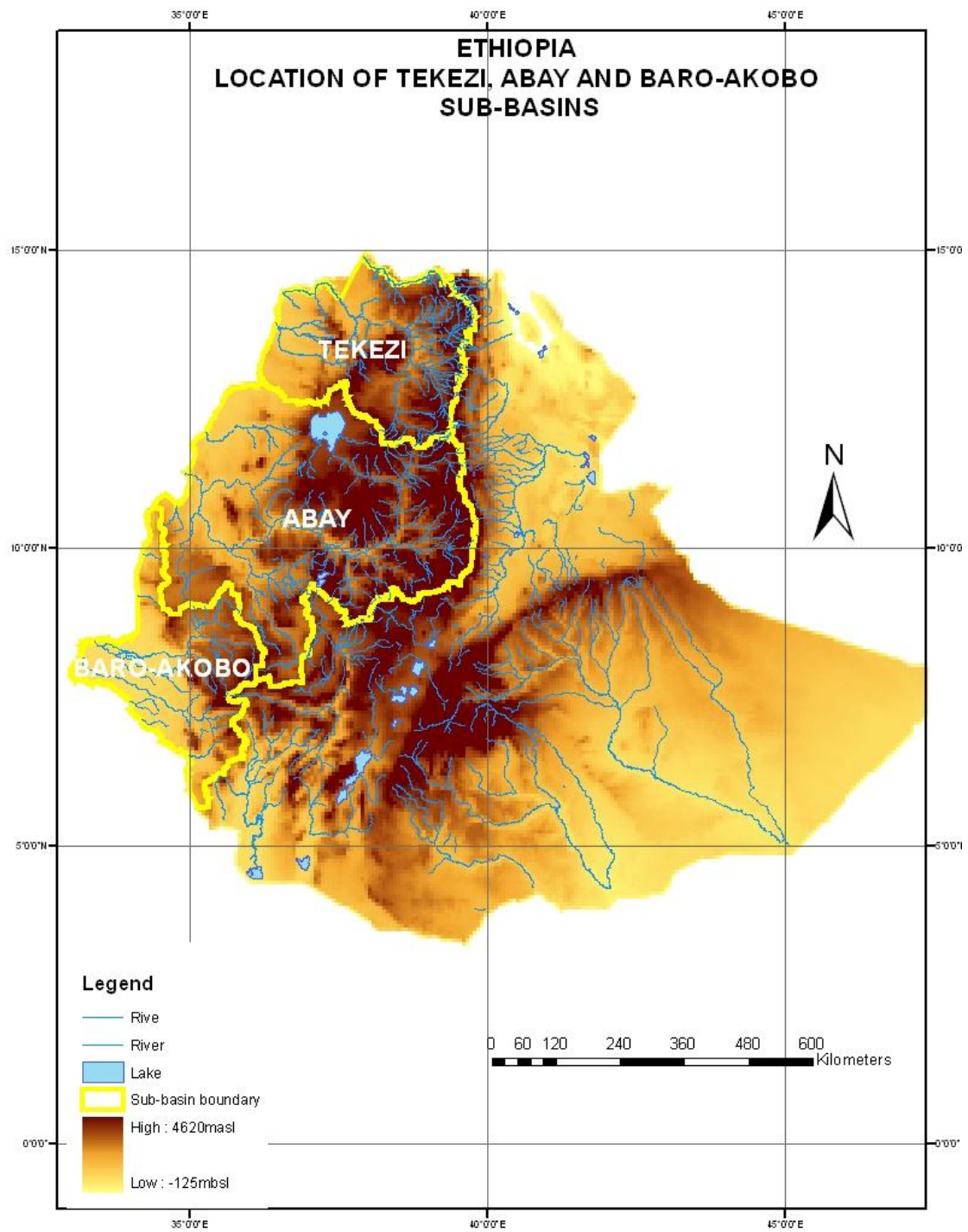
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EASTERN NILE BASIN
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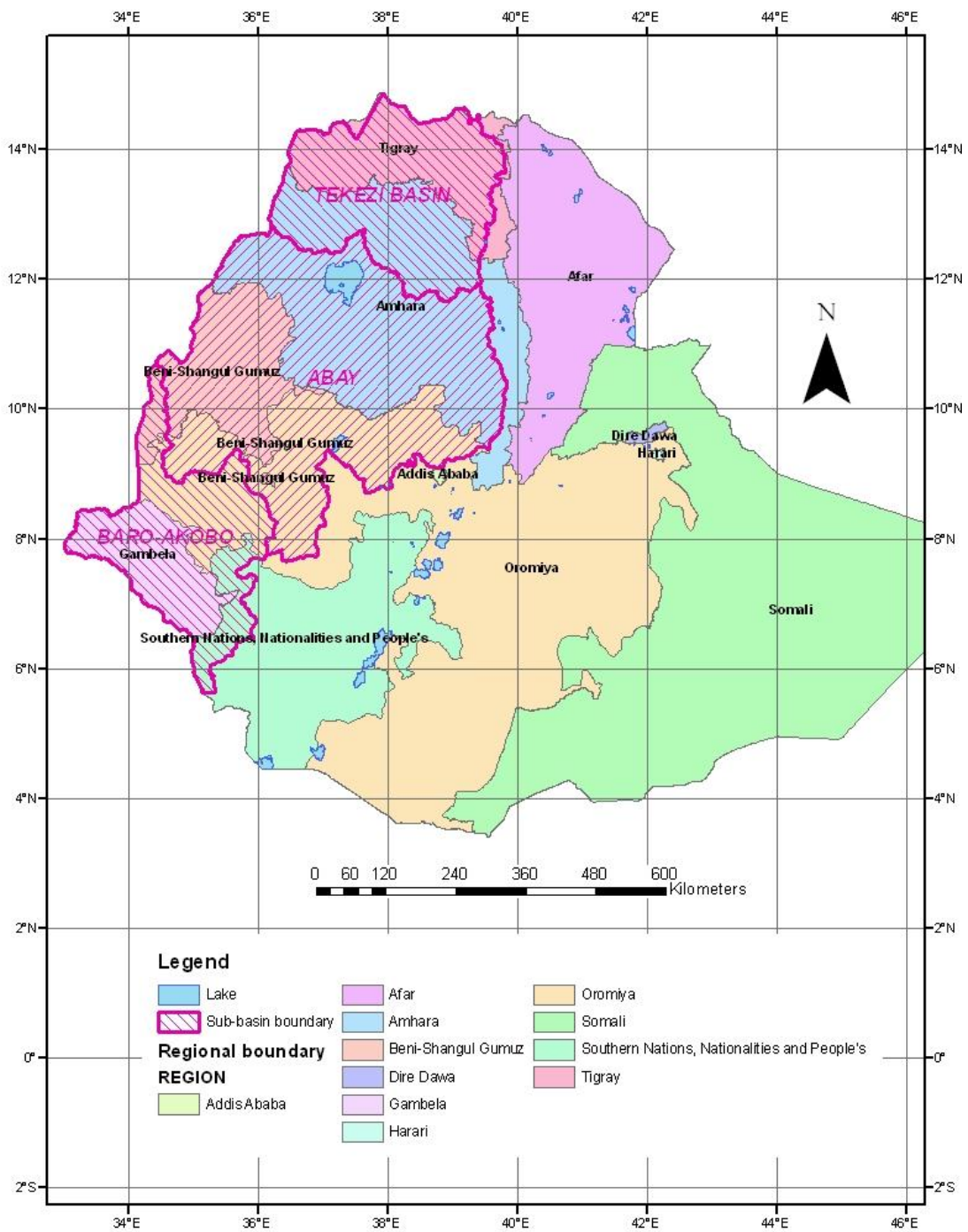


2. ETHIOPIA: RELIEF AND DRAINAGE. Source: Radar shuttle mission digital terrain model.



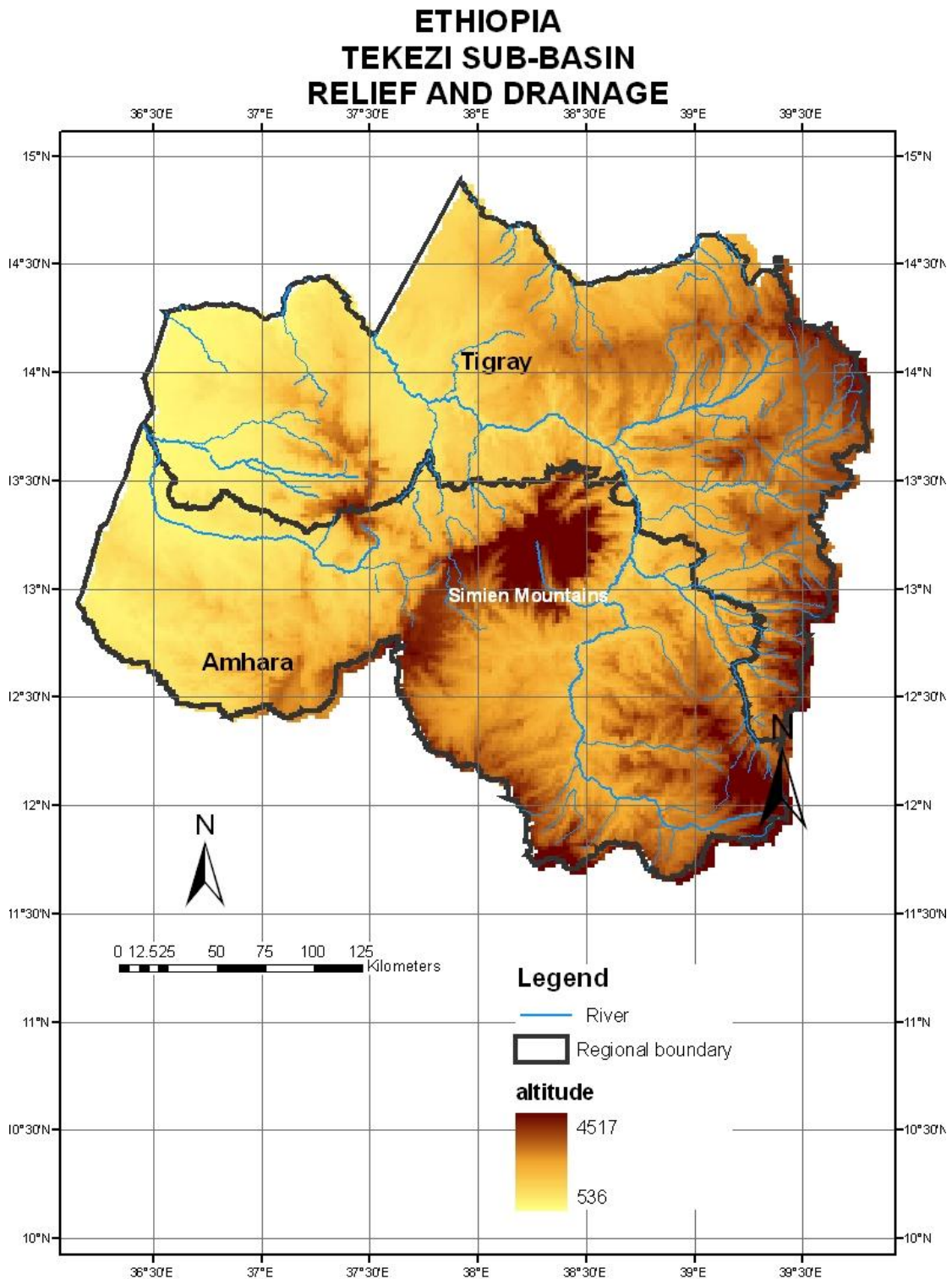
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ETHIOPIA - EAST NILE BASIN
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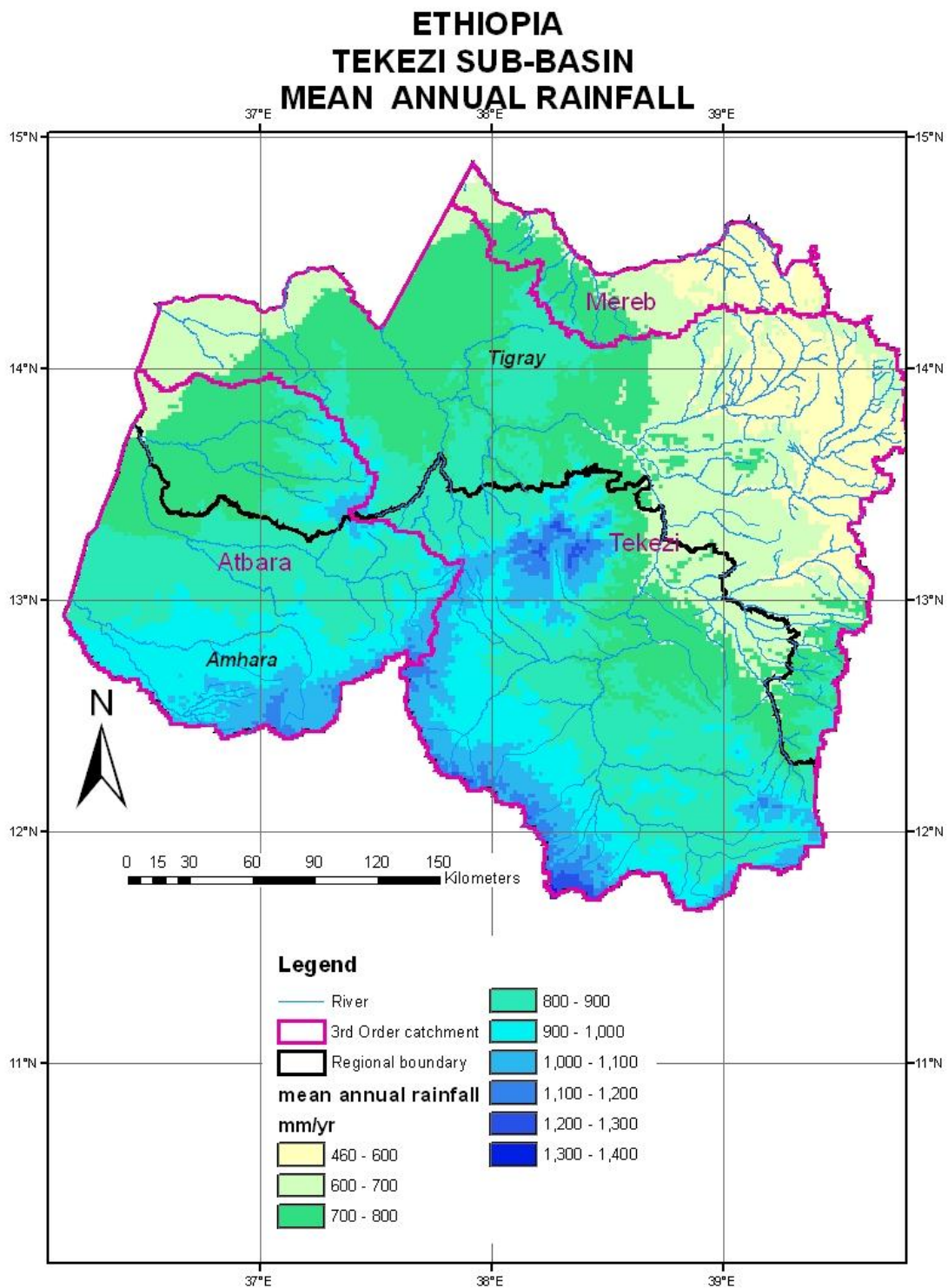


B. TEKEZE SUB-BASIN

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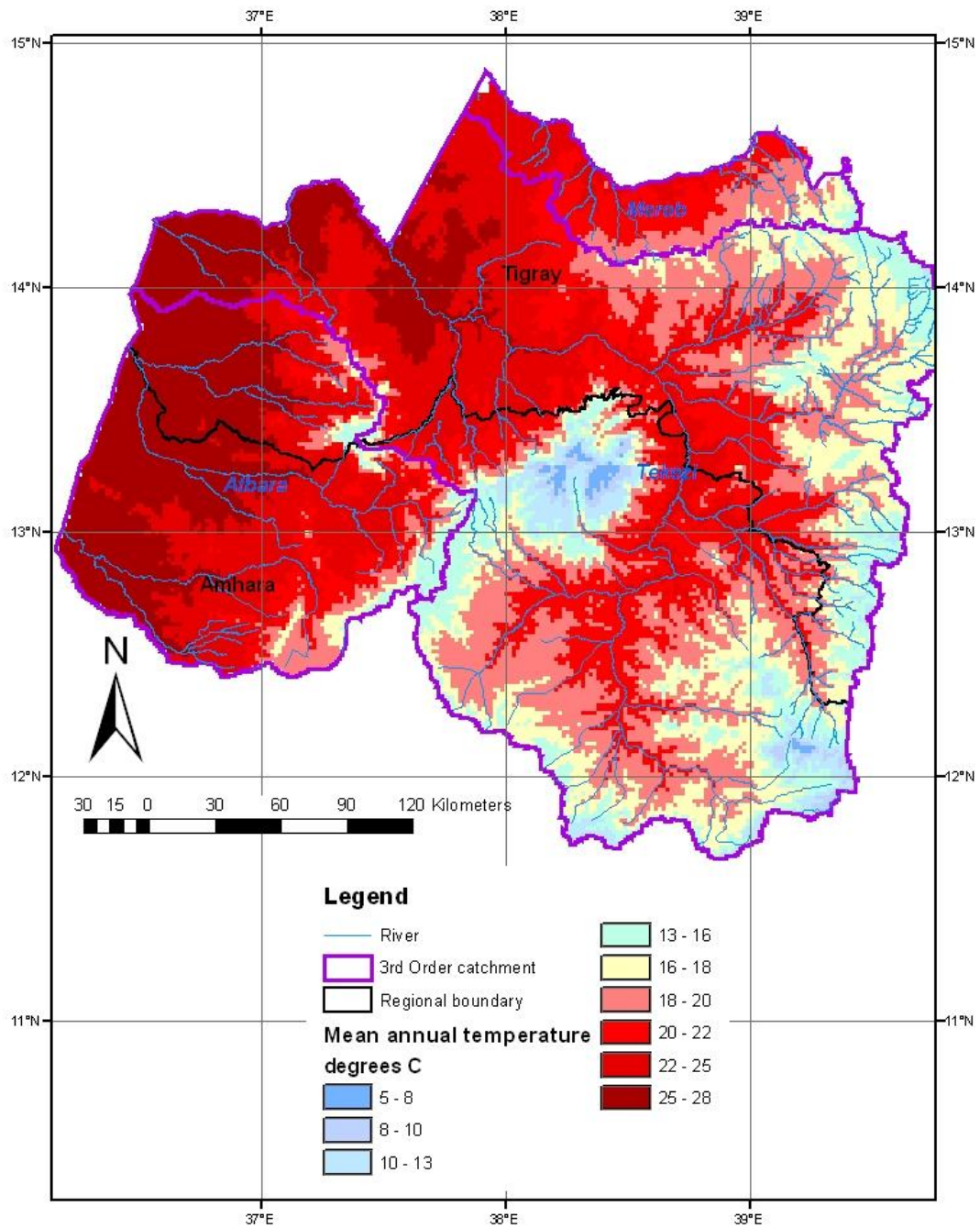


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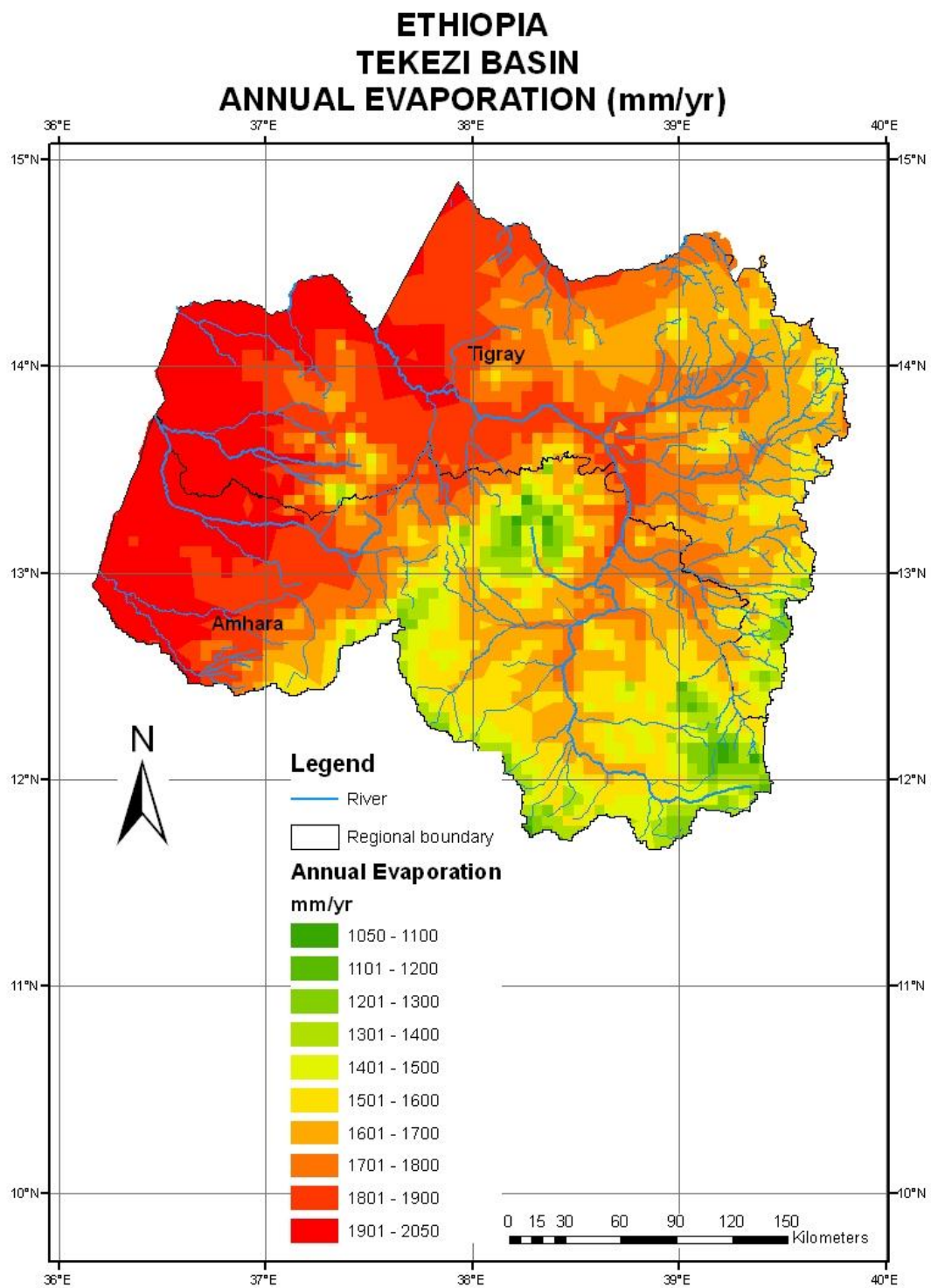


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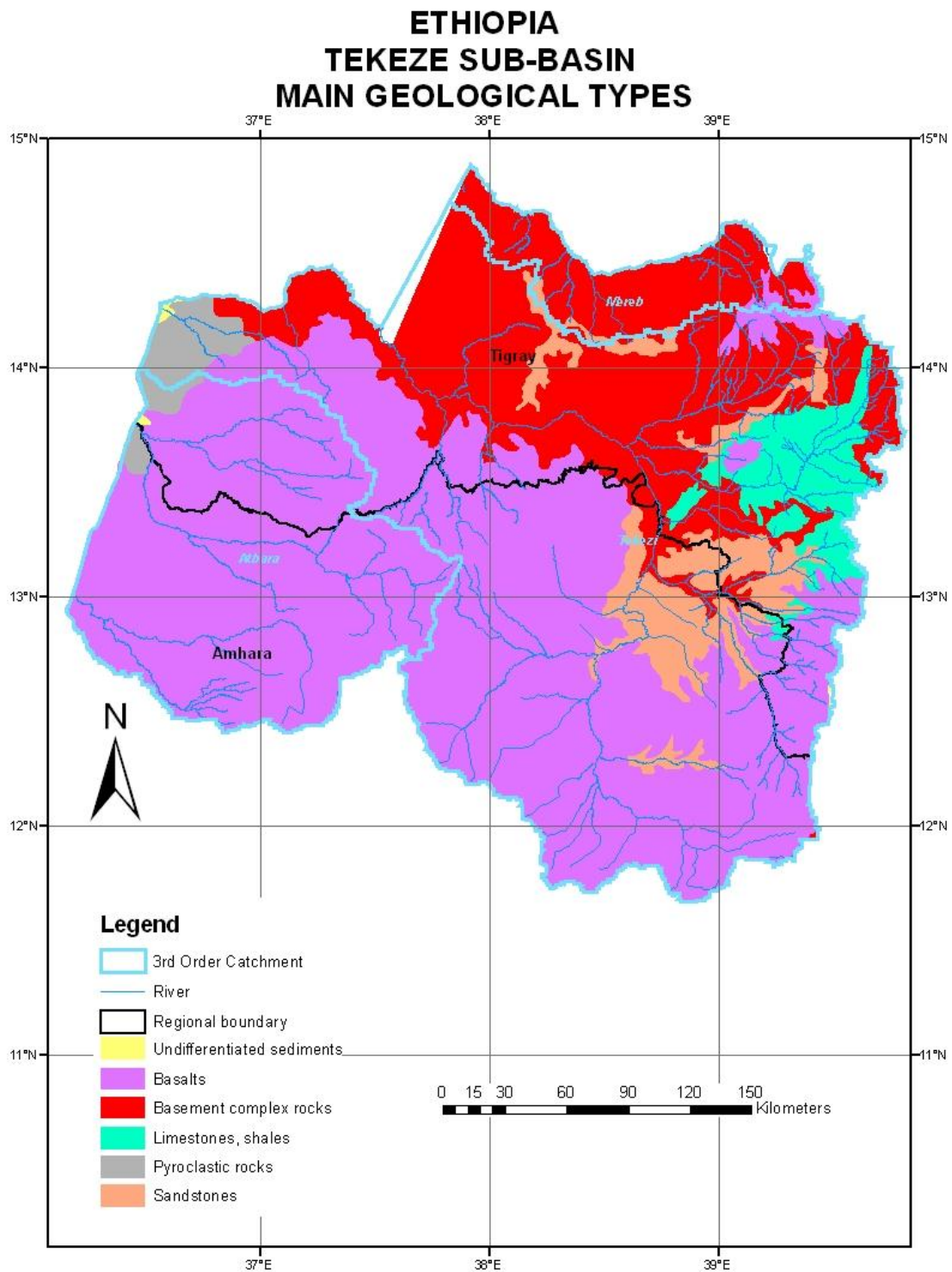
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TEKEZE SUB-BASIN
MEAN ANNUAL TEMPERATURE**



7. TEKEZE SUB-BASIN: MEAN ANNUAL EVAPORATION (mm/yr)

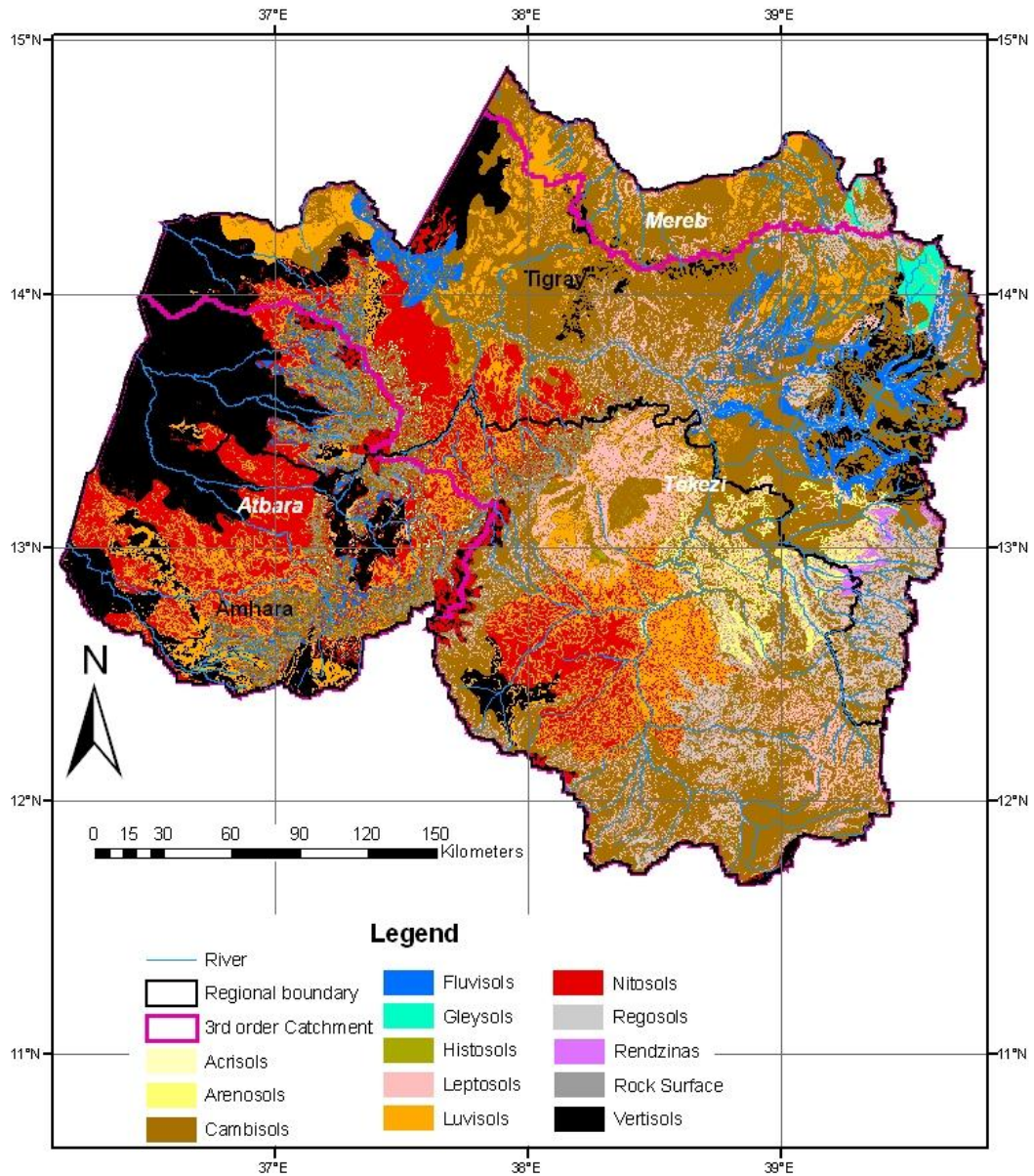


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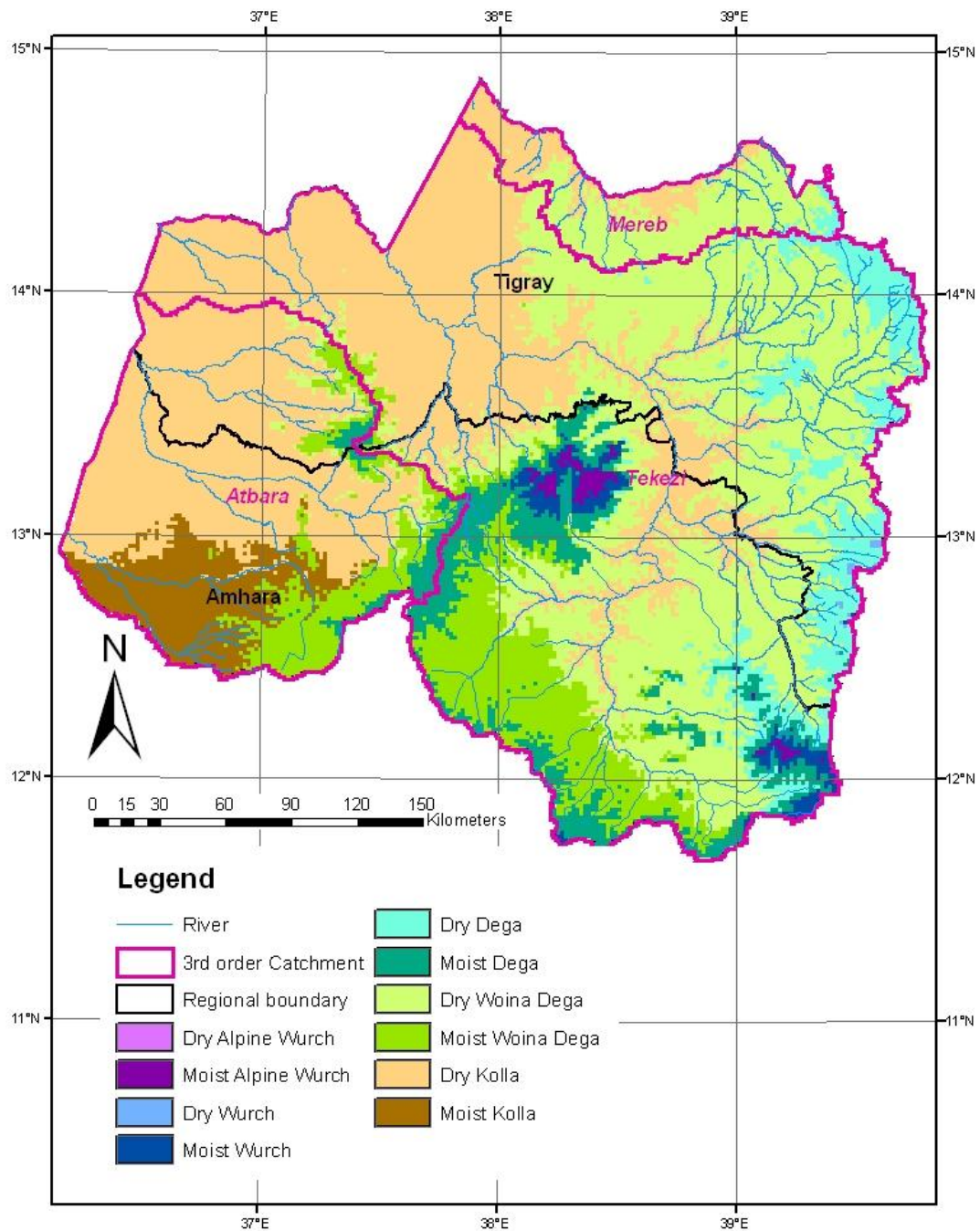
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 (Source FAO, 1998 "Soil and Terrain Database for Northeast Africa).

**ETHIOPIA
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 DOMINANT SOIL TYPES**

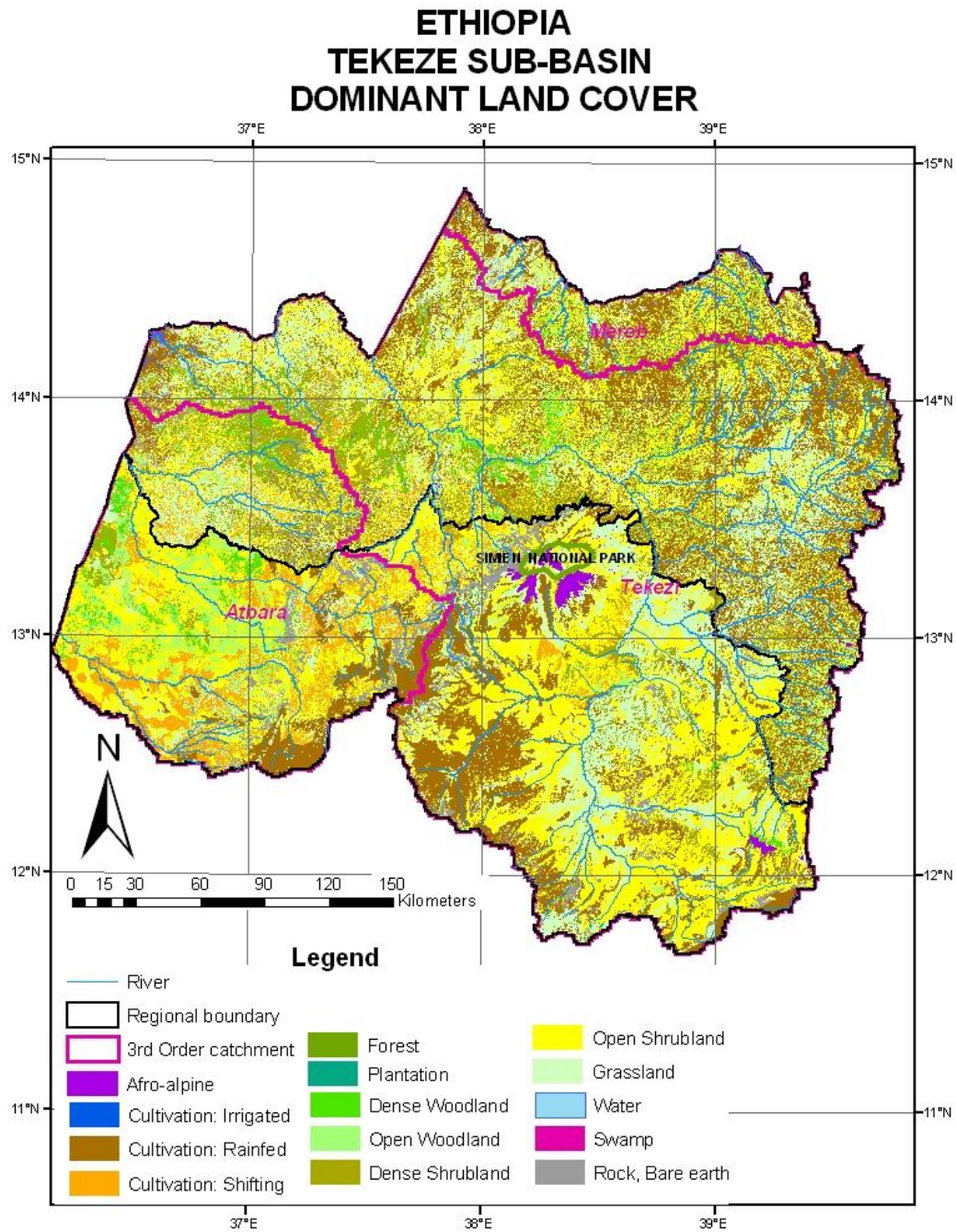


10. TEKEZE SUB-BASIN: TRADITIONAL AGRO-ECOLOGICAL ZONES.
(Source Hurni 1995)

ETHIOPIA
TEKEZE SUB-BASIN
TRADITIONAL AGRO-ECOLOGICAL ZONES

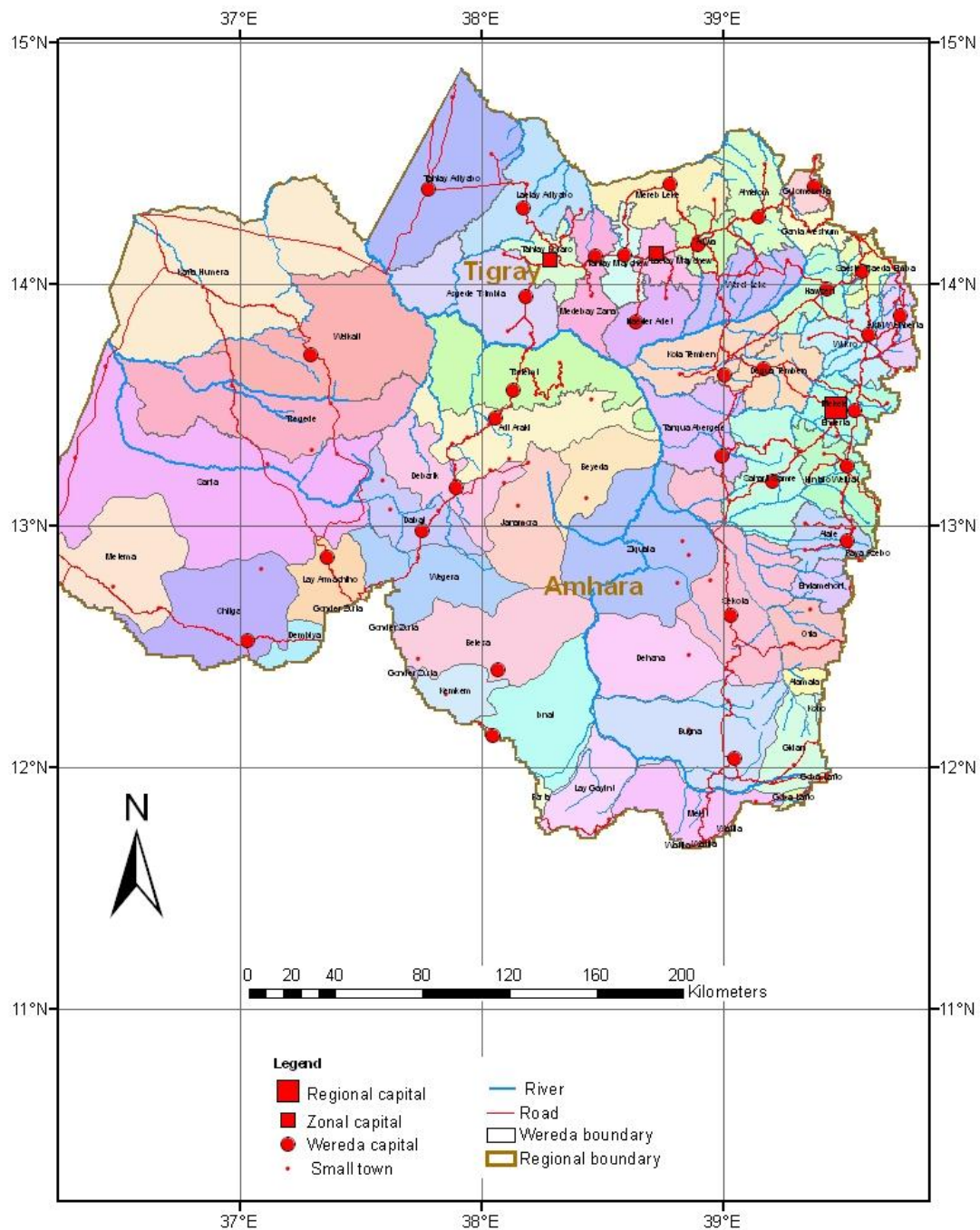


11. TEKEZE SUB-BASIN: DOMINANT LAND COVER TYPES (Source: WBISPP 2004).



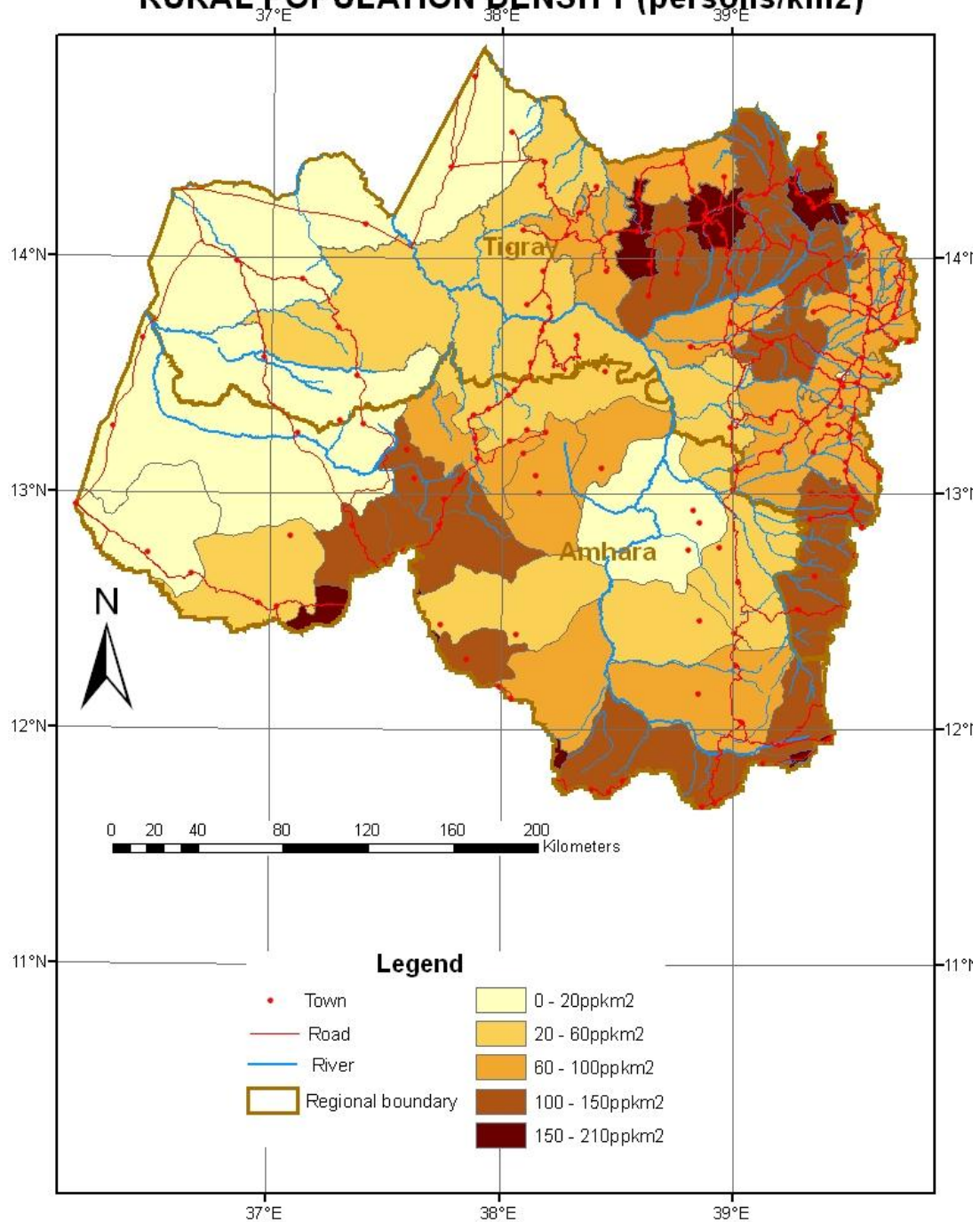
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ETHIOPIA
TEKEZI SUB-BASIN
ADMINISTRATIVE REGIONS AND WEREDAS



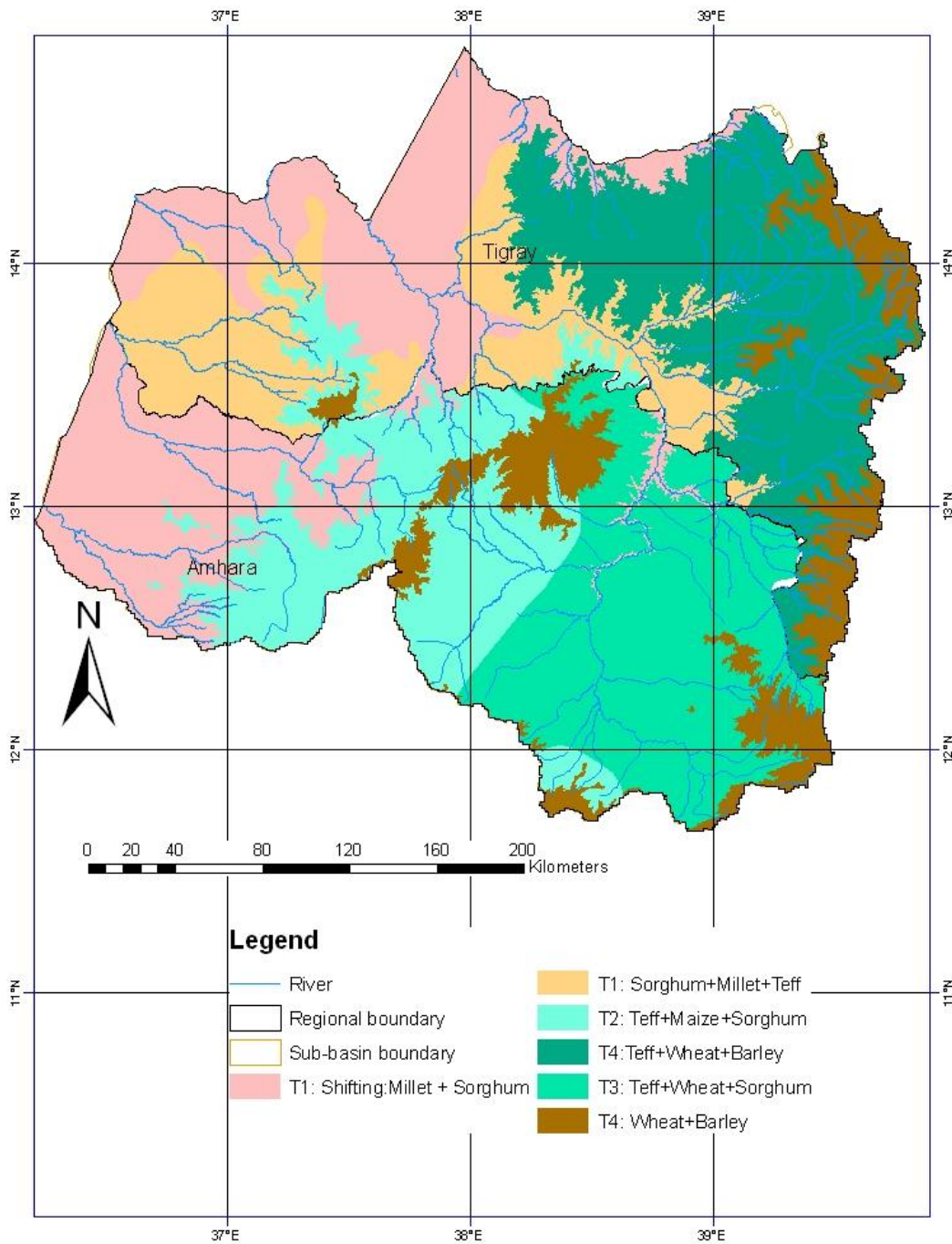
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TEKEZI SUB-BASIN
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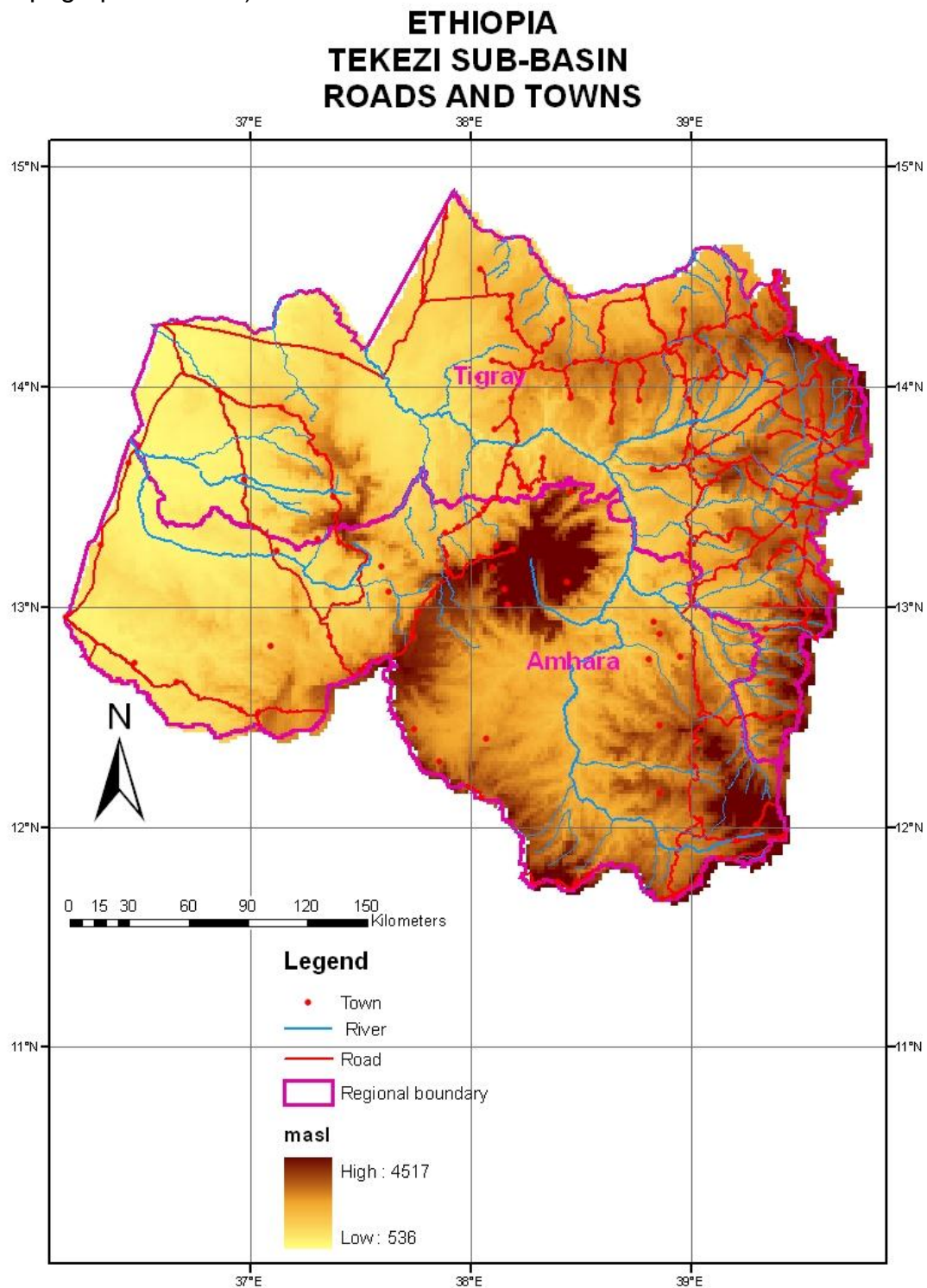


14. TEKEZE SUB-BASIN: FARMING SYSTEMS (Source: WBISPP, 2004)

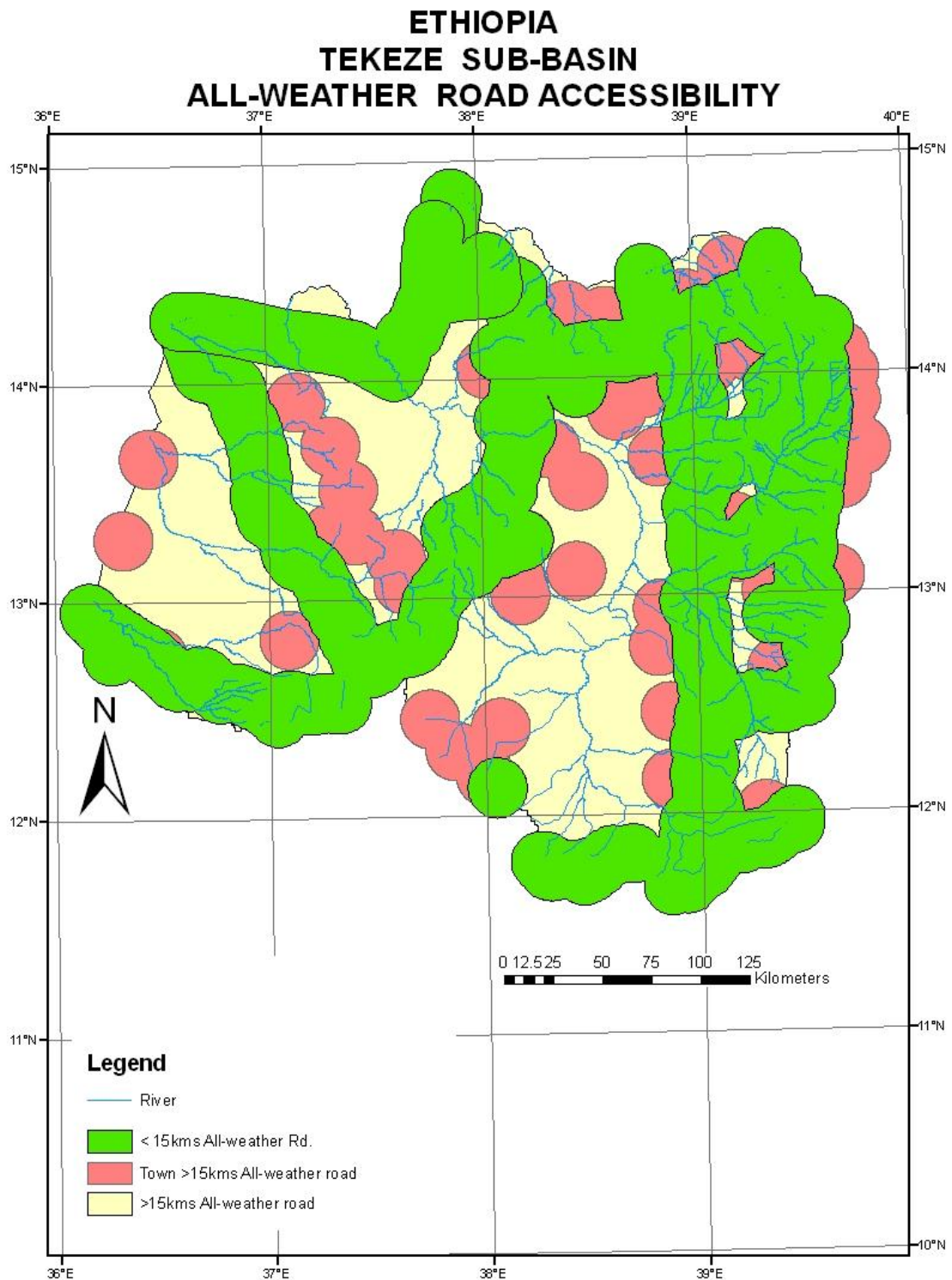
**ETHIOPIA
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15. TEKEZE SUB-BASIN: ROADS AND TOWNS (Source: EMA 1:50,000 Topographic Sheets).

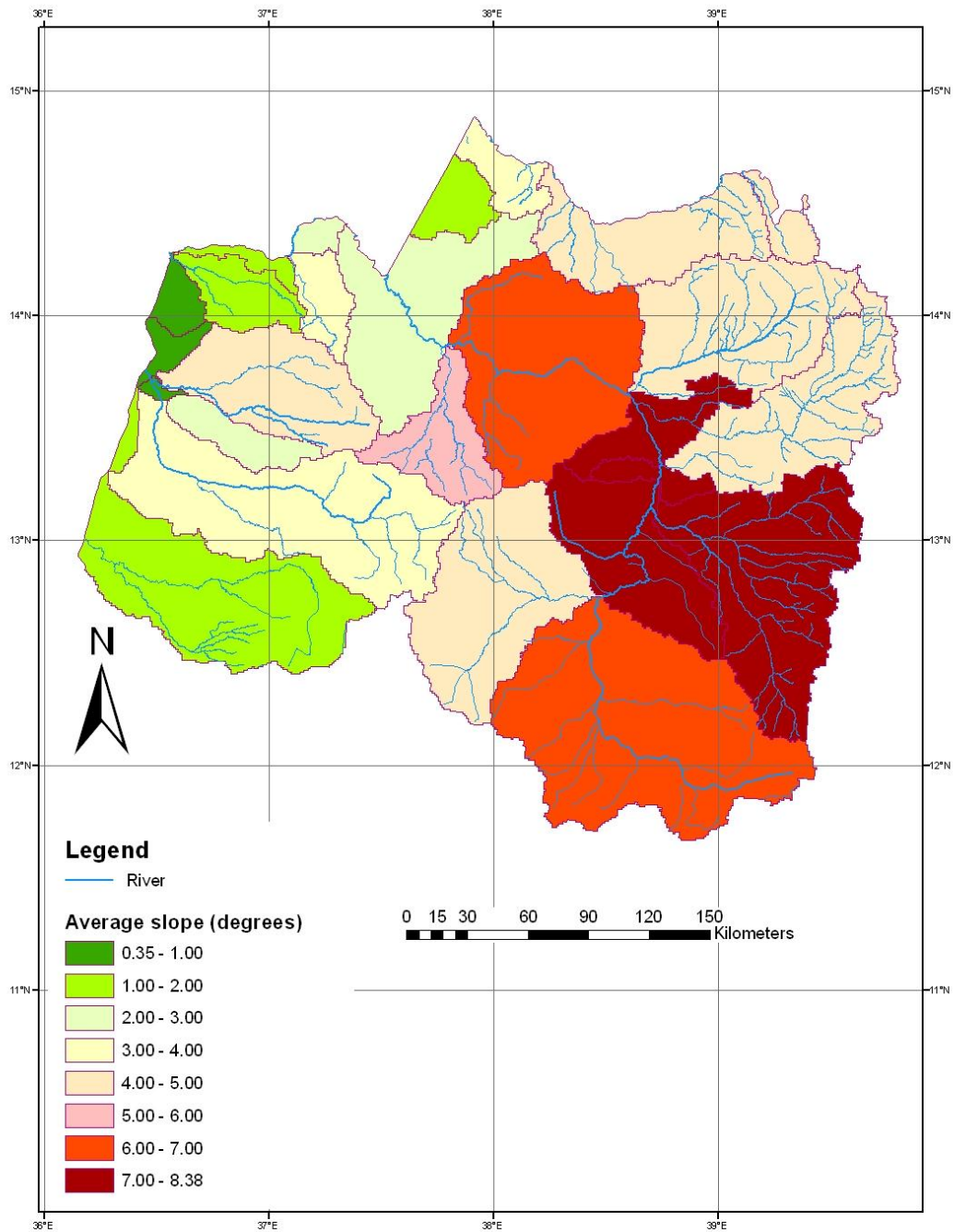


16. TEKEZE SUB-BASIN: ALL-WEATHER ROAD ACCESSIBILITY



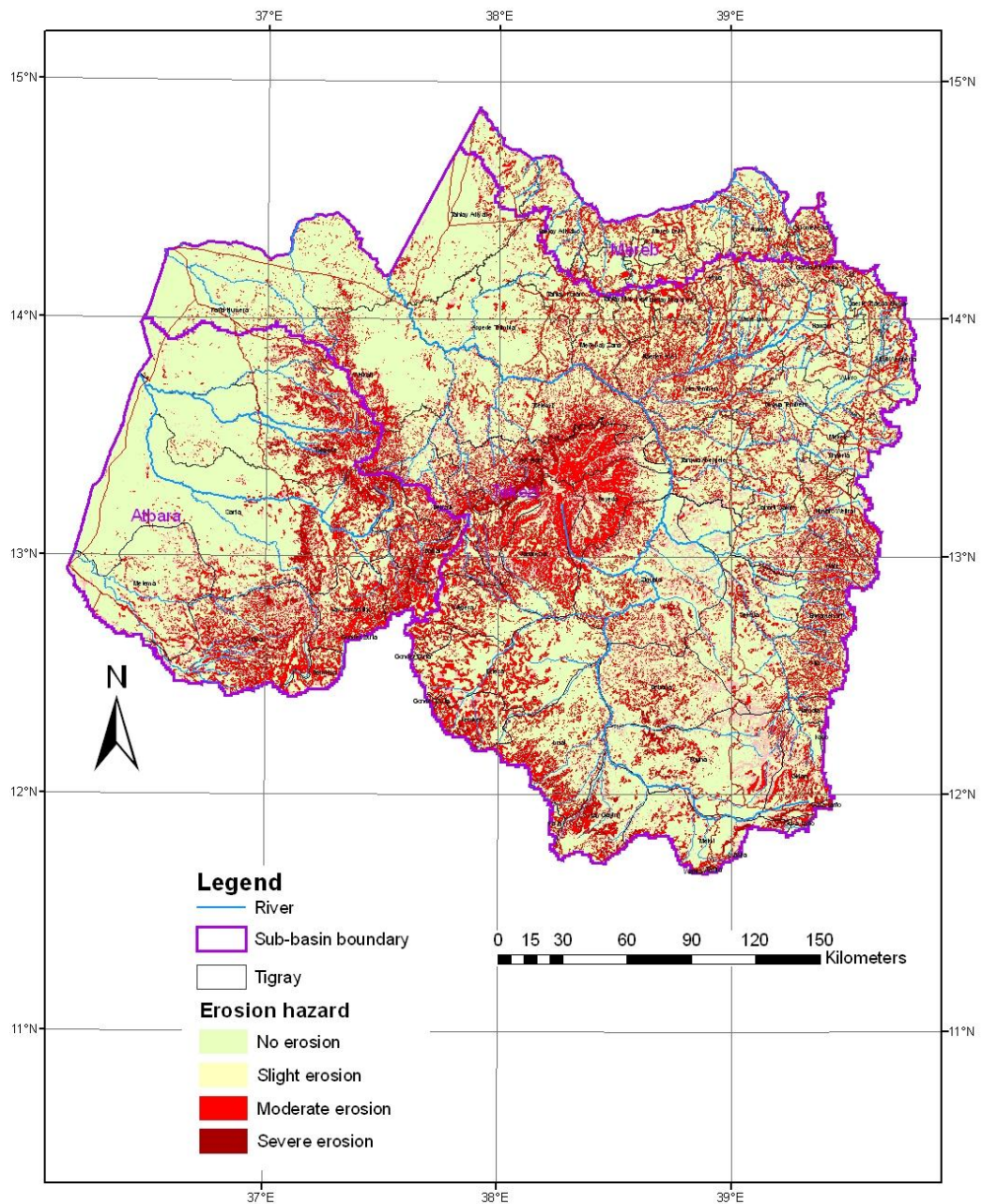
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ETHIOPIA
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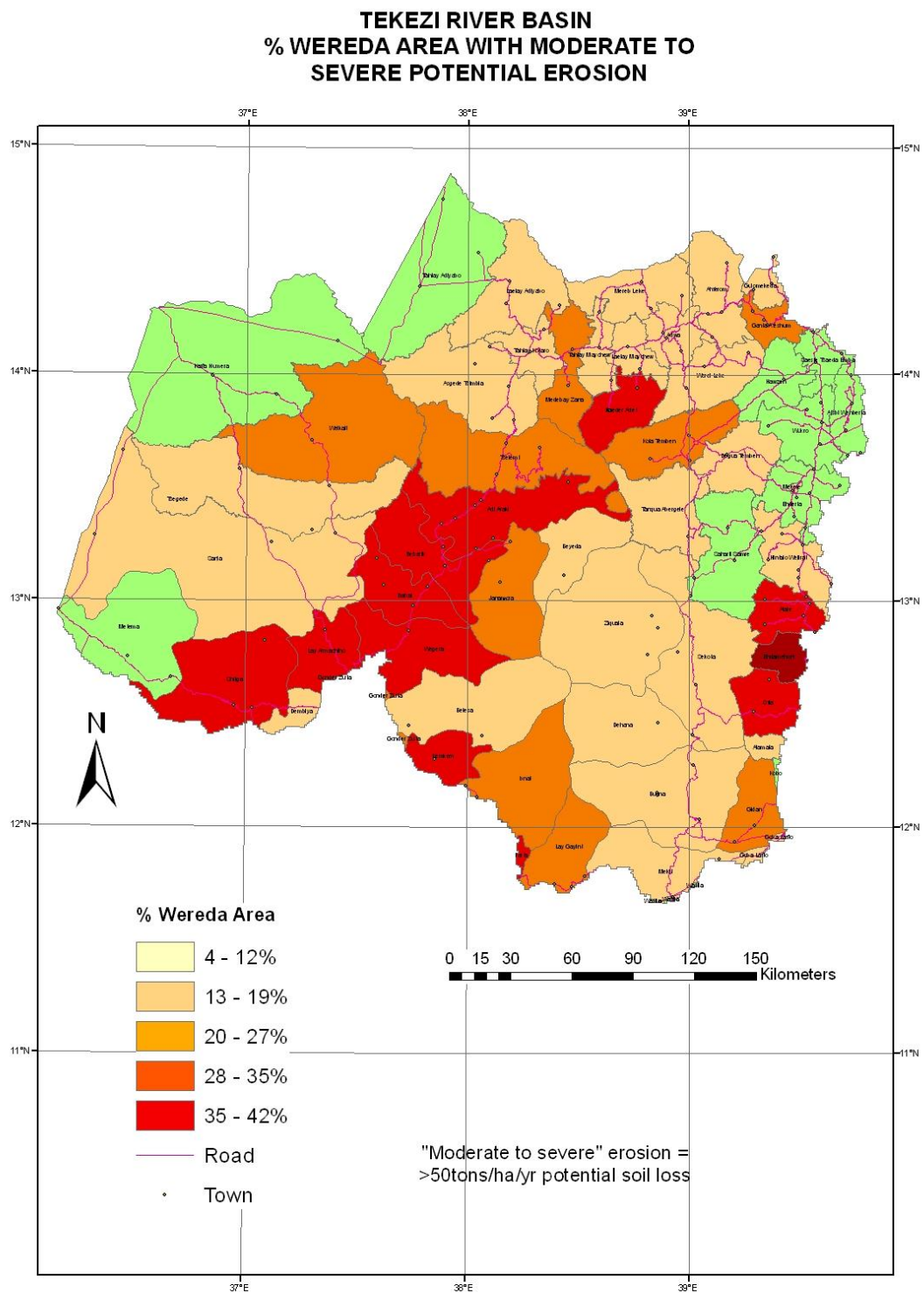


18. TEKEZE SUB-BASIN: SHEET EROSION HAZARD (Source: WBISPP 2004)

ETHIOPIA TEKEZI BASIN SHEET EROSION HAZARD

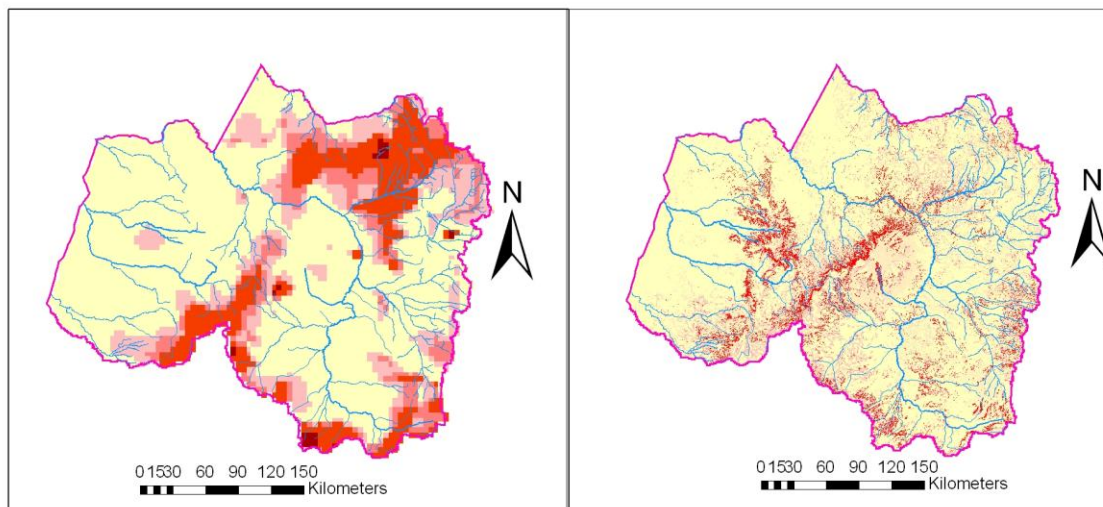


19. TEKEZE SUB-BASIN: % WEREDA AREA WITH MODERATE TO SEVERE POTENTIAL EROSION HAZARD (Source: WBISPP 2004)



20. TEKEZE SUB-BASIN; POPULATION DENSITY AND SOIL LOSS RATES

TEKEZI BASIN: POPULATION DENSITY AND SOIL LOSS RATES



Legend

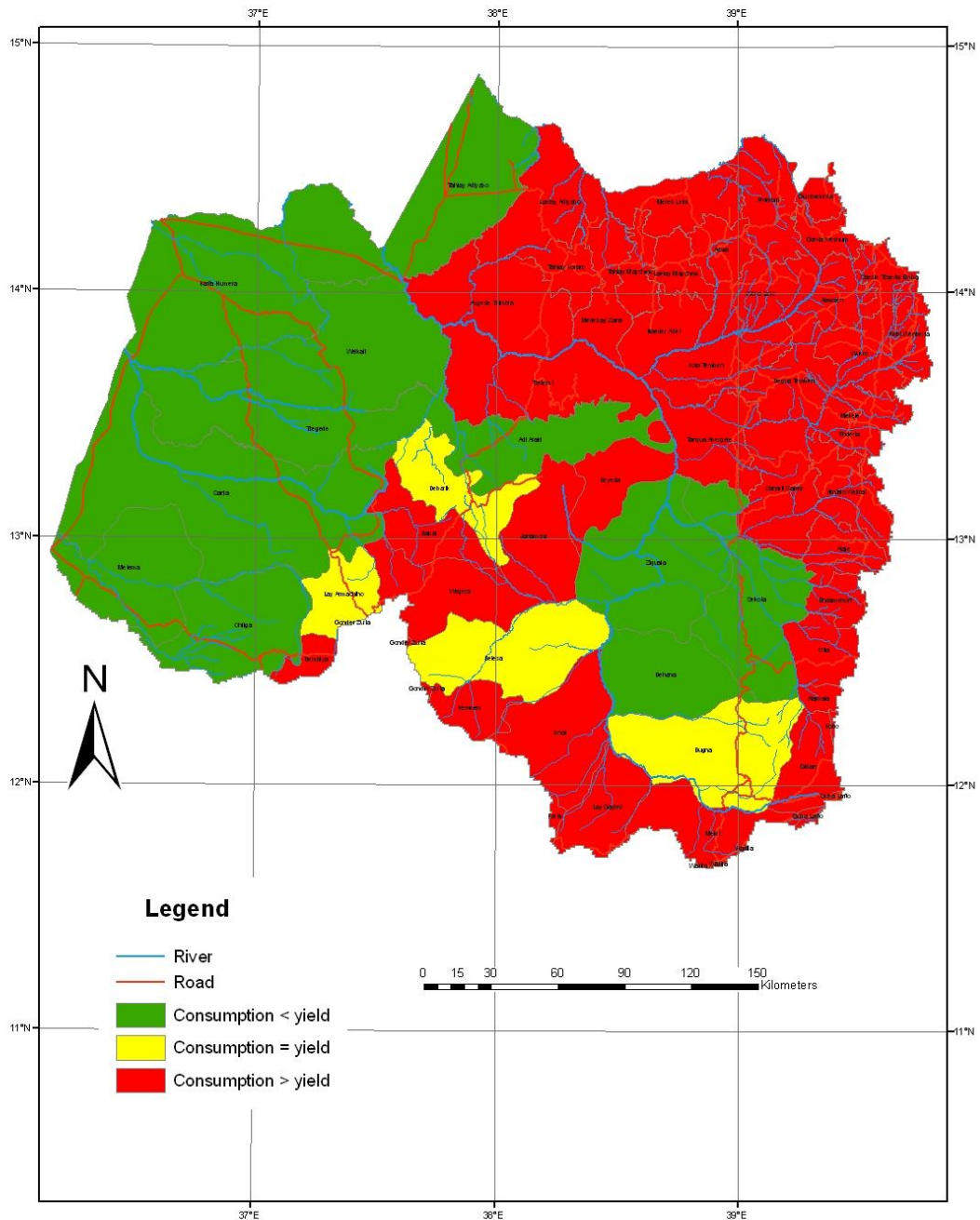
- River
- Sub-basin boundary
- 0 - 33ppkm2
- 33 - 56ppkm2
- 56 - 80ppkm2
- 80 - 216ppkm2
- >216ppkm2

Legend

- River
- Soil erosion rates**
- <3.25t/ha
- 3.25 - 6t/ha
- 6 - 25t/ha
- 25 - 100t/ha
- >100t/ha

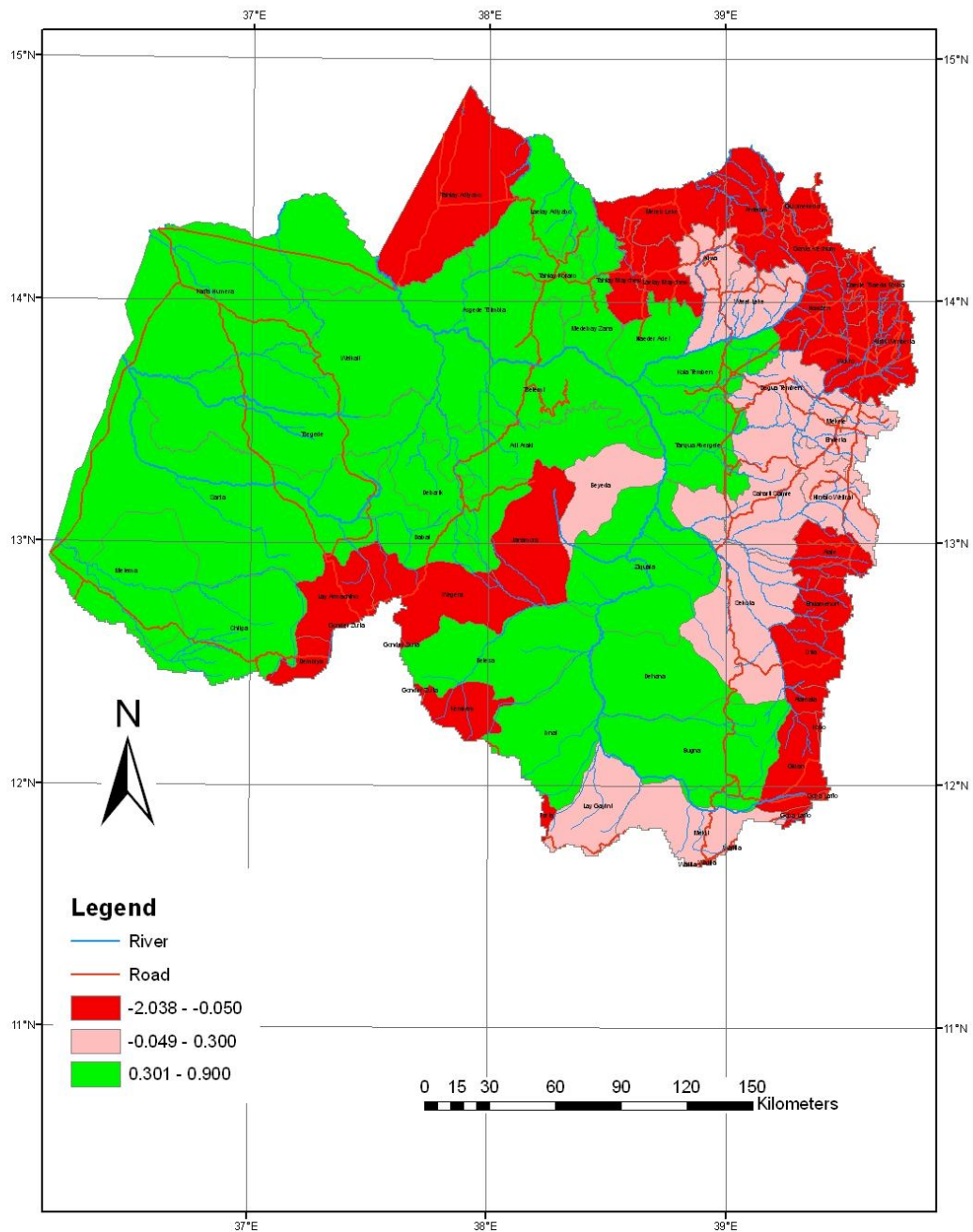
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**ETHIOPIA
TEKEZI BASIN
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IN RELATION TO ANNUAL SUSTAINABLE YIELD**



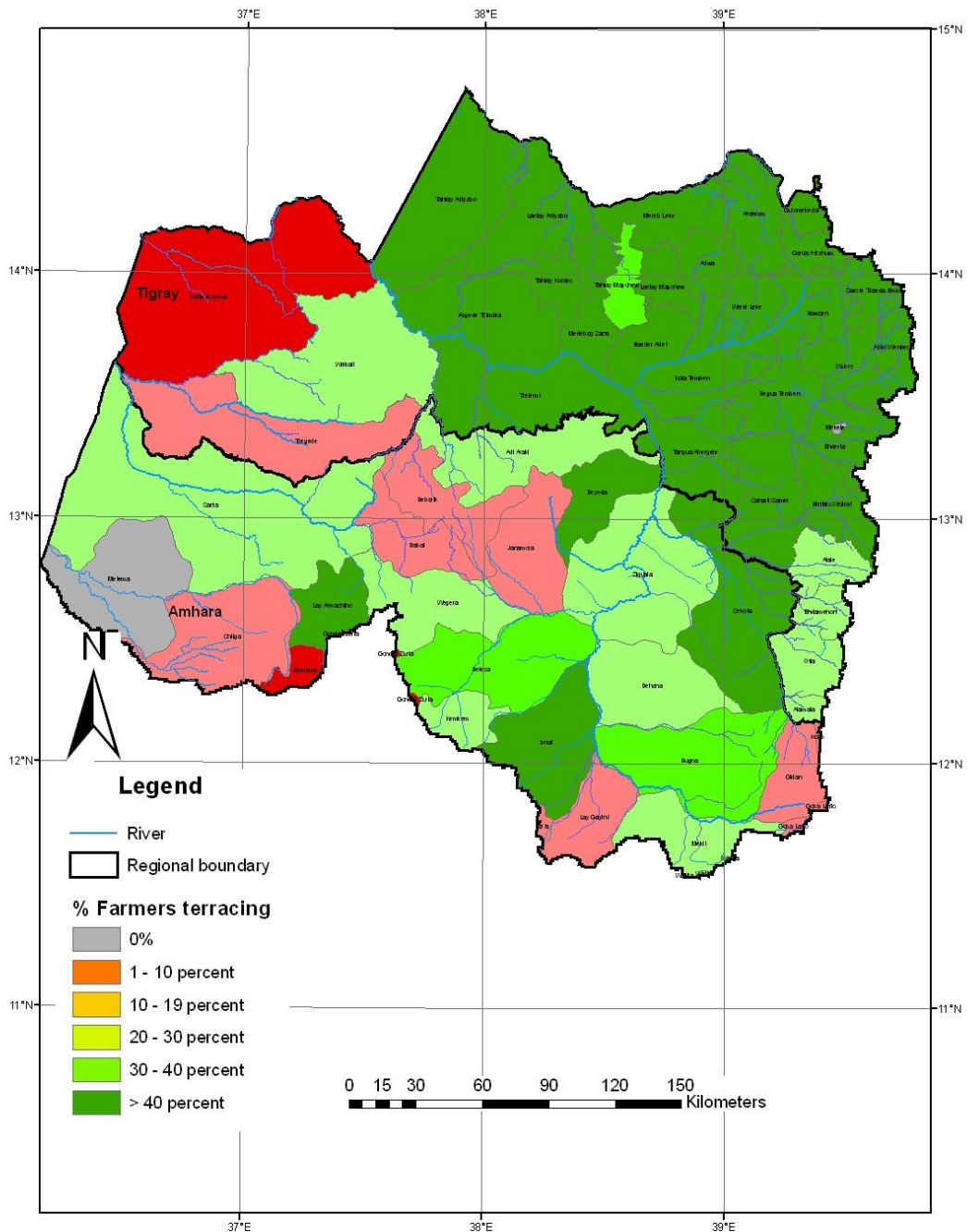
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(Source WBISPP 2004)

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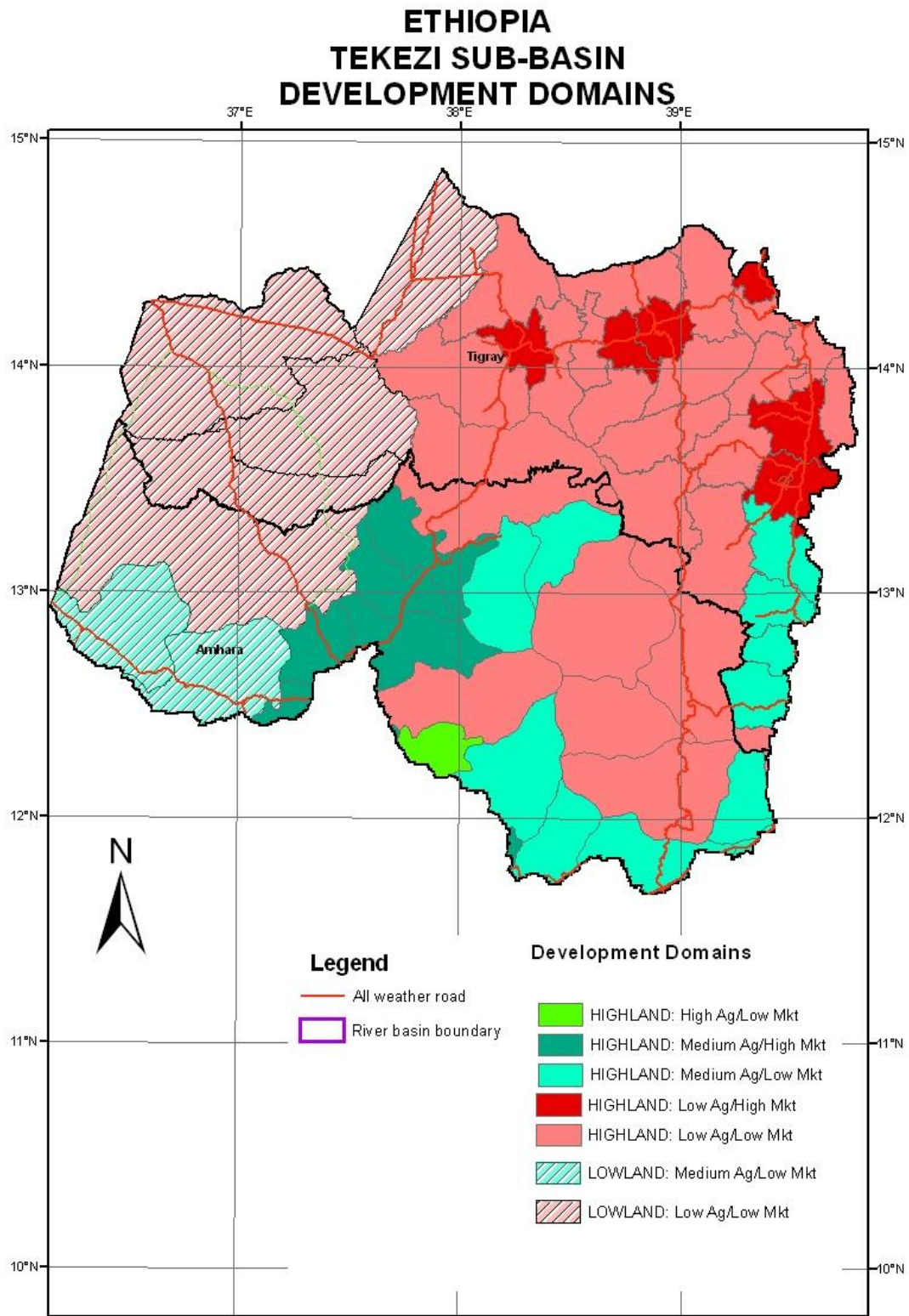


23. TEKEZE SUB-BASIN: % FARMERS PRACTICING TERRACING
(Source Mahmud Jesuf & John Pender (2005).

**ETHIOPIA
TEKEZI BASIN
% FARMERS PRACTICING TERRACING**



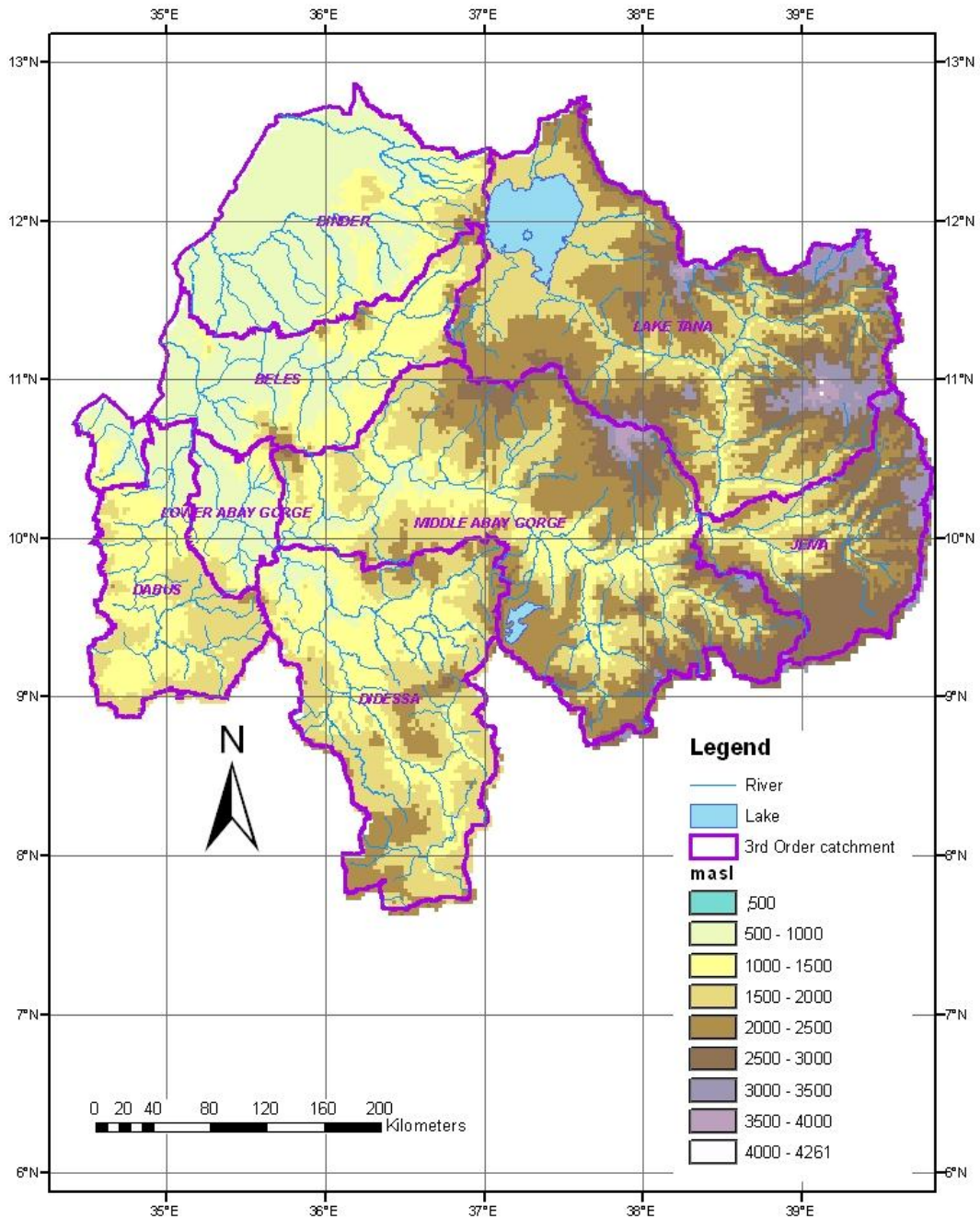
24. TEKEZE SUB-BASIN: DEVELOPMENT DOMAINS (Adapted from Mahmud Jesuf & John Pender (2005).



C. ABAY SUB-BASIN

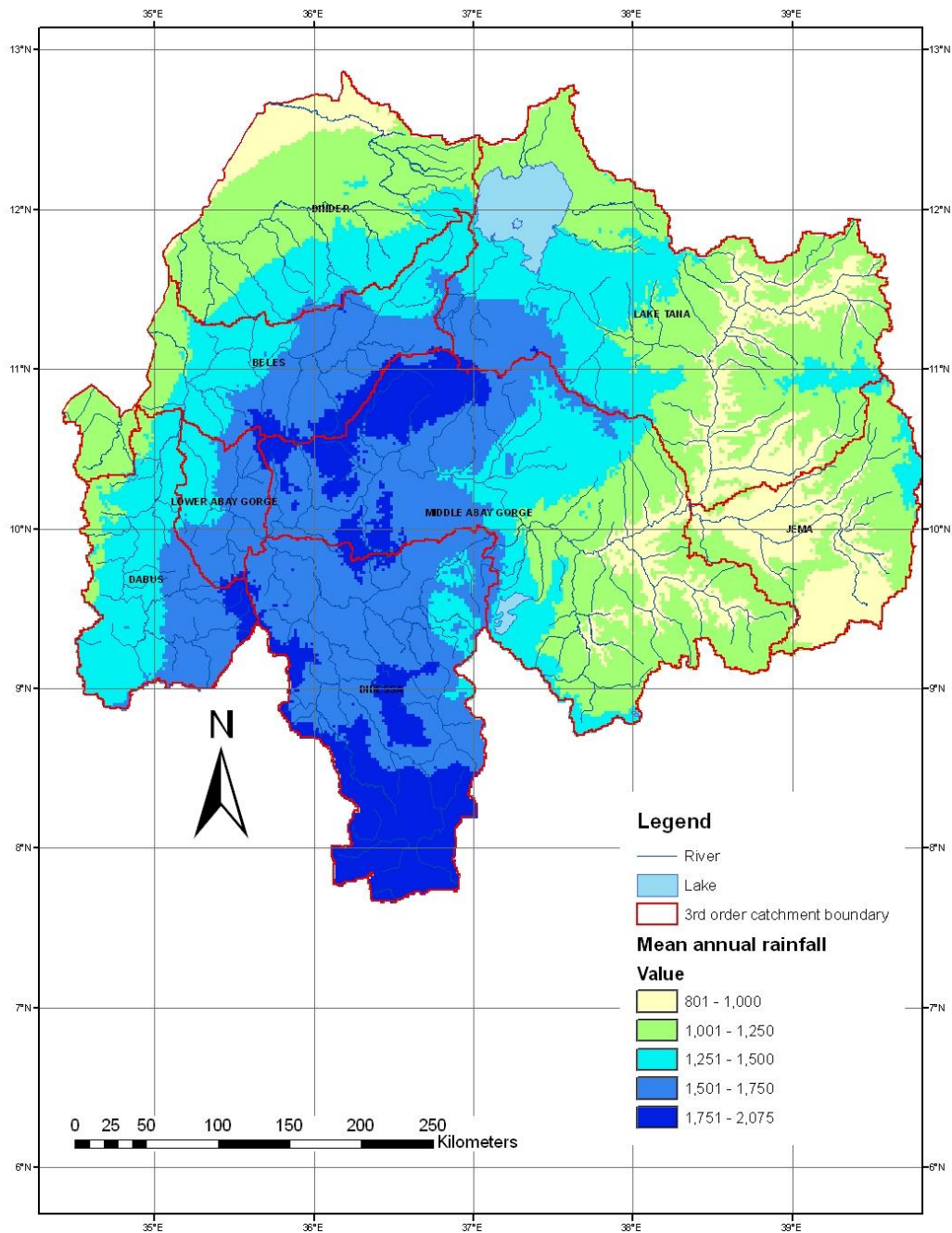
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**ETHIOPIA
ABAY SUB-BASIN
RELIEF AND DRAINAGE**



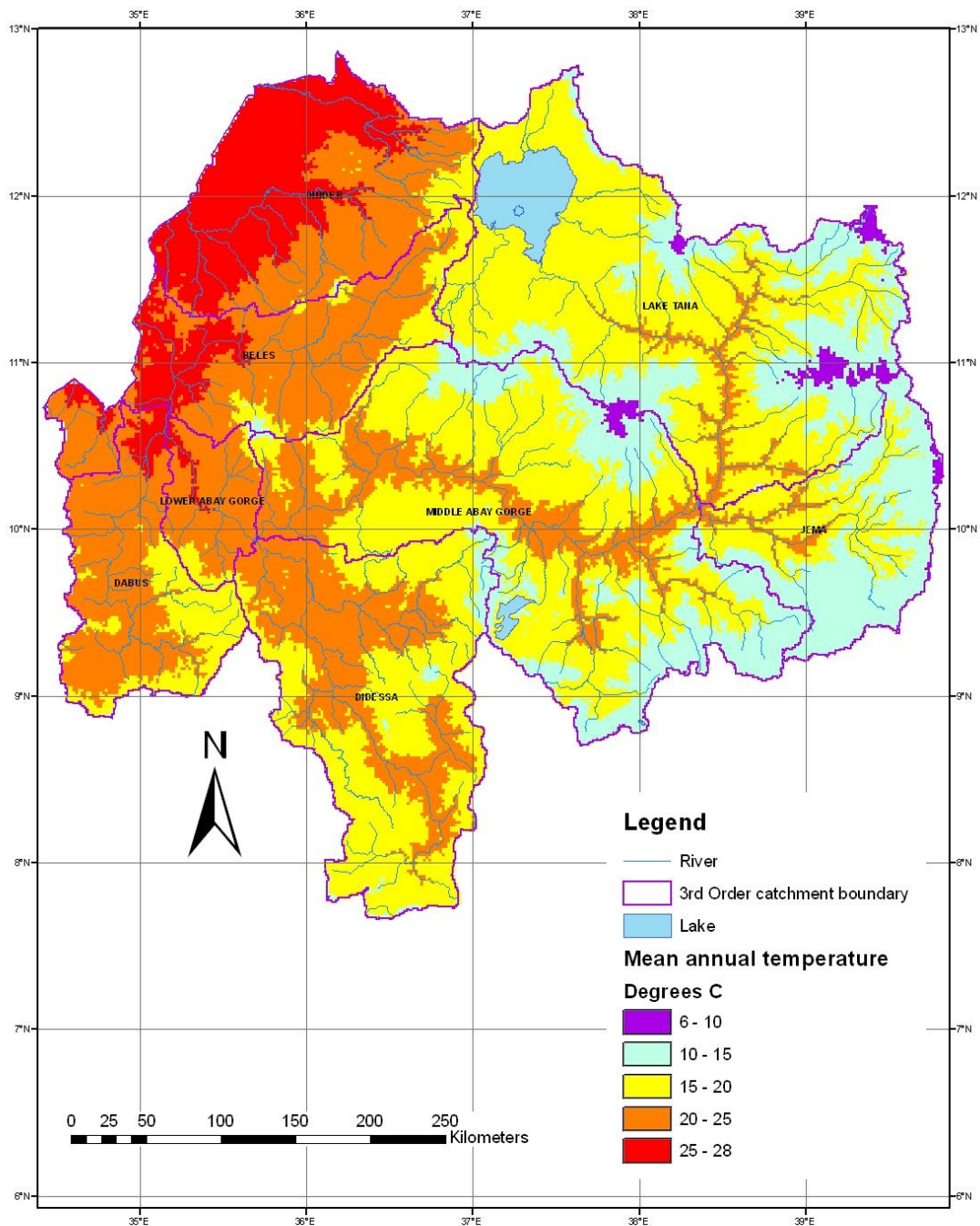
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**ETHIOPIA
ABAY SUB-BASIN
MEAN ANNUAL RAINFALL**



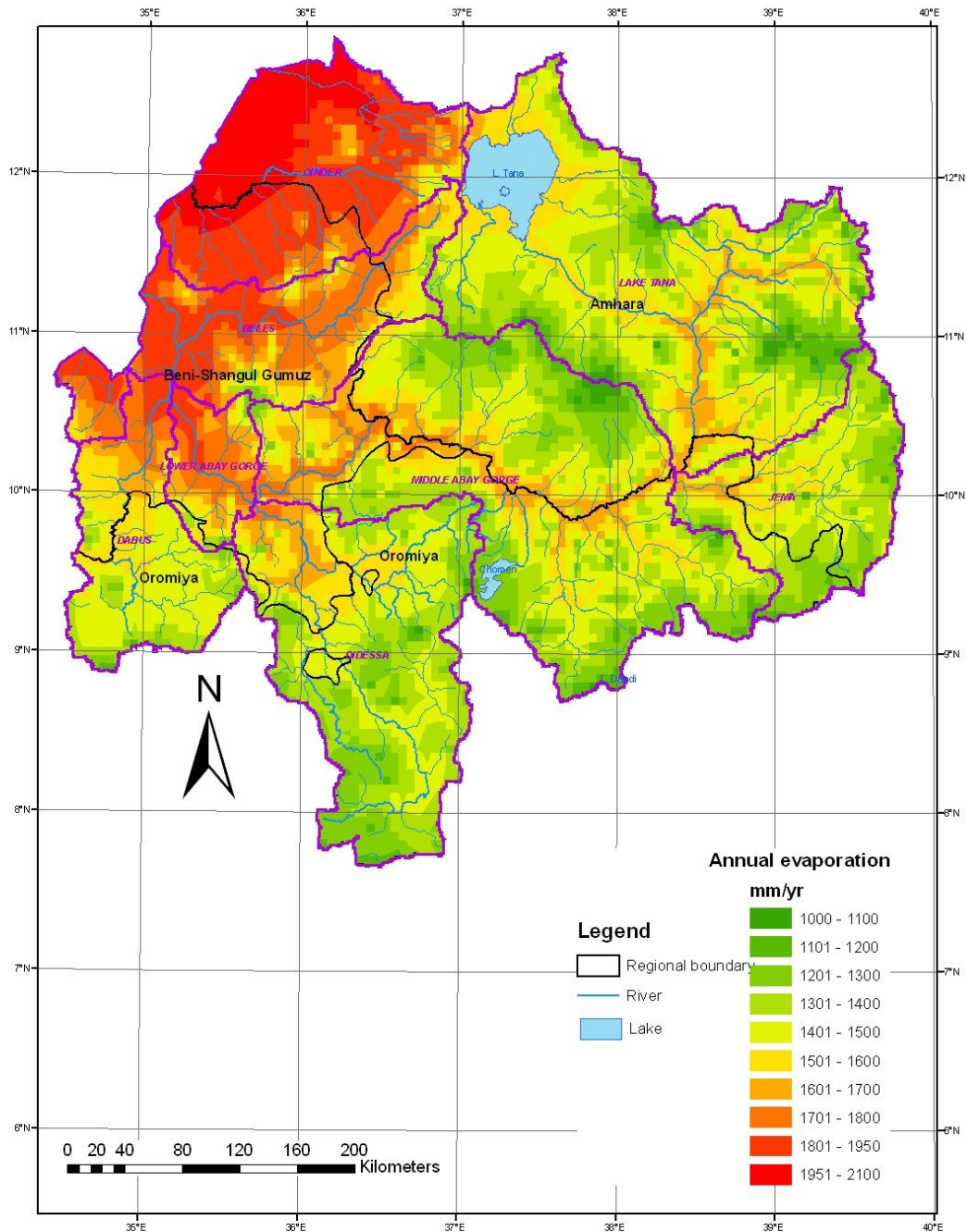
27. ABAY SUB-BASIN: MEAN ANNUAL TEMPERATURE (Degrees C).

**ETHIOPIA
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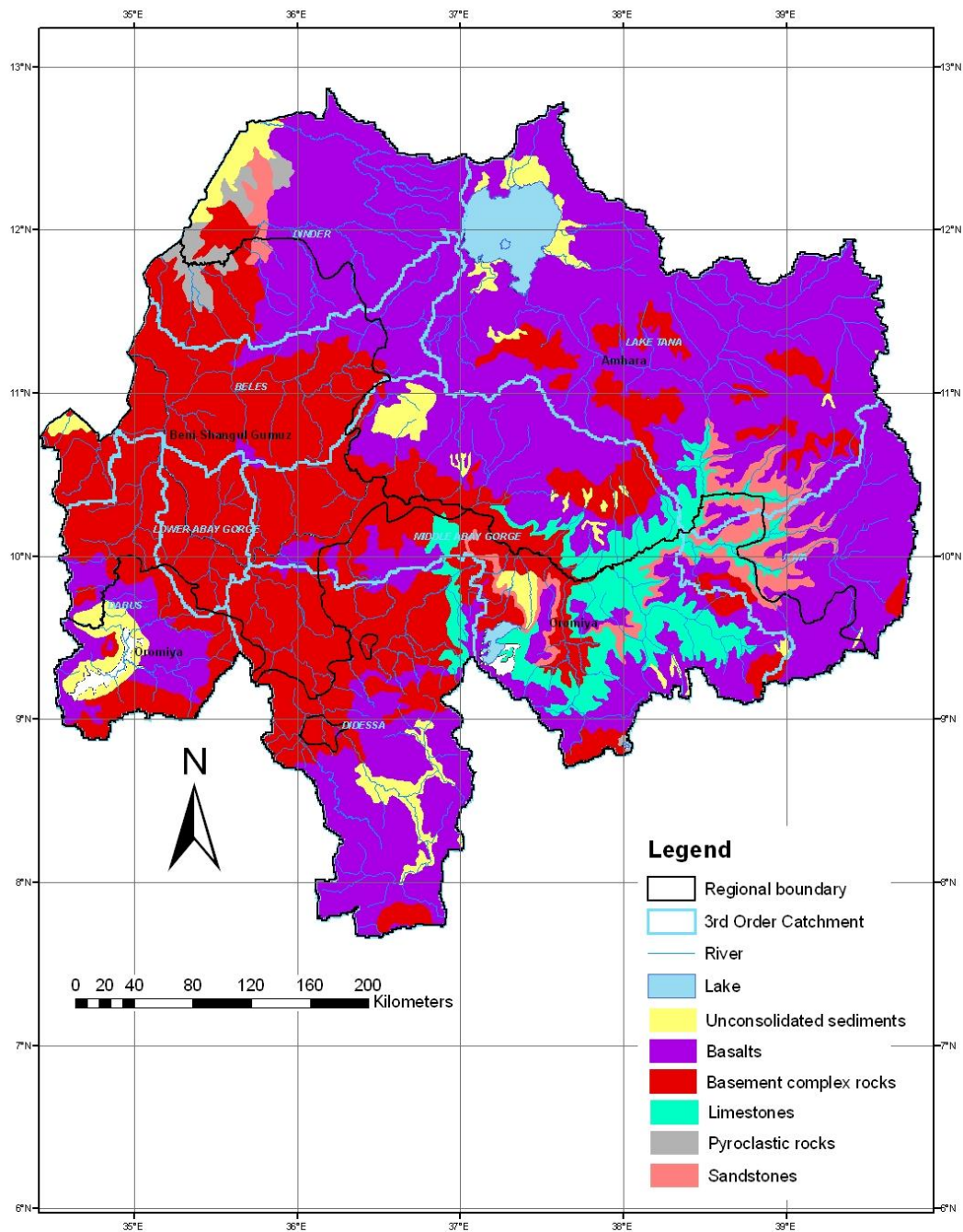
28. ABAY SUB-BASIN: MEAN ANNUAL EVAPORATION (mm/yr)

**ETHIOPIA
ABAY BASIN
ANNUAL EVAPORATION (mm/yr)**



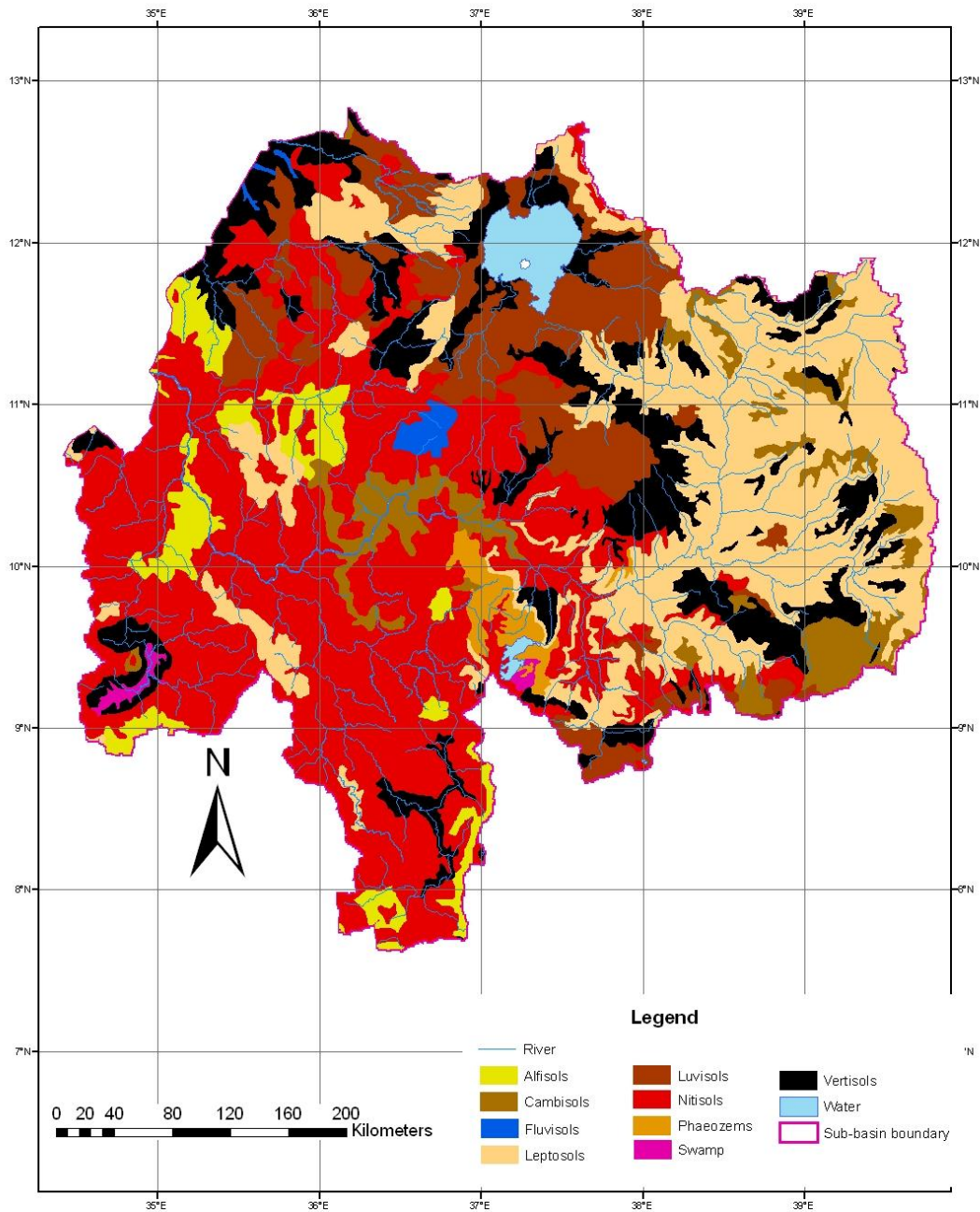
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ETHIOPIA ABAY SUB-BASIN GEOLOGY

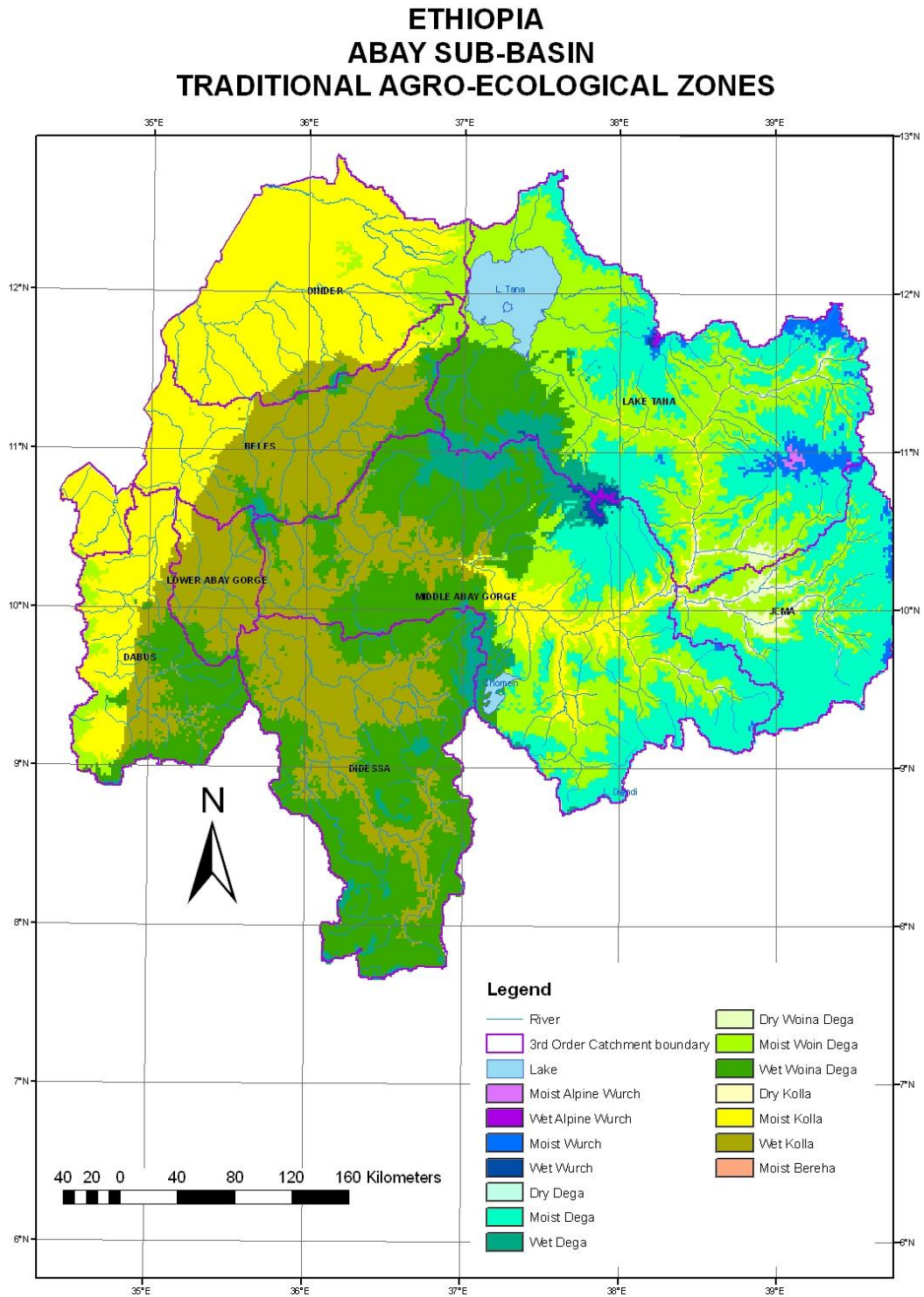


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**ETHIOPIA
ABAY SUB-BASIN
DOMINANT SOIL TYPE
(FAO Classification)**

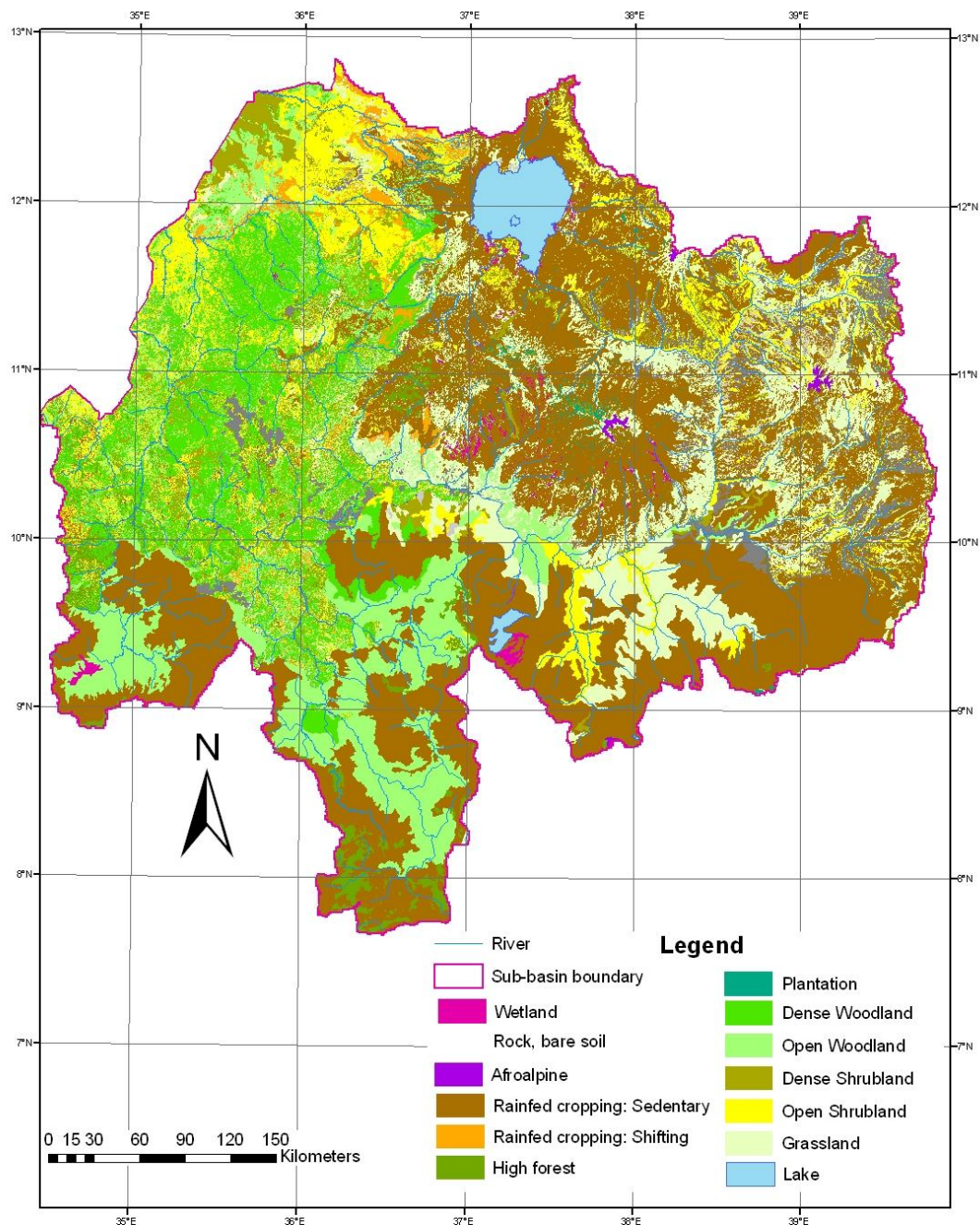


31. ABAY SUB-BASIN: TRADITIONAL AGRO-ECOLOGICAL ZONES
(Source: Hurni, H 1995)



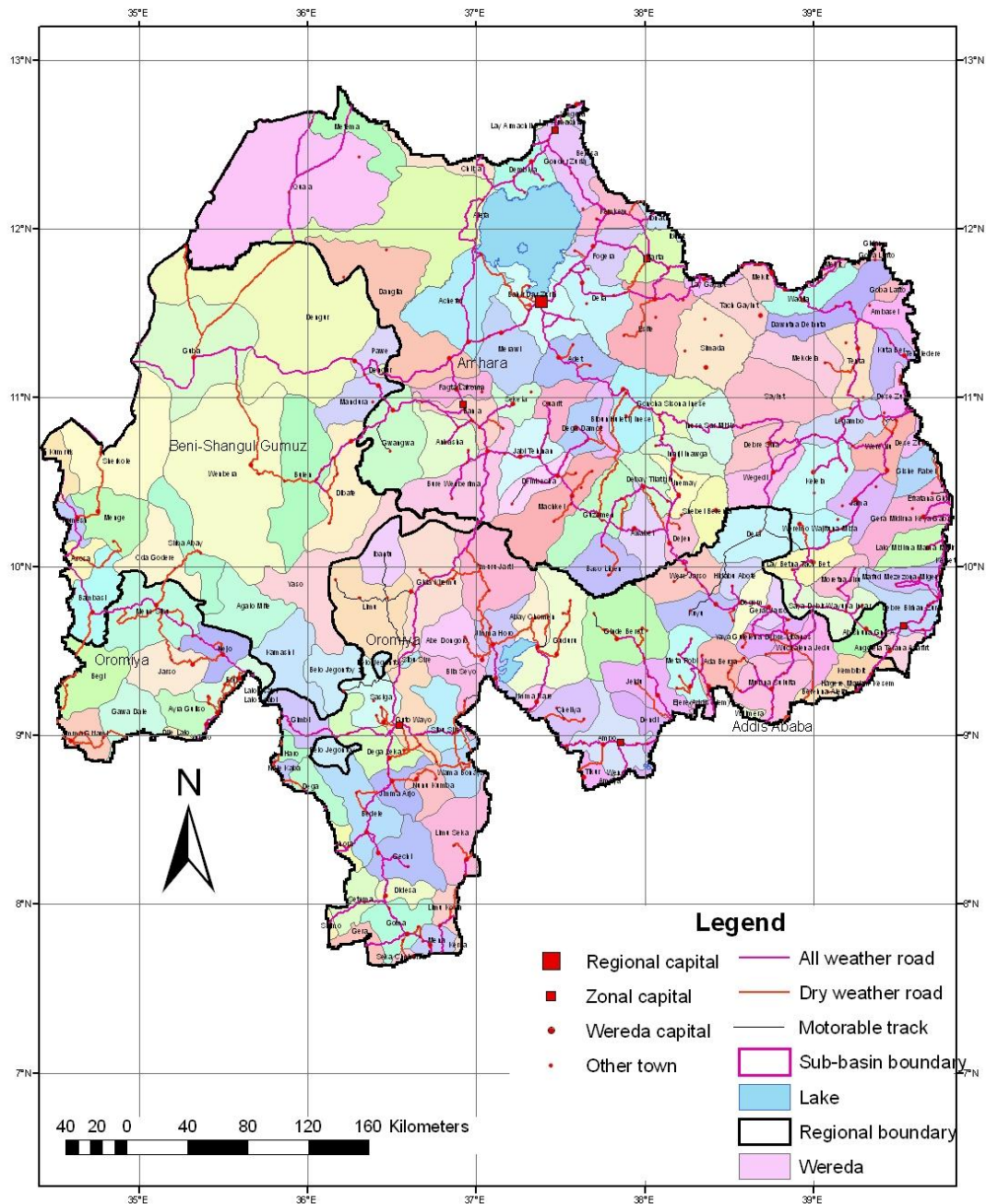
32. ABAY SUB-BASIN: DOMINANT LAND COVER (Source: WBISPP 2004).

ETHIOPIA ABAY SUB-BASIN DOMINANT LAND COVER

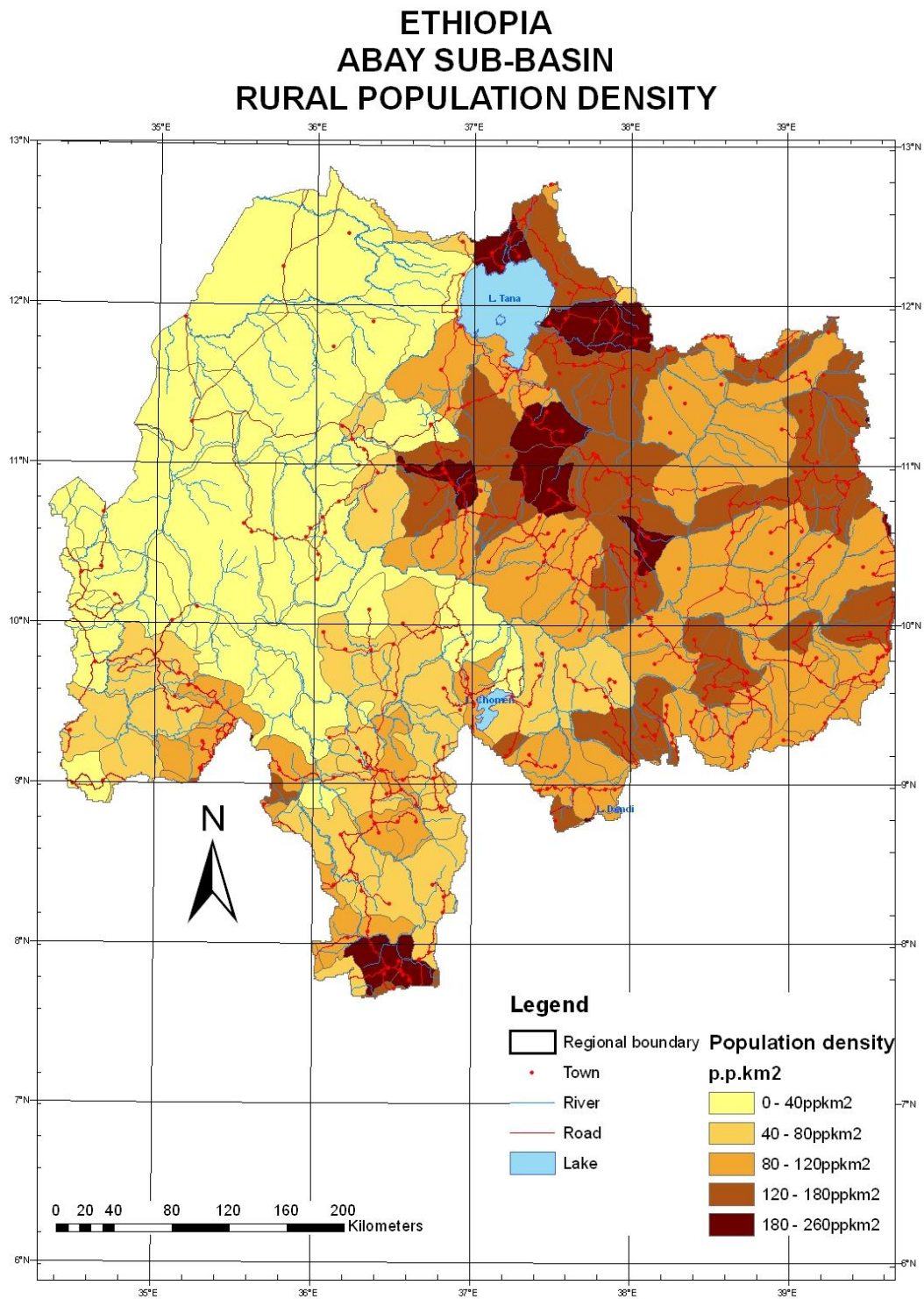


33. ABAY SUB-BASIN: ADMINISTRATION (REGIONS).

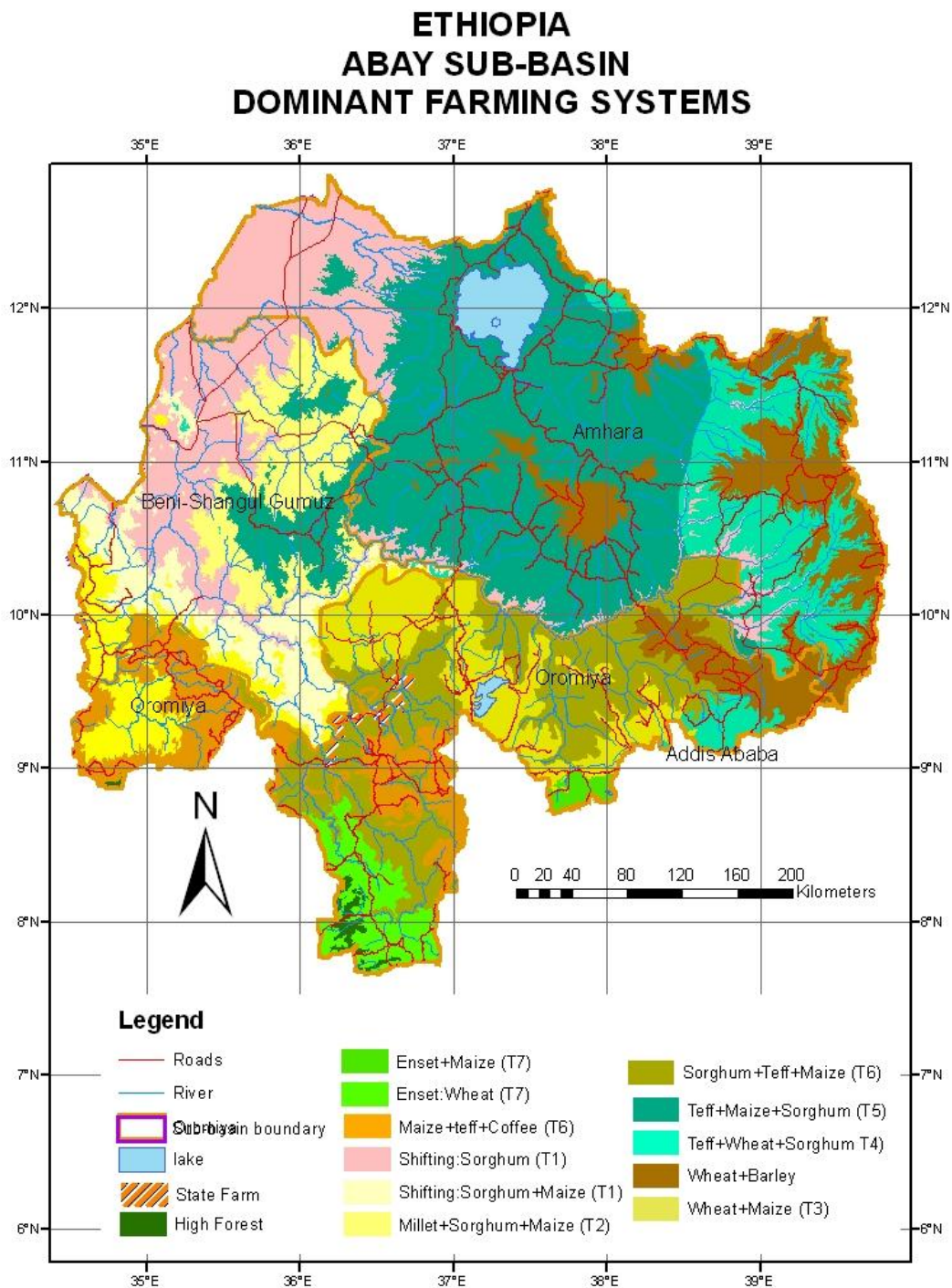
**ETHIOPIA
ABAY SUB-BASIN
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34. ABAY SUB-BASIN: POPULATION DENSITIES (Source: CSA 2003).

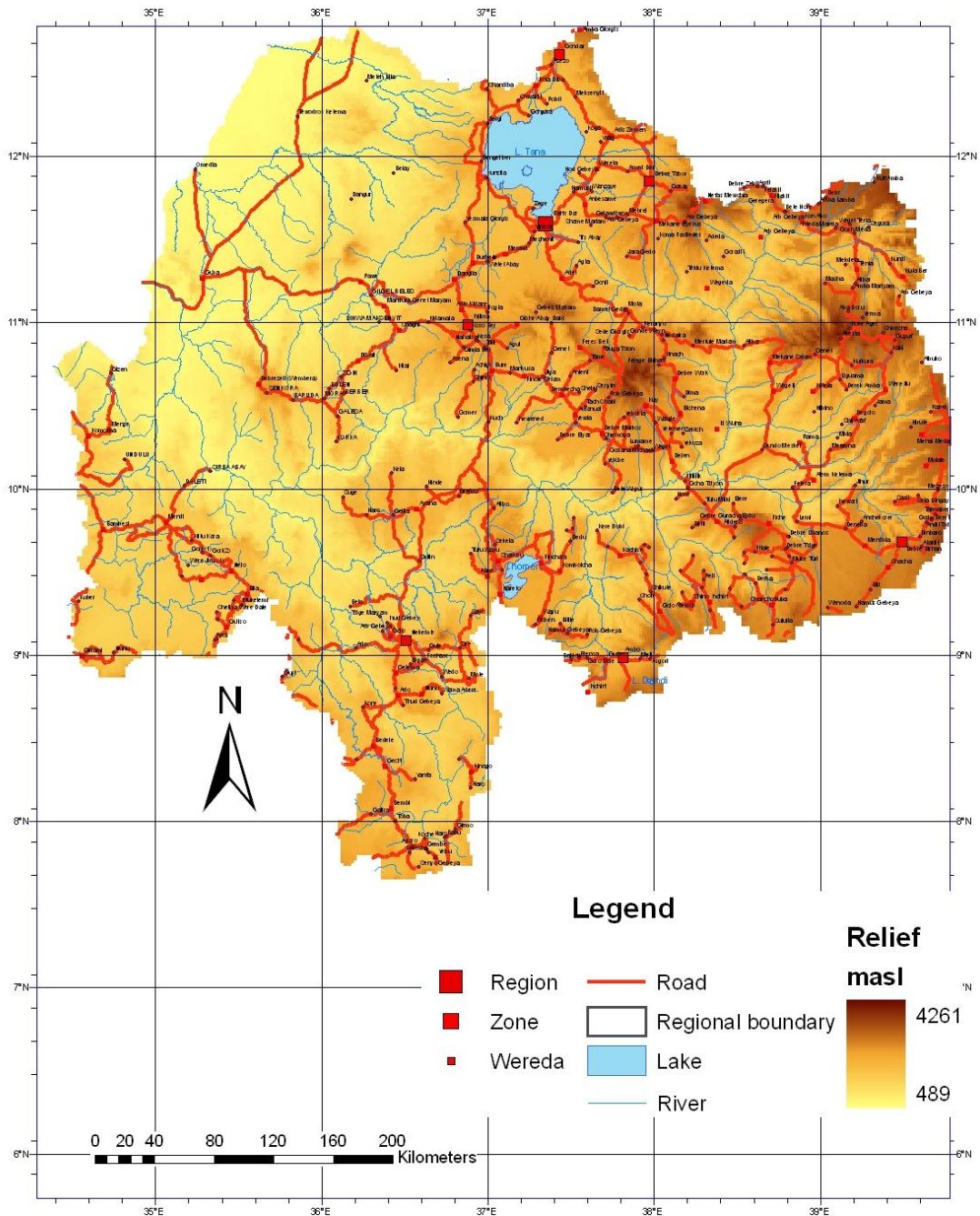


35. ABAY SUB-BASIN: DOMINANT FARMING SYSTEMS (WBISPP 2004)



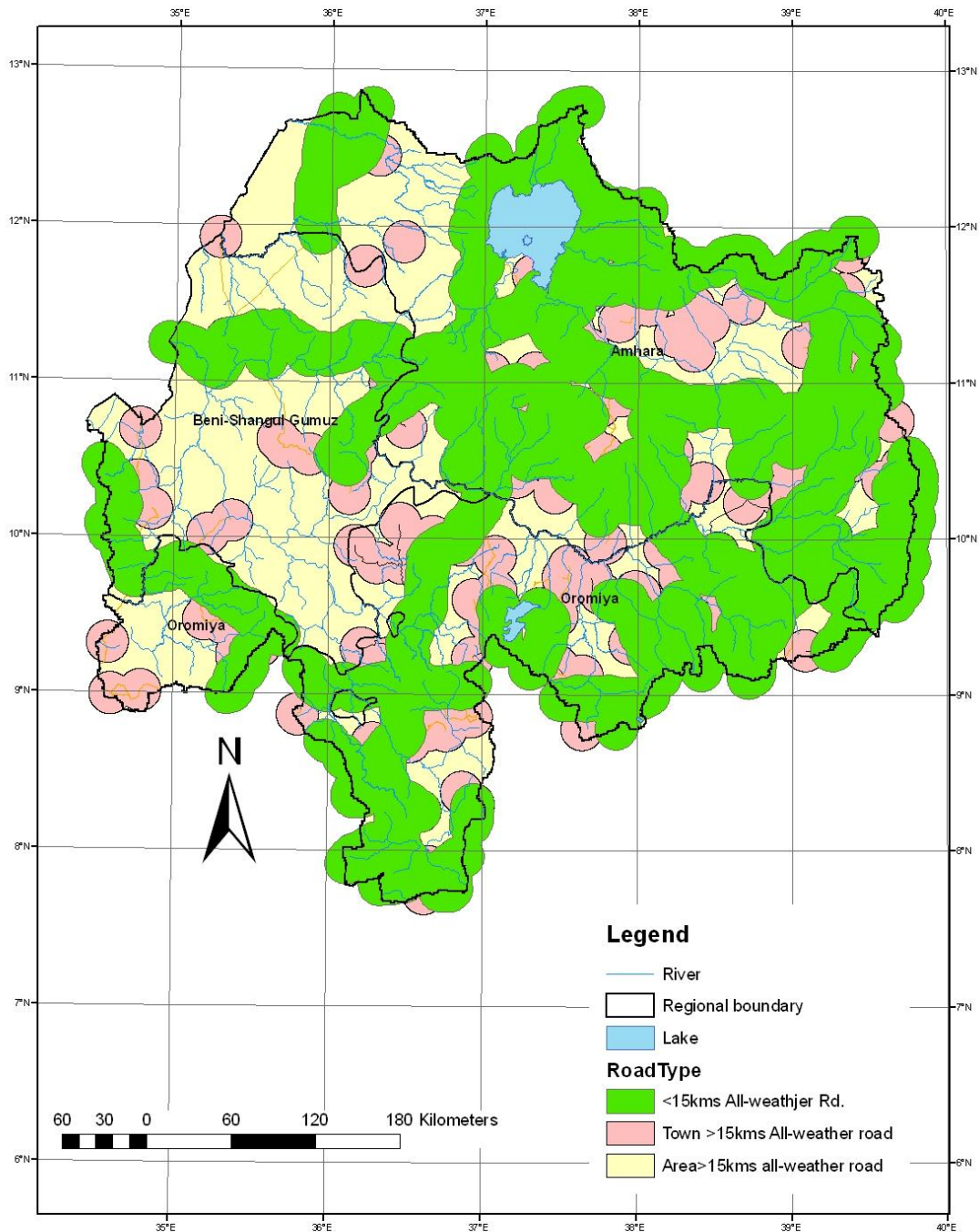
36. ABAY SUB-BASIN: ROADS AND TOWNS (Source: EMA 1:50,000 map sheets).

ETHIOPIA ABAY SUB-BASIN ROADS AND TOWNS



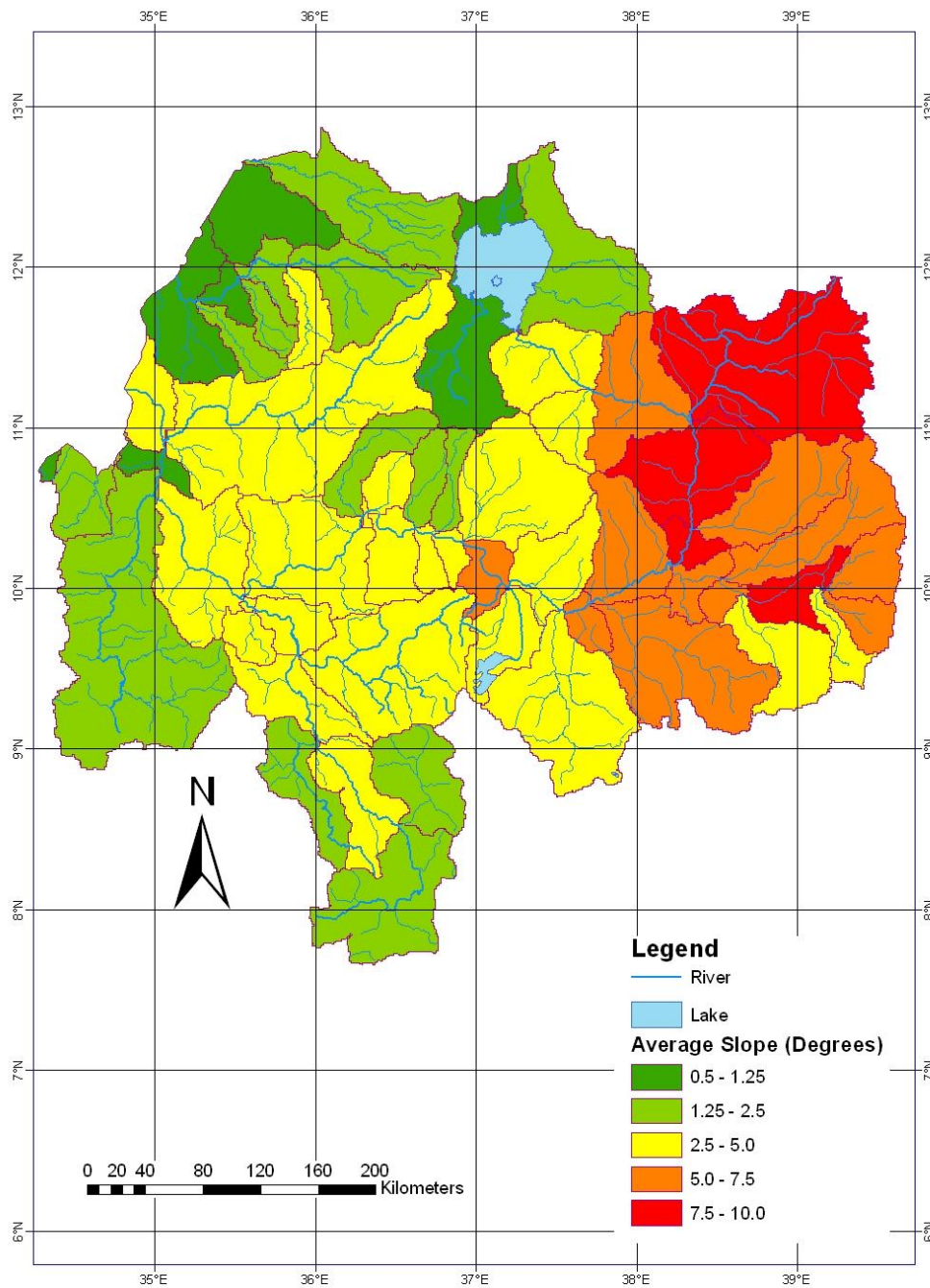
37. ABAY SUB-BASIN: ALL-WEATHER ROAD ACCESSIBILITY

**ETHIOPIA
ABAY SUB-BASIN
ALL-WEATHER ROAD ACCESSIBILITY**

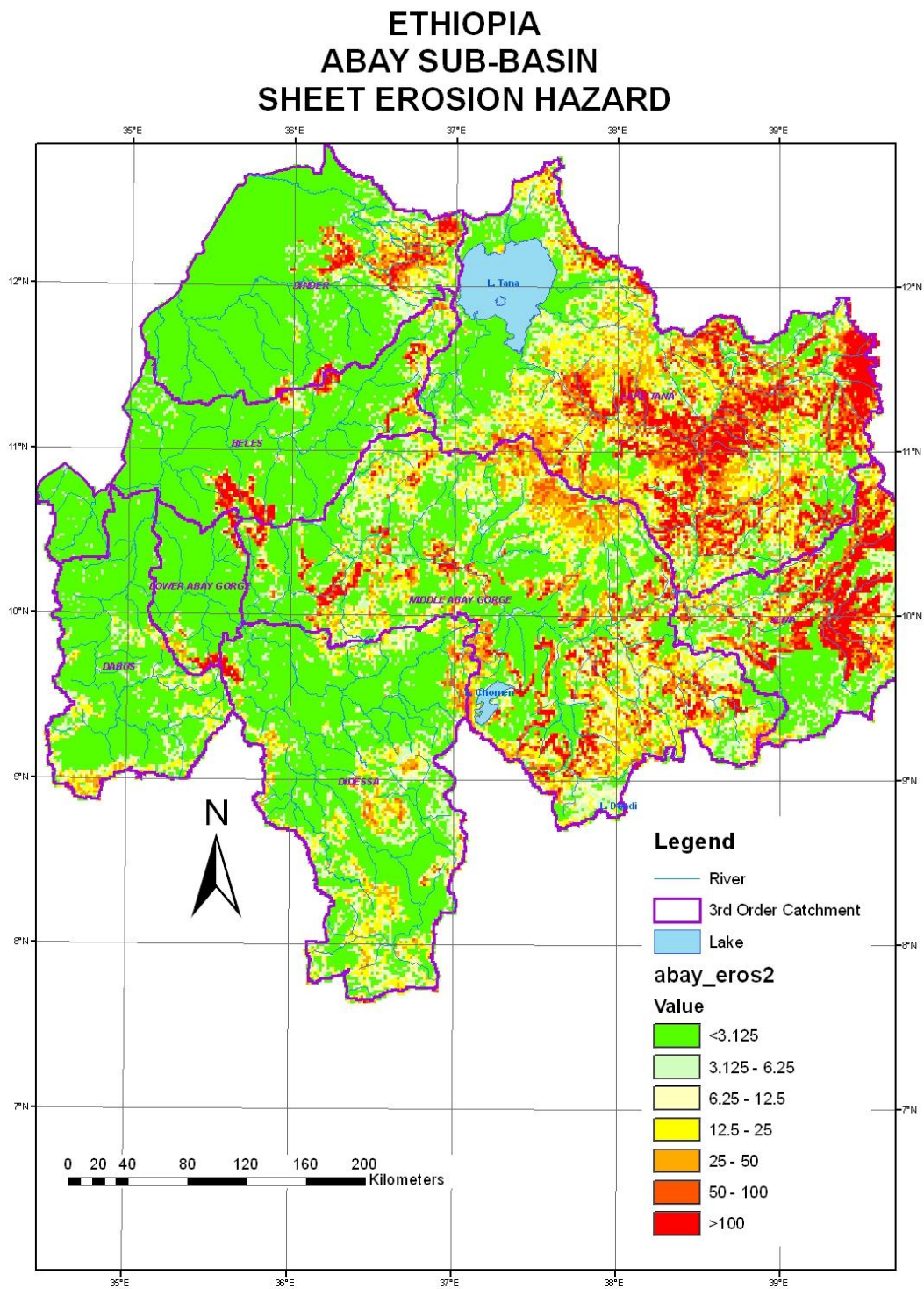


38. ABAY SUB-BASIN: 6TH ORDER CATCHMENTS – AVERAGE SLOPE

ETHIOPIA
ABAY SUB-BASIN
6TH ORDER CATCHMENT - AVERAGE SLOPE

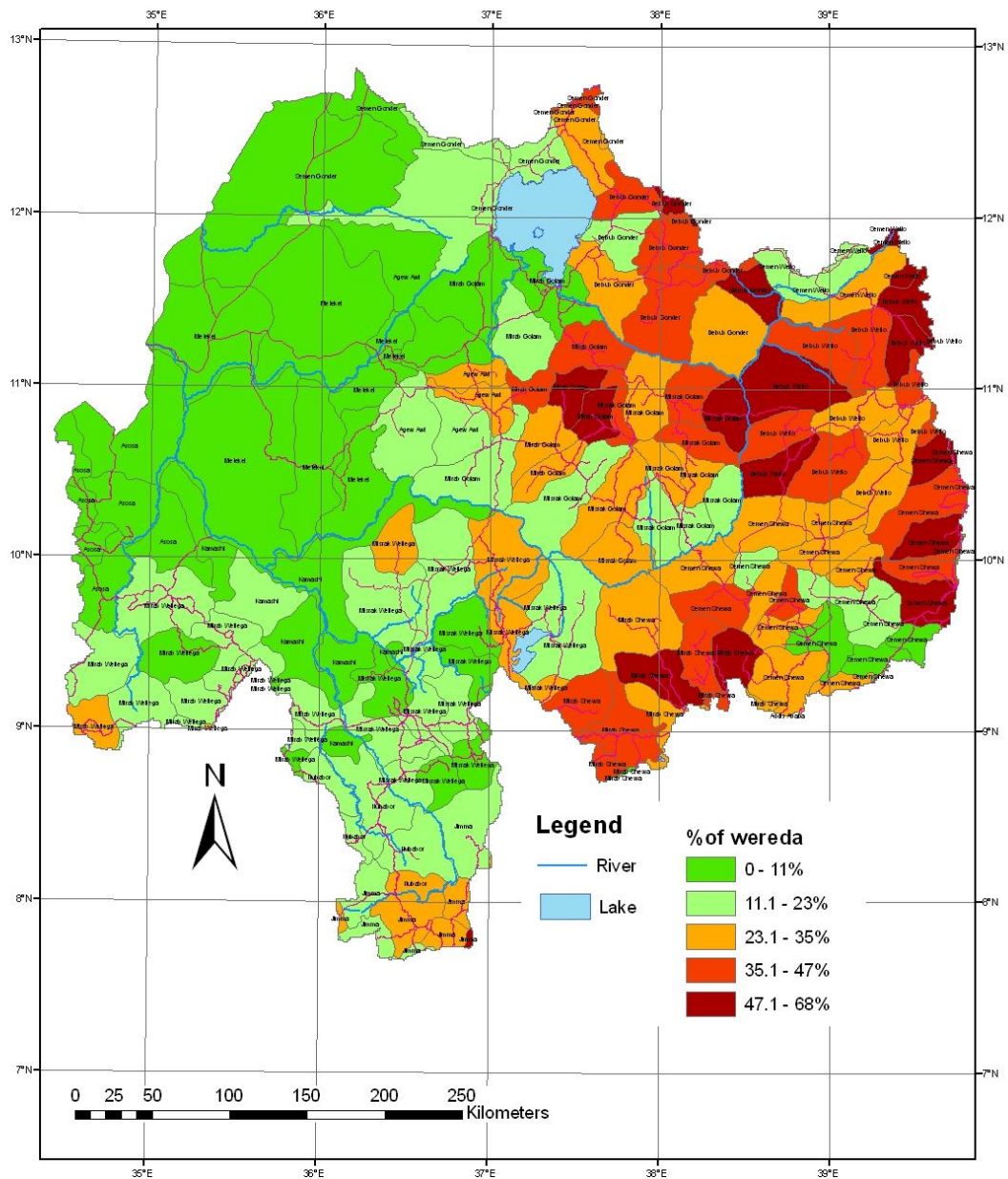


39. ABAY SUB-BASIN: SHEET EROSION HAZARD (Source WBISPP 2004)



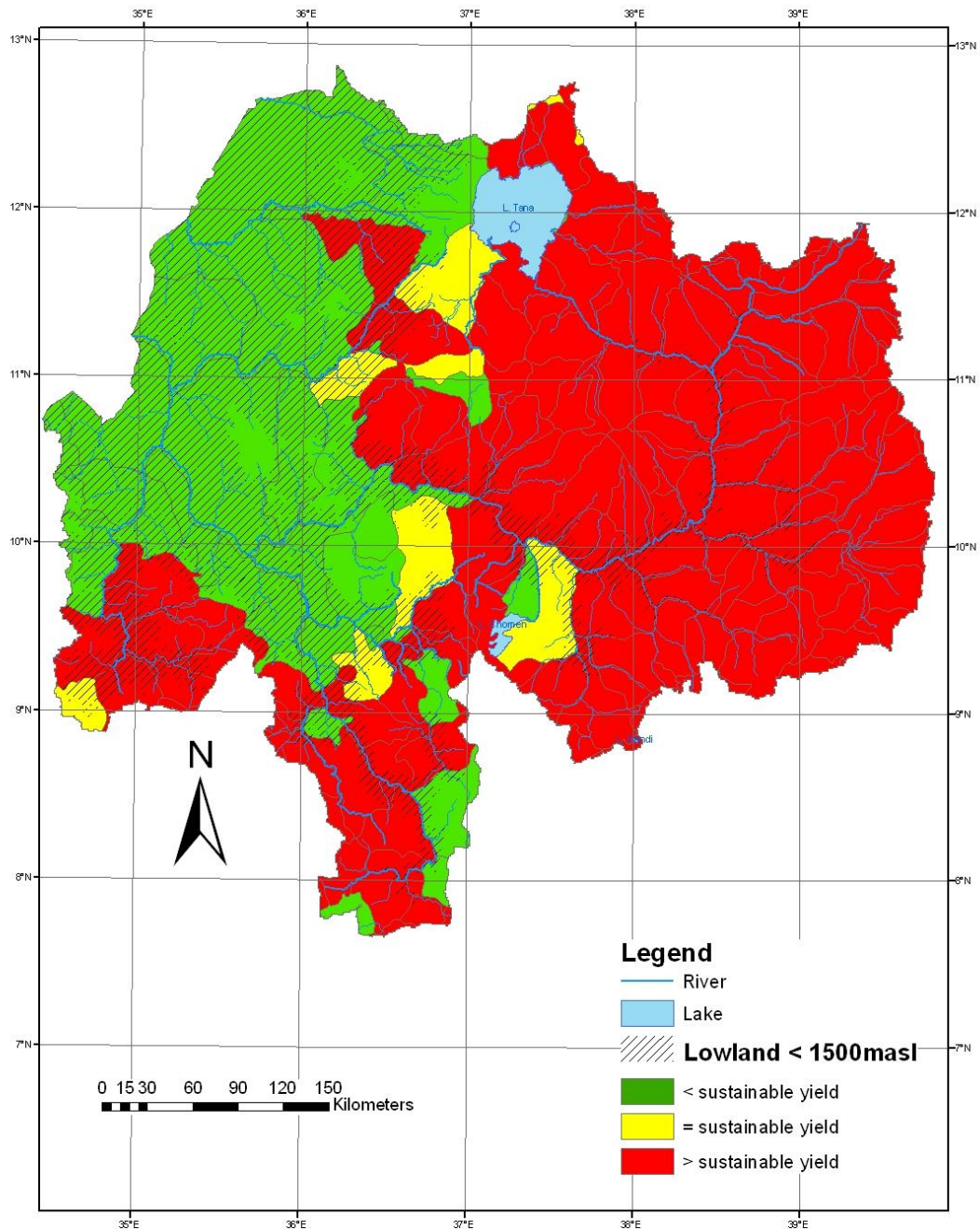
40. ABAY SUB-BASIN: % AREA WITH MODERATE TO SEVERE EROSION HAZARD BY WEREDA (Source WBISPP 2004)

**ETHIOPIA
ABAY SUB-BASIN
% AREA WITH
MODERATE TO SEVERE EROSION HAZARD
BY WEREDA**



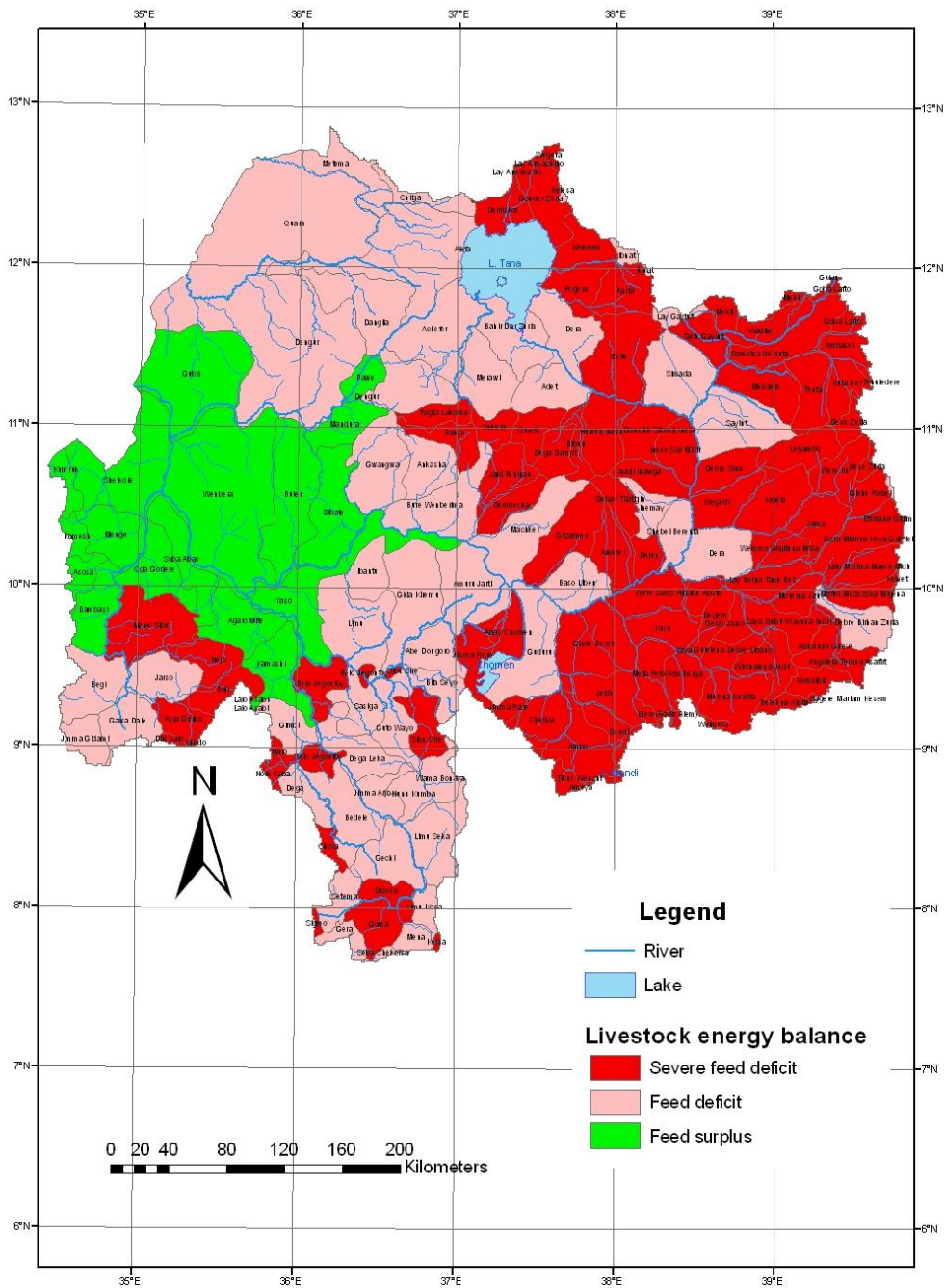
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**ETHIOPIA - ABAY BASIN
ANNUAL WOOD CONSUMPTION AS FUEL IN RELATION TO
SUSTAINABLE YIELD**



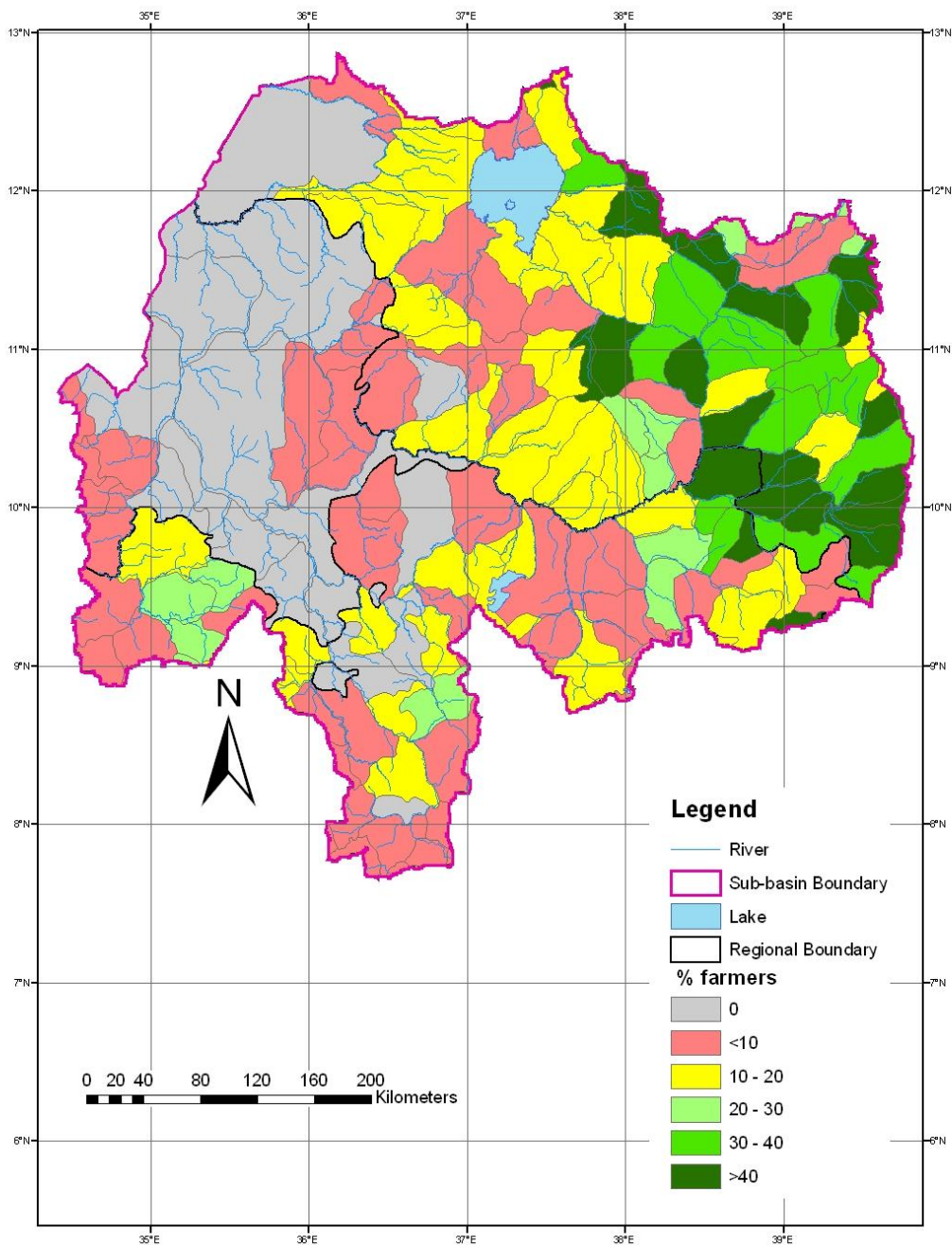
42. ABAY SUB-BASIN: LIVESTOCK FEED ENERGY BALANCE (Source WBISPP 2004)

ETHIOPIA ABAY BASIN LIVESTOCK FEED ENERGY BALANCE



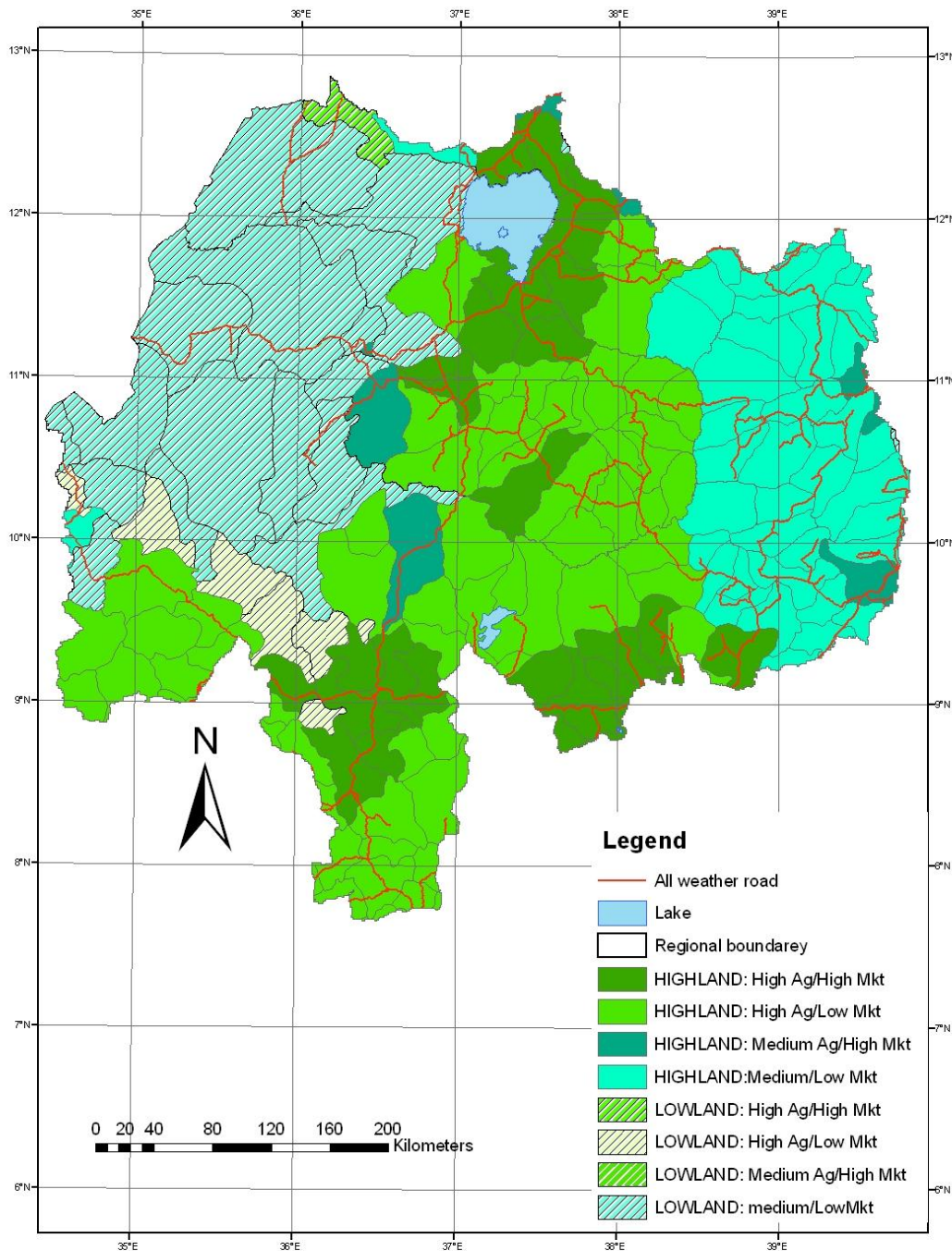
43. ABAY SUB-BASIN: % FARMERS ADOPTING TERRACES (Source Mahmud Jesuf & John Pender (2005).

ETHIOPIA ABAY SUB-BASIN PERCENT FARMERS ADOPTING TERRACES



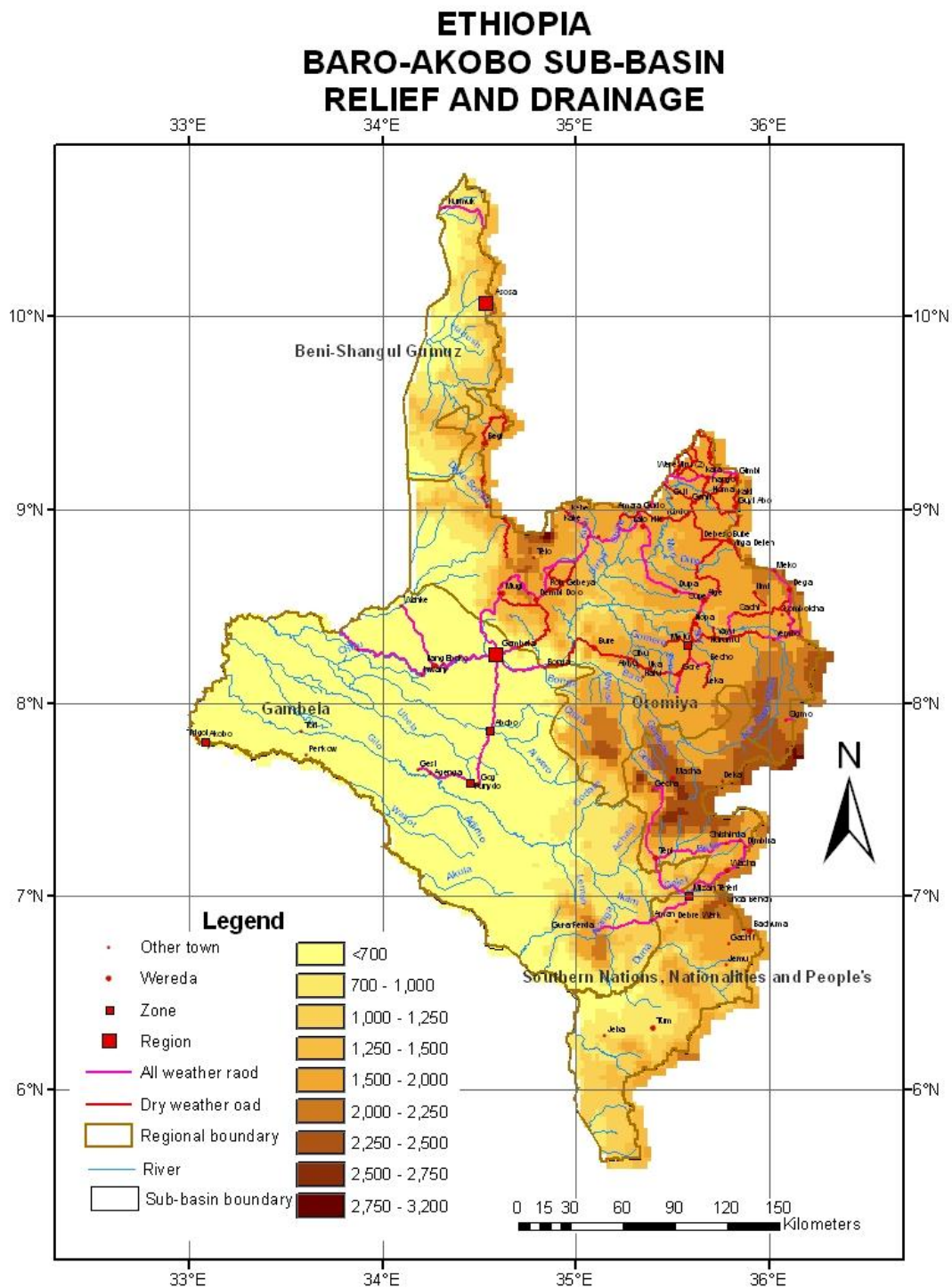
44. ABAY SUB-BASIN: DEVELOPMENT DOMAINS (Adapted from Mahmud Jesuf & John Pender (2005).

**ETHIOPIA
ABAY SUB-BASIN
DEVELOPMENT DOMAINS**



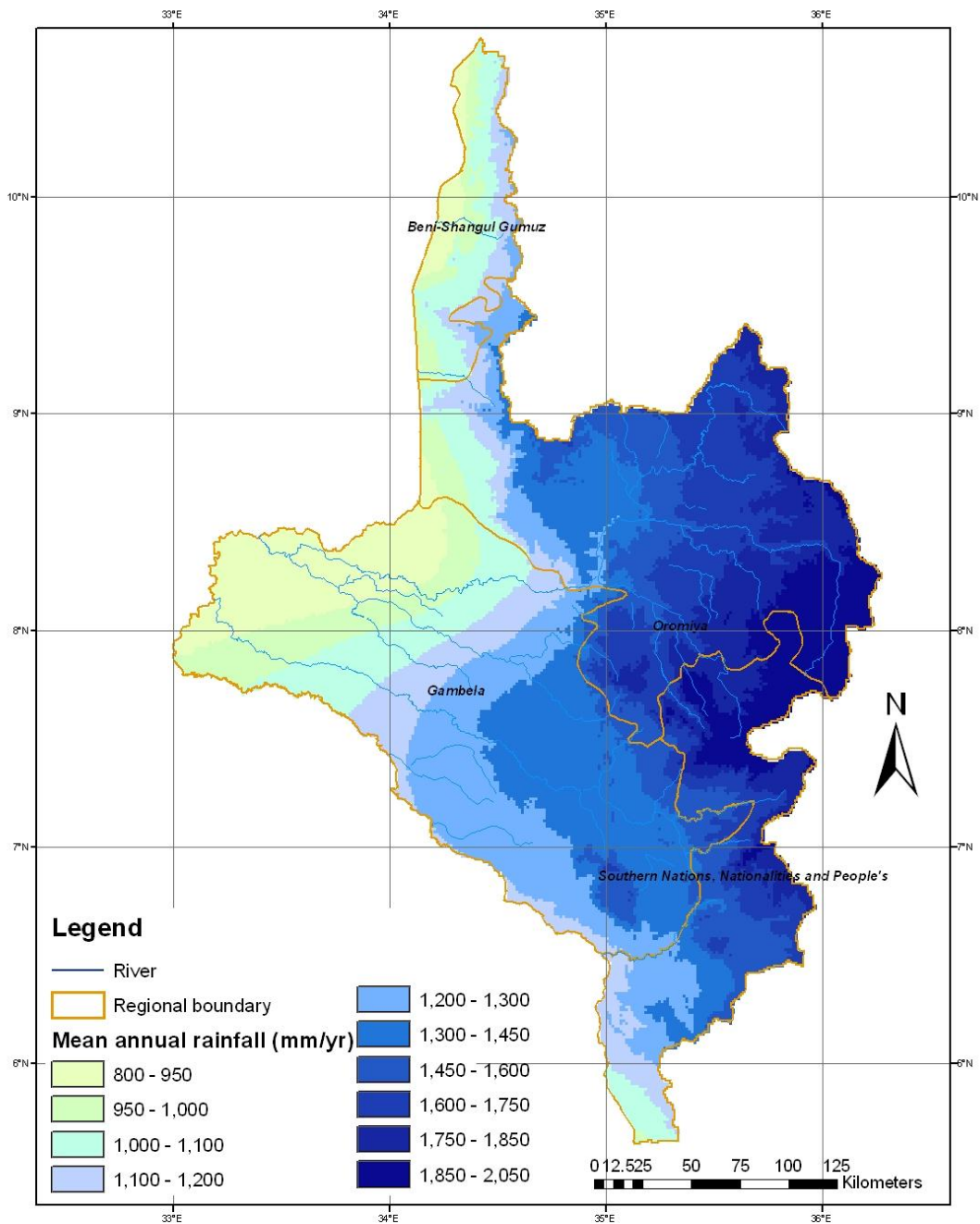
D. BARO-AKOBO SUB-BASIN

45. BARO-AKOBO SUB-BASIN: RELIEF AND DRAINAGE (Source: Shuttle Radar Mission DTM).



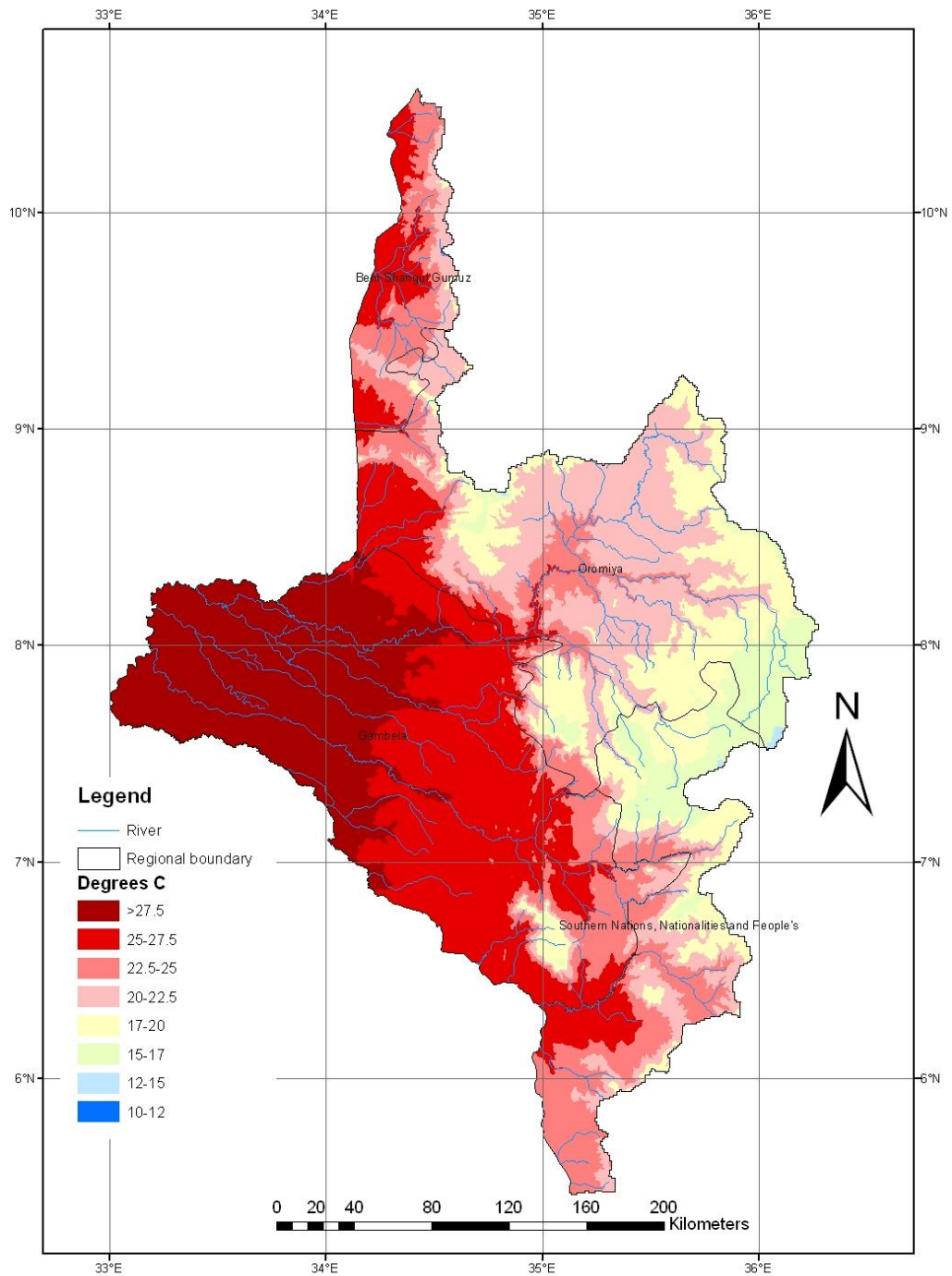
46. BARO-AKOBO SUB-BASIN: MEAN ANNUAL RAINFALL (mm/yr)

**ETHIOPIA
BARO-AKOBO SUB-BASIN
MEAN ANNUAL RAINFALL**



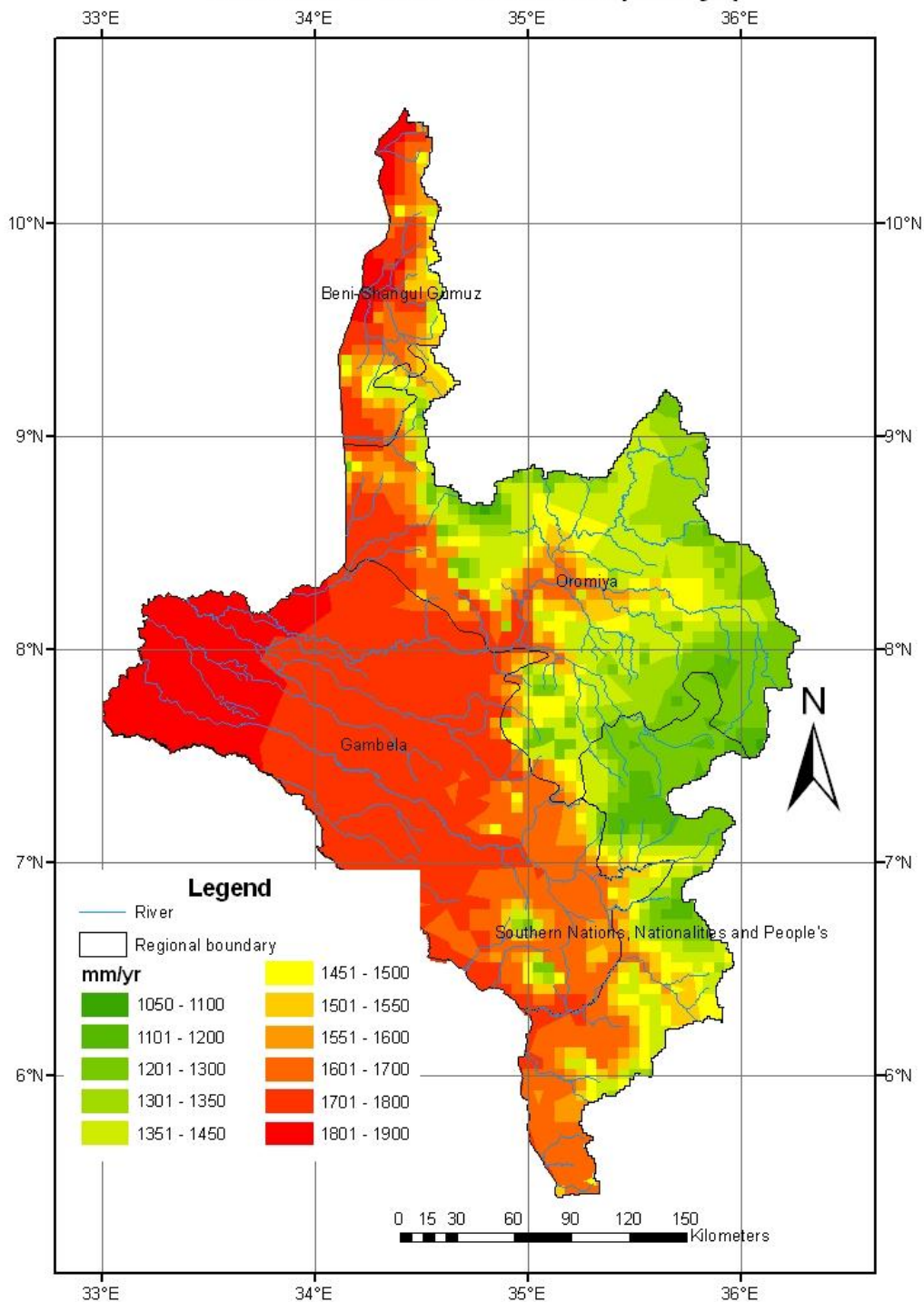
47. BARO-AKOBO SUB-BASIN: MEAN ANNUAL TEMPERATURE (degrees C).

ETHIOPIA
BARO-AKOBO SUB-BASIN
MEAN ANNUAL TEMPERATURE

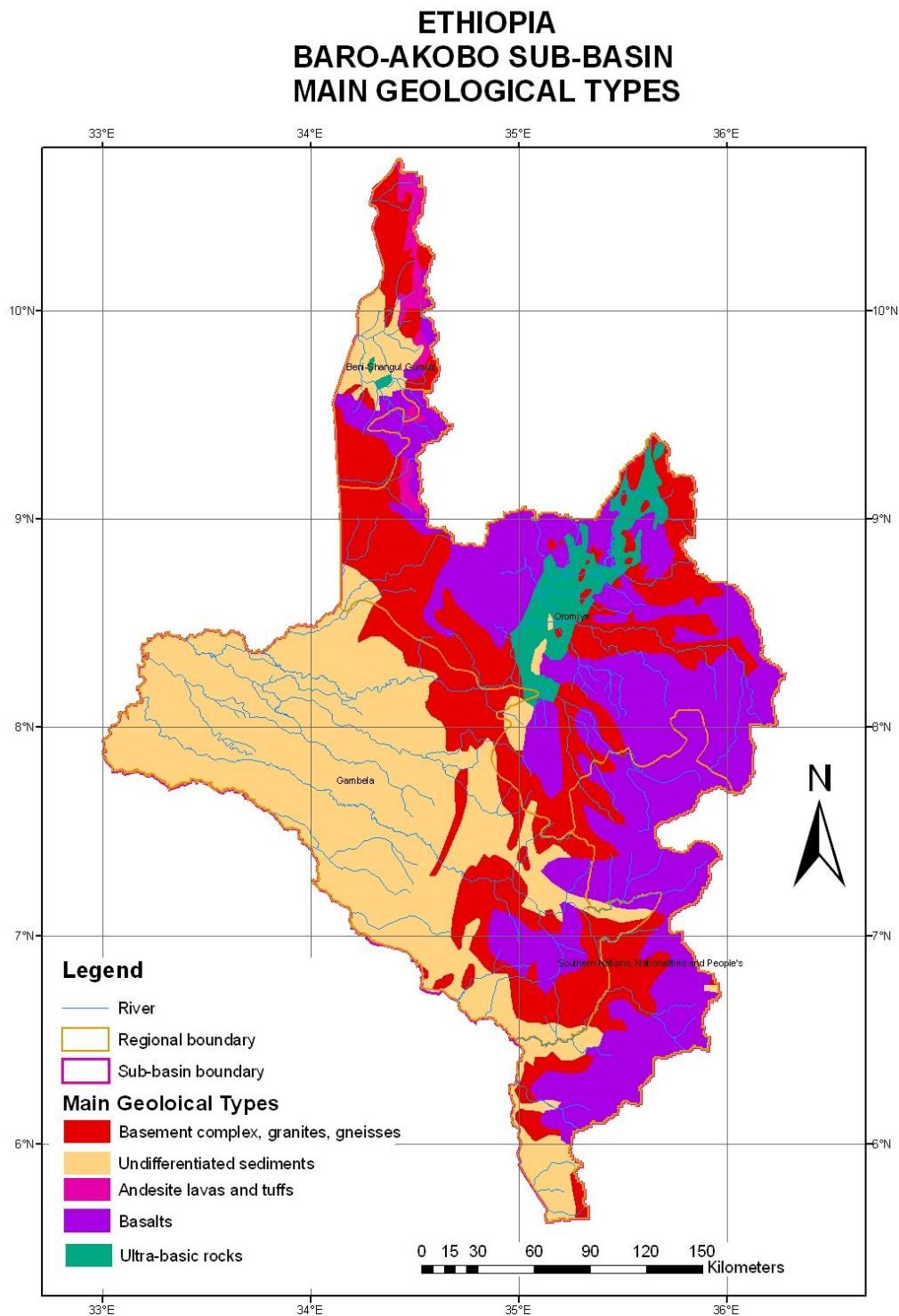


48. BARO-AKOBO SUB-BASIN: MEAN ANNUAL EVAPORATION (mm/yr)

ETHIOPIA
BARO-AKOBO BASIN
ANNUAL EVAPORATION (mm/yr)

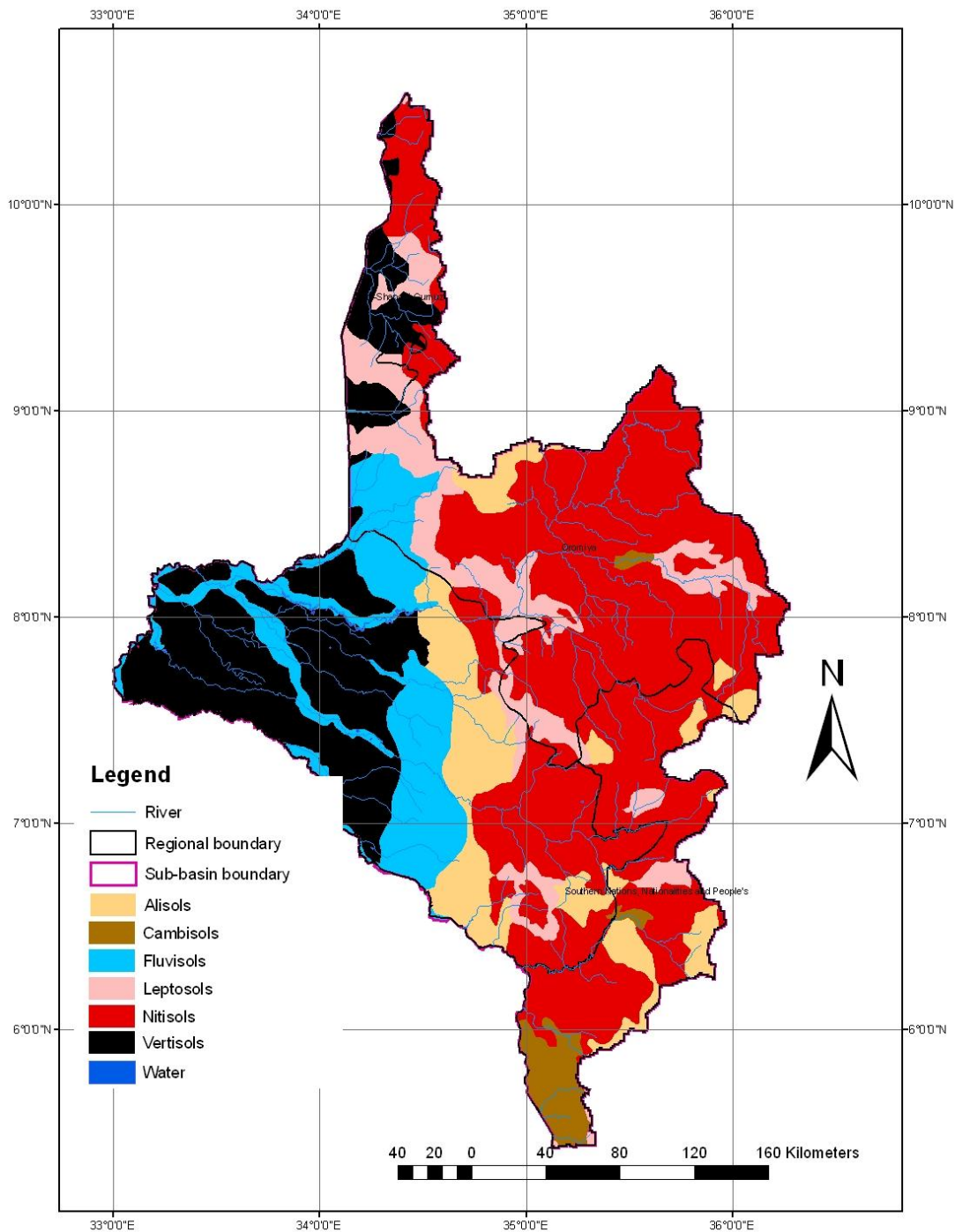


49. BARO-AKOBO SUB-BASIN: GEOLOGY (Source: FAO, 1998 "Soil and Terrain Database for Northeast Africa").



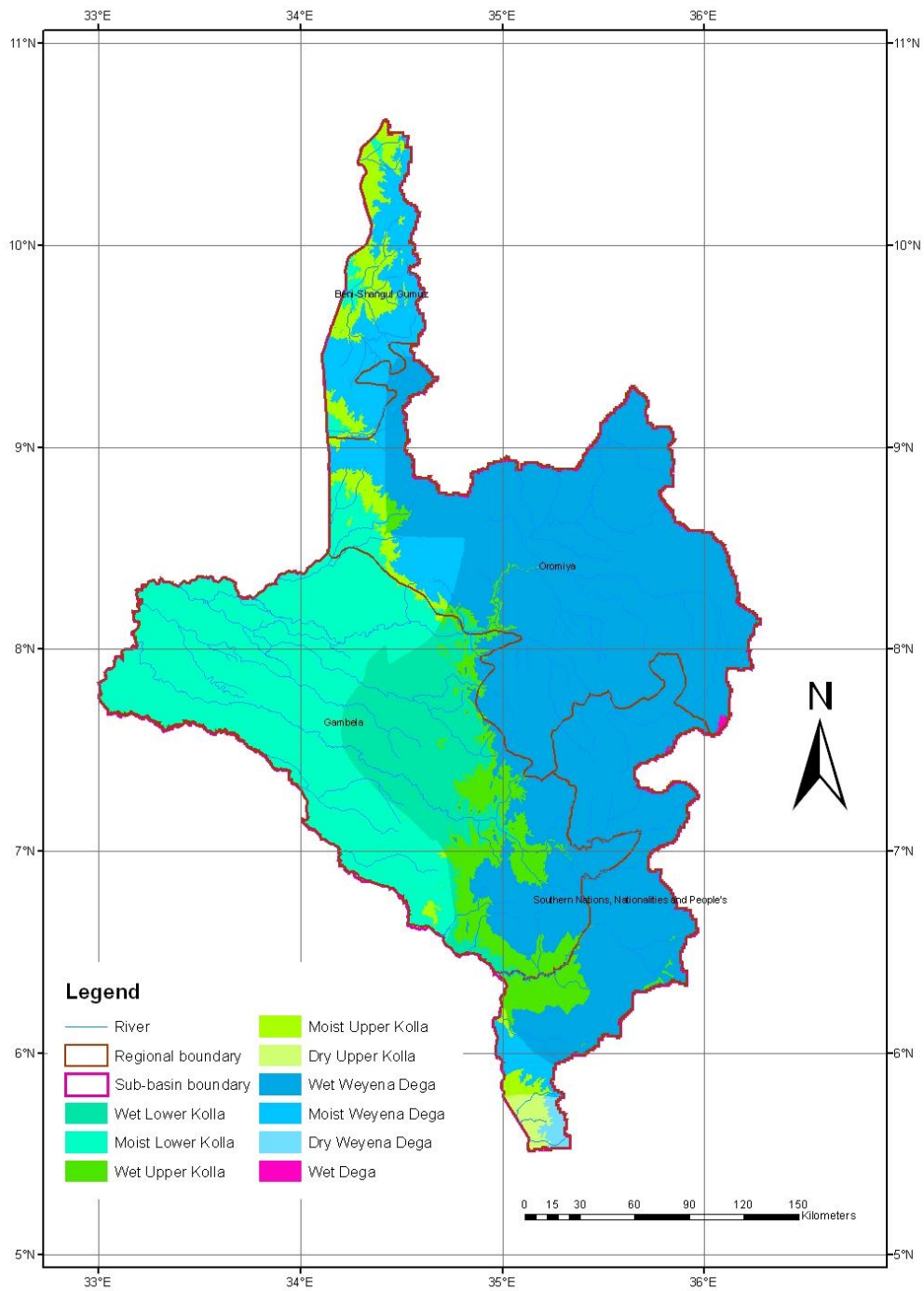
50. BARO-AKOBO SUB-BASIN: DOMINANT SOIL TYPES (FAO CLASSIFICATION)) (Source: FAO, 1998 "Soil and Terrain Database for Northeast Africa).

ETHIOPIA BARO-AKOBO SUB-BASIN DOMINANT SOIL TYPES (FAO CLASSIFICATION)

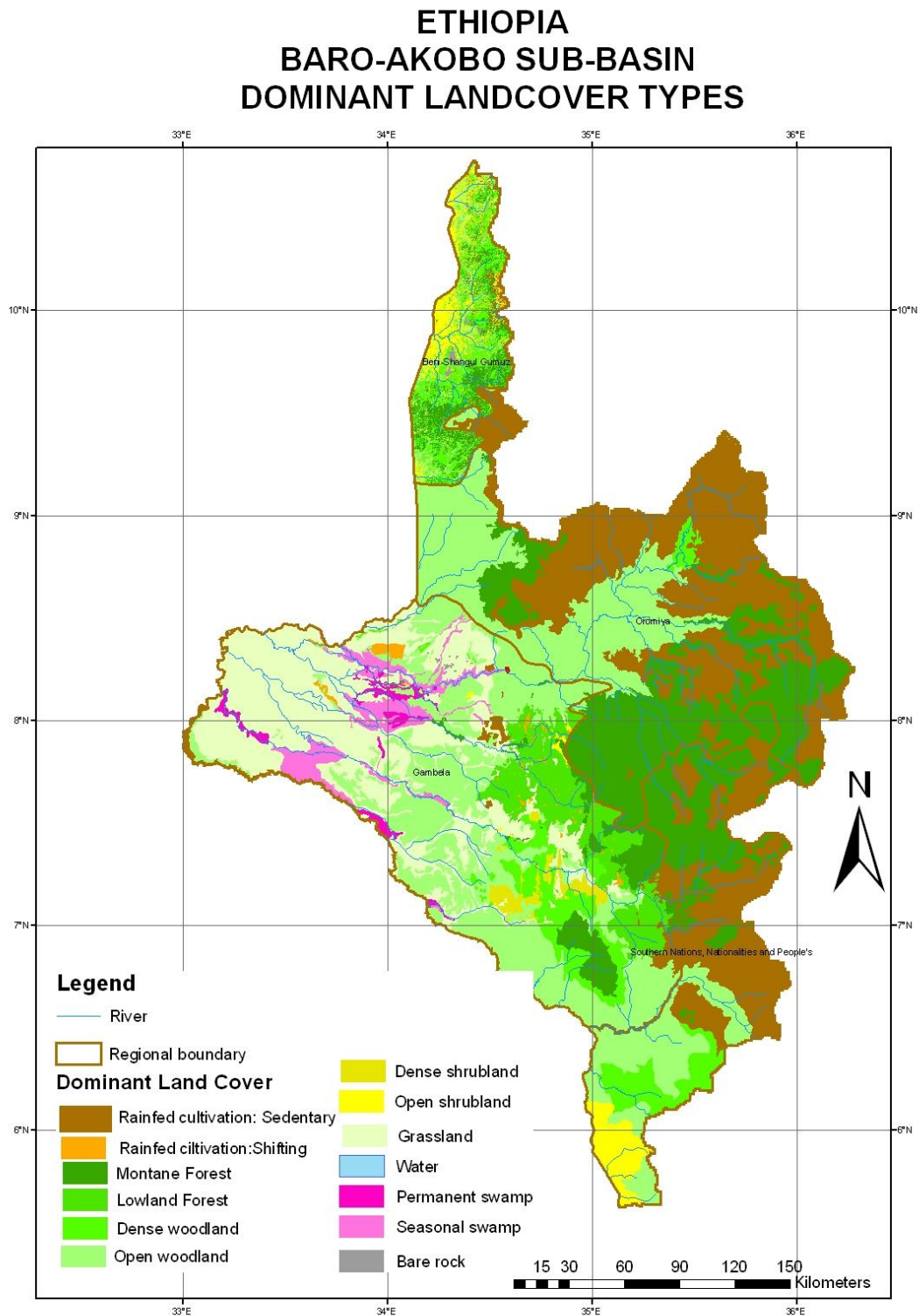


51. BARO-AKOBO SUB-BASIN: TRADITIONAL AGRO-ECOLOGICAL ZONES (Source Hurni, H 1995)

**ETHIOPIA
BARO-AKOBO SUB-BASIN
TRADITIONAL AGRO-ECOLOGICAL ZONES**

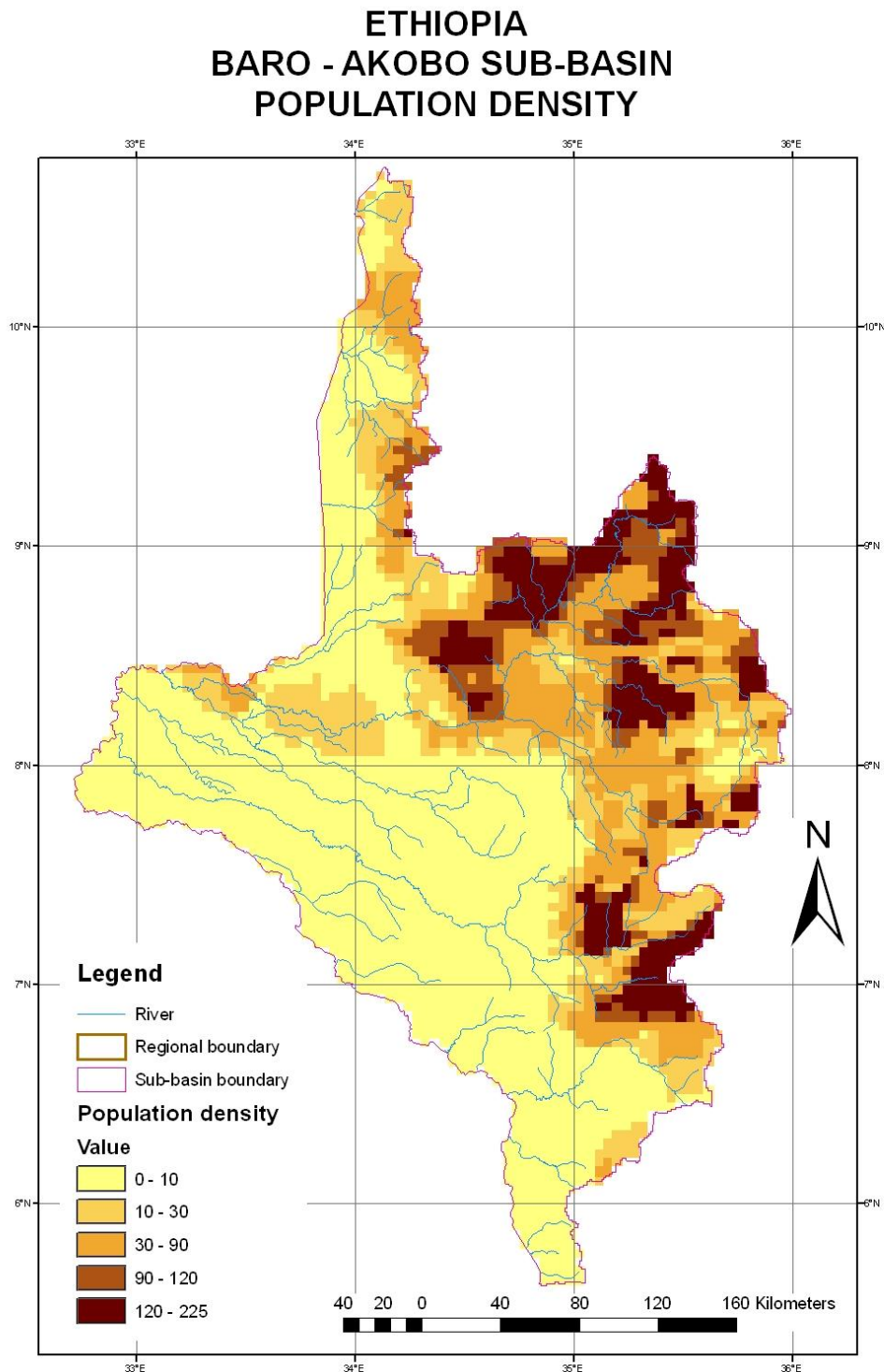


52. BARO-AKOBO SUB-BASIN: DOMINANT LAND COVER TYPES
(Source: WBISPP 2003).



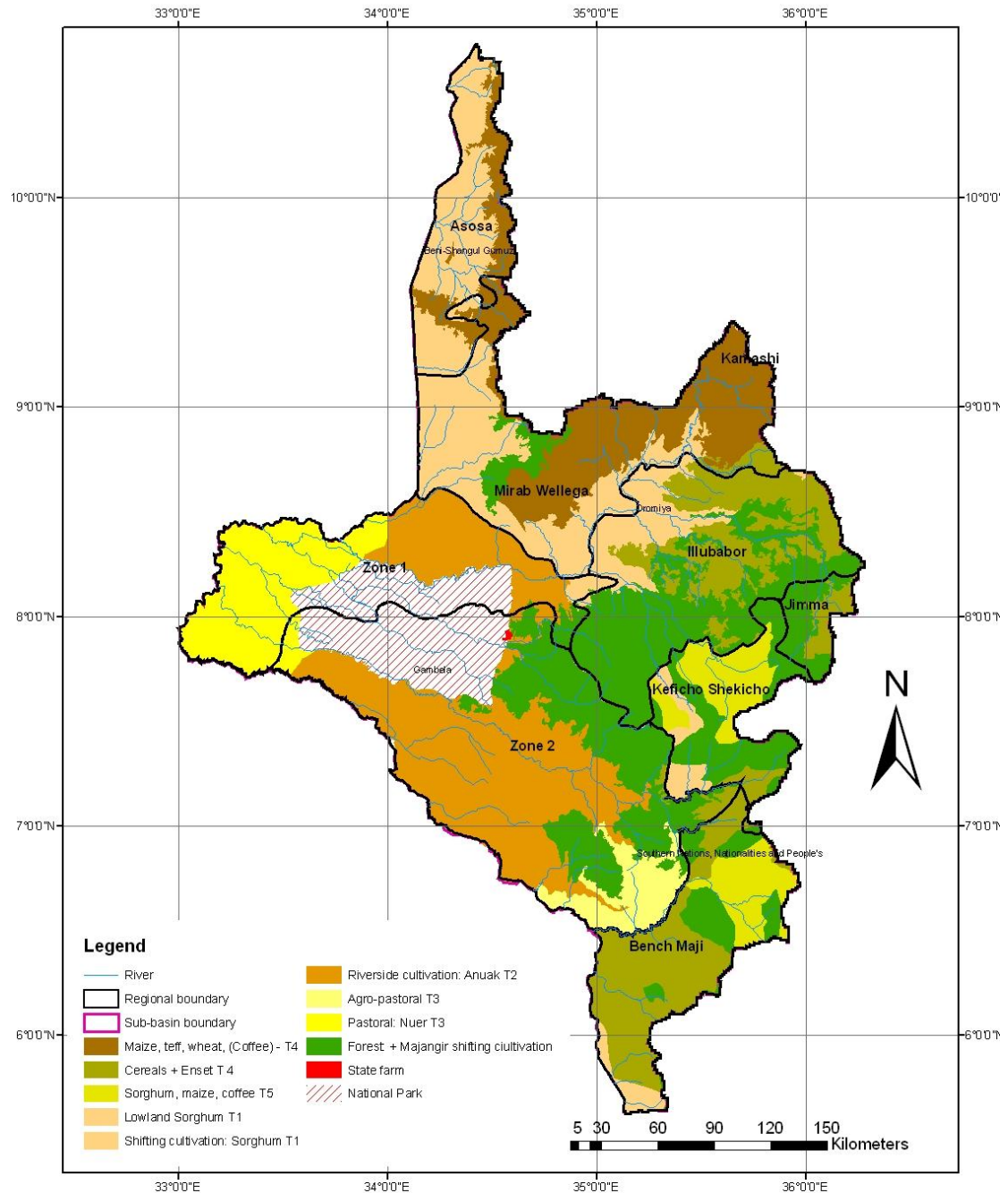
53. BARO-AKOBO SUB-BASIN: ADMINISTRATION (REGIONS AND WEREDAS)

54. BARO-AKOBO SUB-BASIN: POPULATION DENSITIES (Source: CSA 2003).



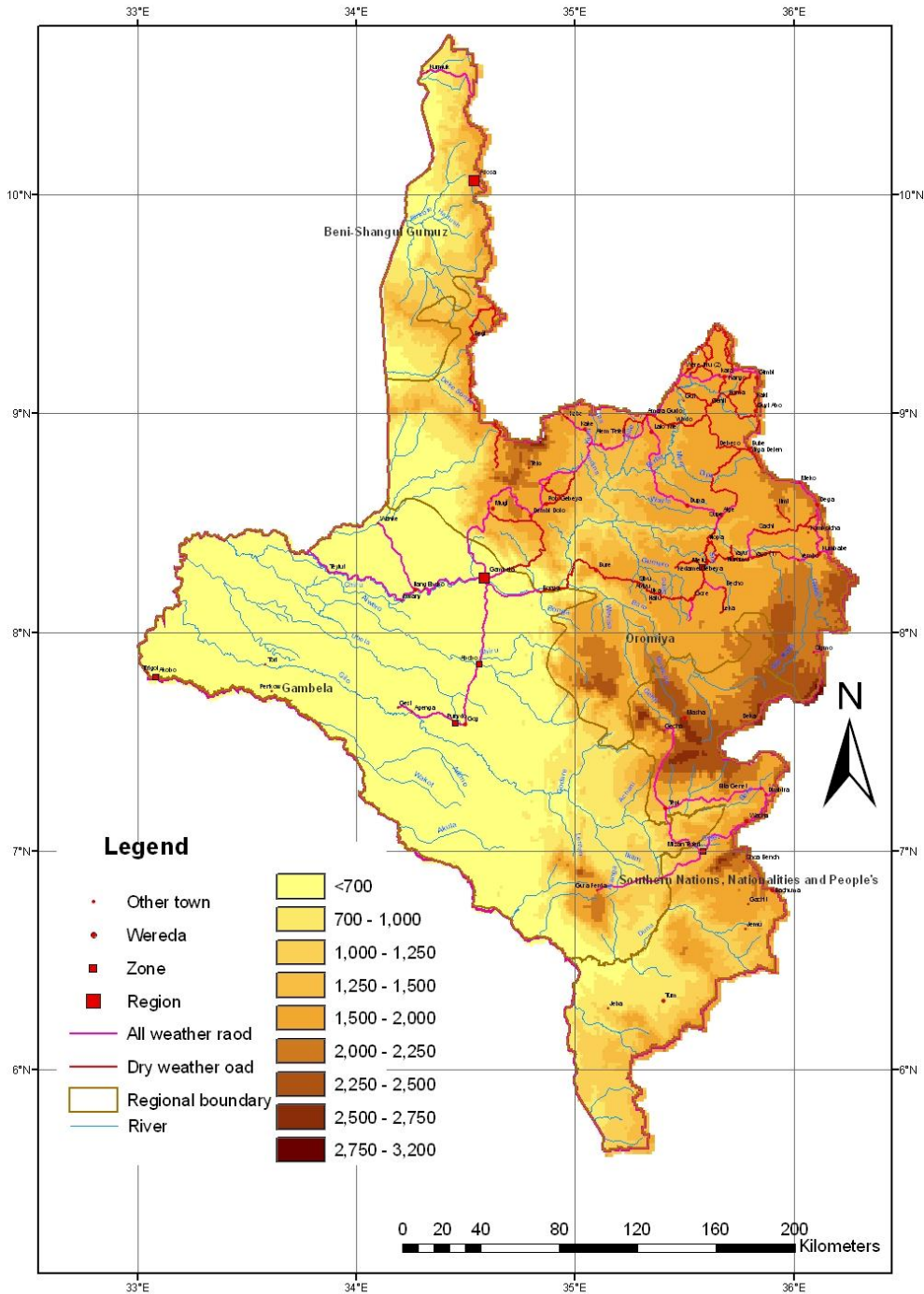
55. BARO-AKOBO SUB-BASIN: FARMING SYSTEMS (Source WBISPP 2003)

ETHIOPIA
BARO-AKOBO SUB-BASIN
FARMING SYSTEMS

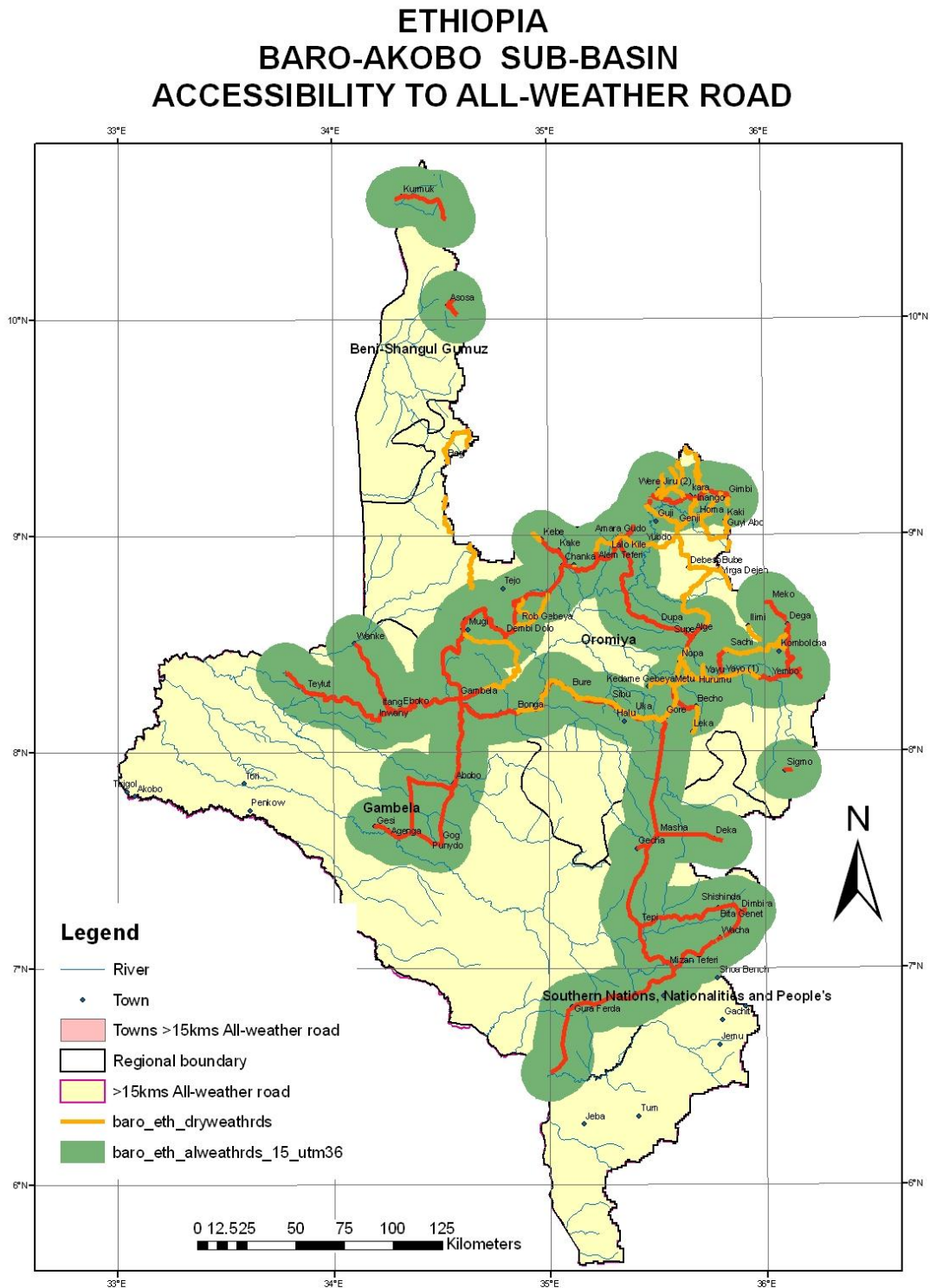


56. BARO-AKOBO SUB-BASIN: ROADS AND TOWNS (Source CSA 1: 50,000 maps)

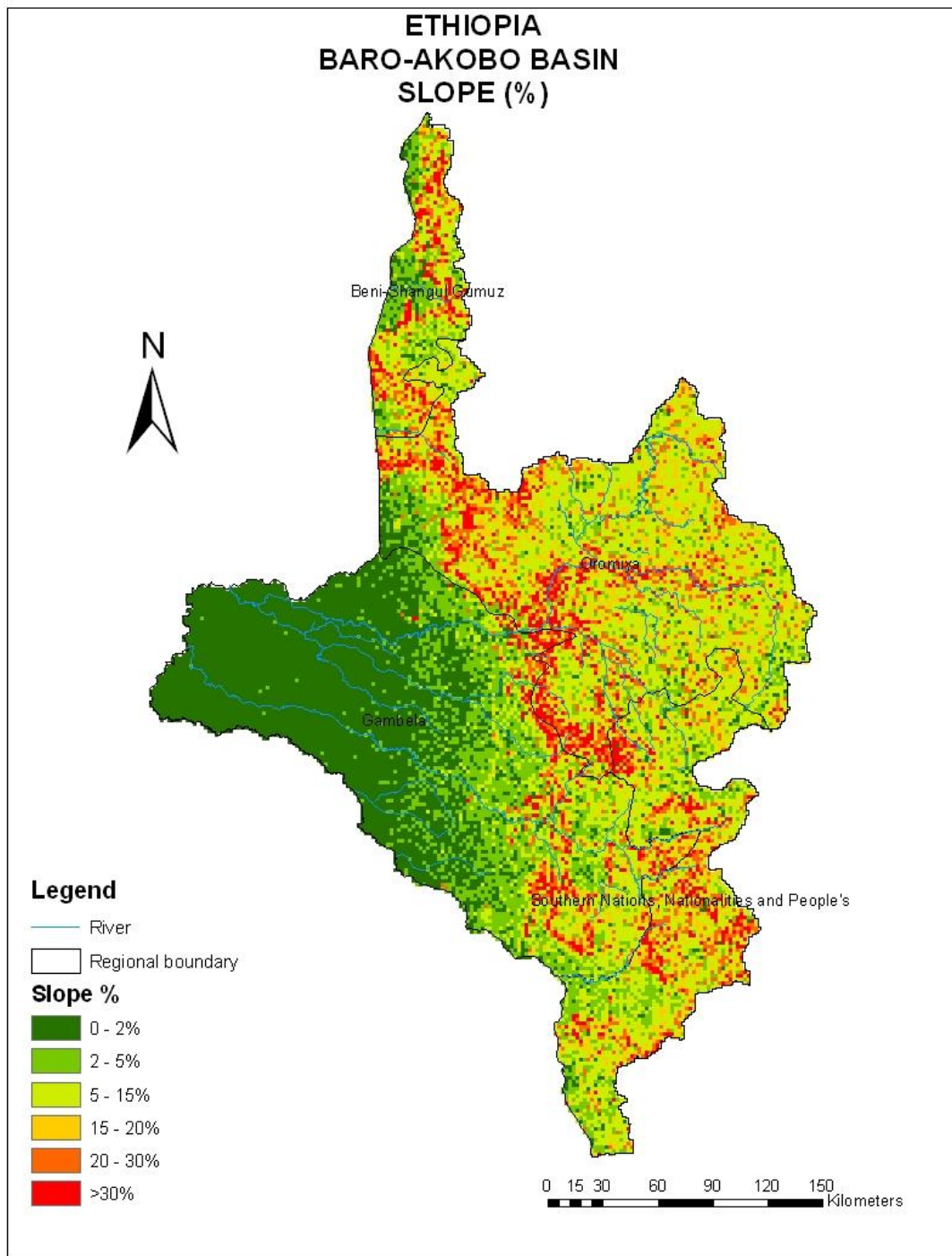
**ETHIOPIA
BARO-AKOBO SUB-BASIN
ROADS AND TOWNS**



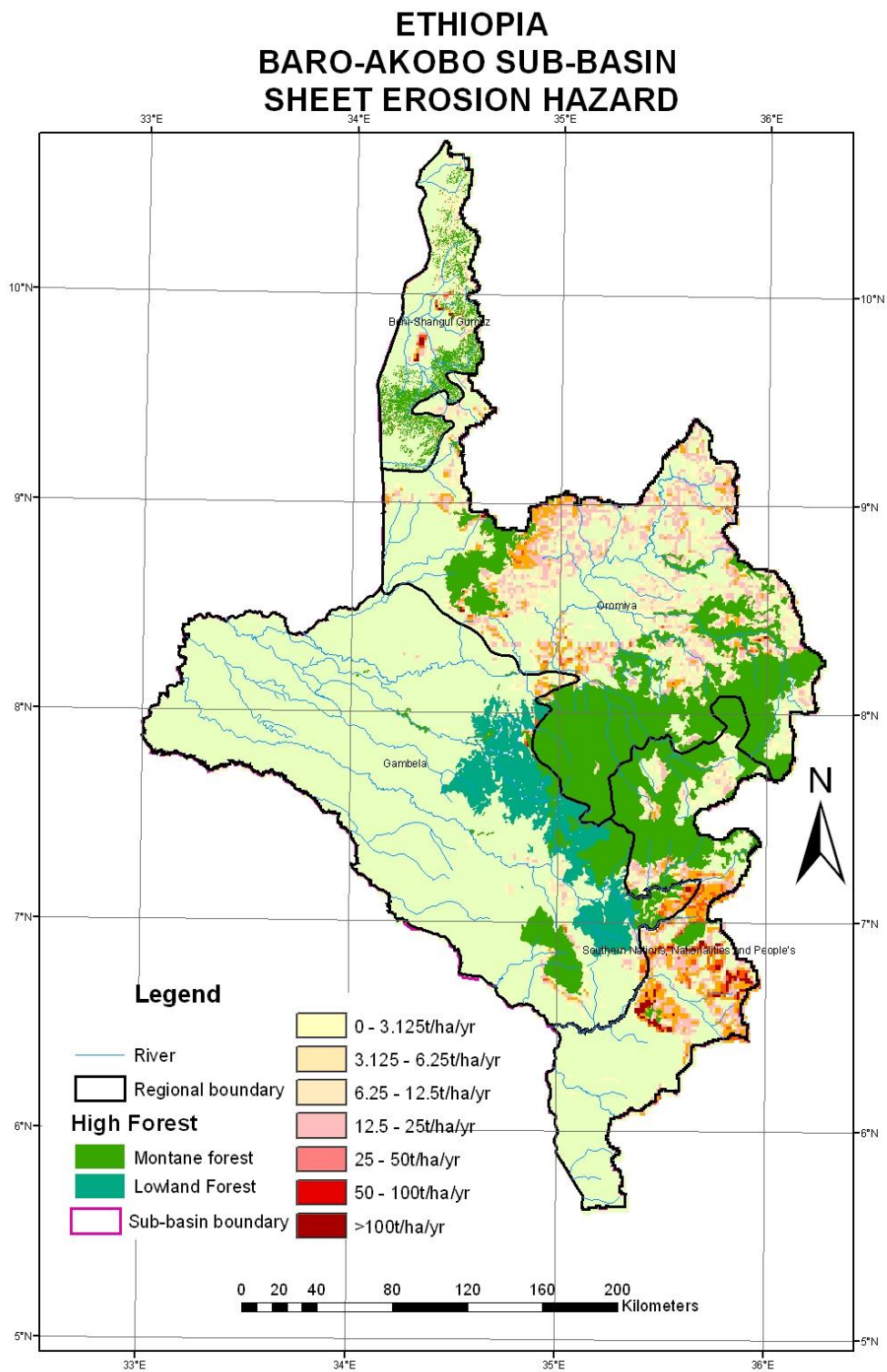
57. BARO-AKOBO SUB-BASIN: ACCESSIBILITY TO ALL-WEATHER ROADS



68. BARO-AKOBO SUB-BASIN: SLOPE (%)

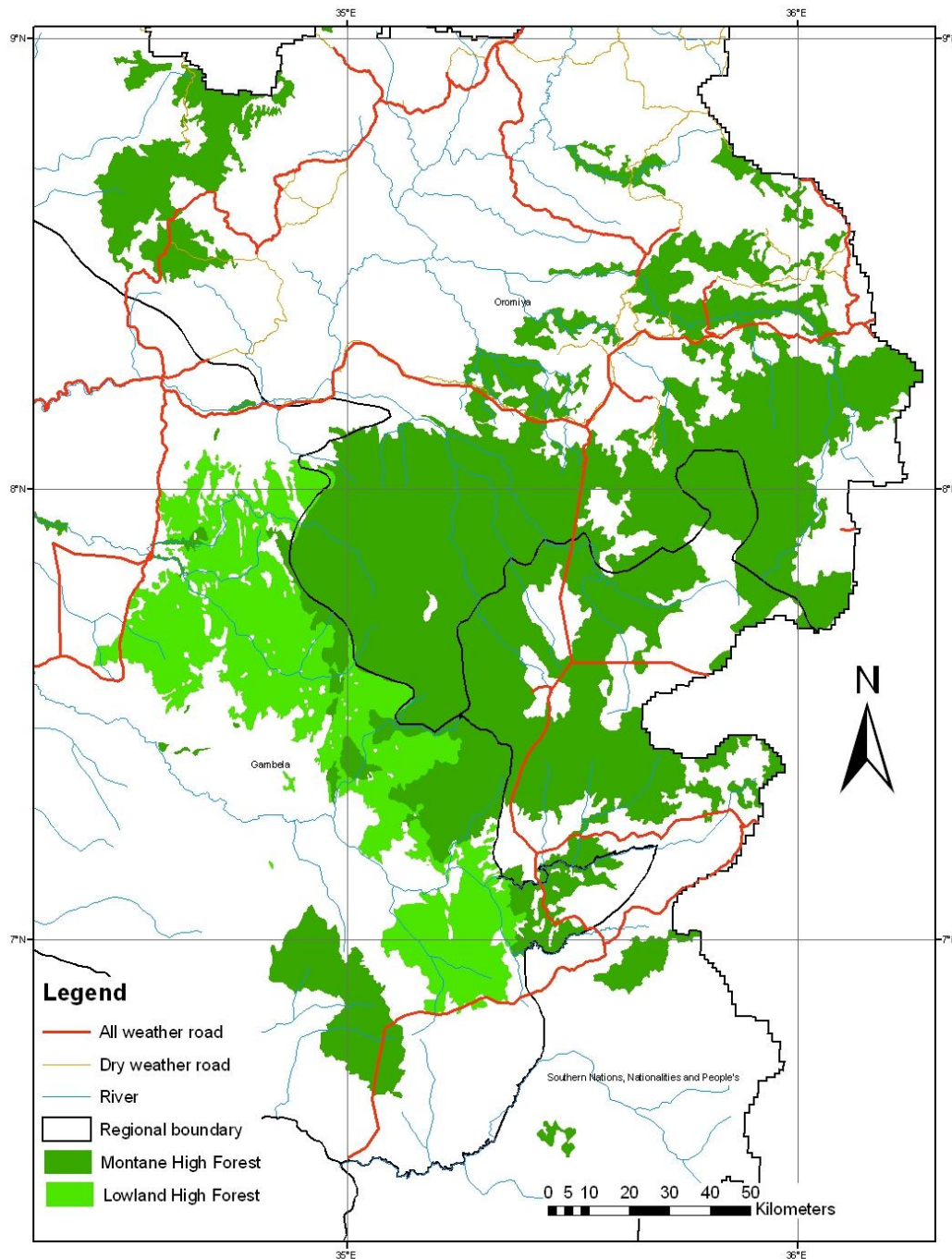


59. BARO-AKOBO SUB-BASIN: SHEET EROSION HAZARD (Source WBISPP 2003)



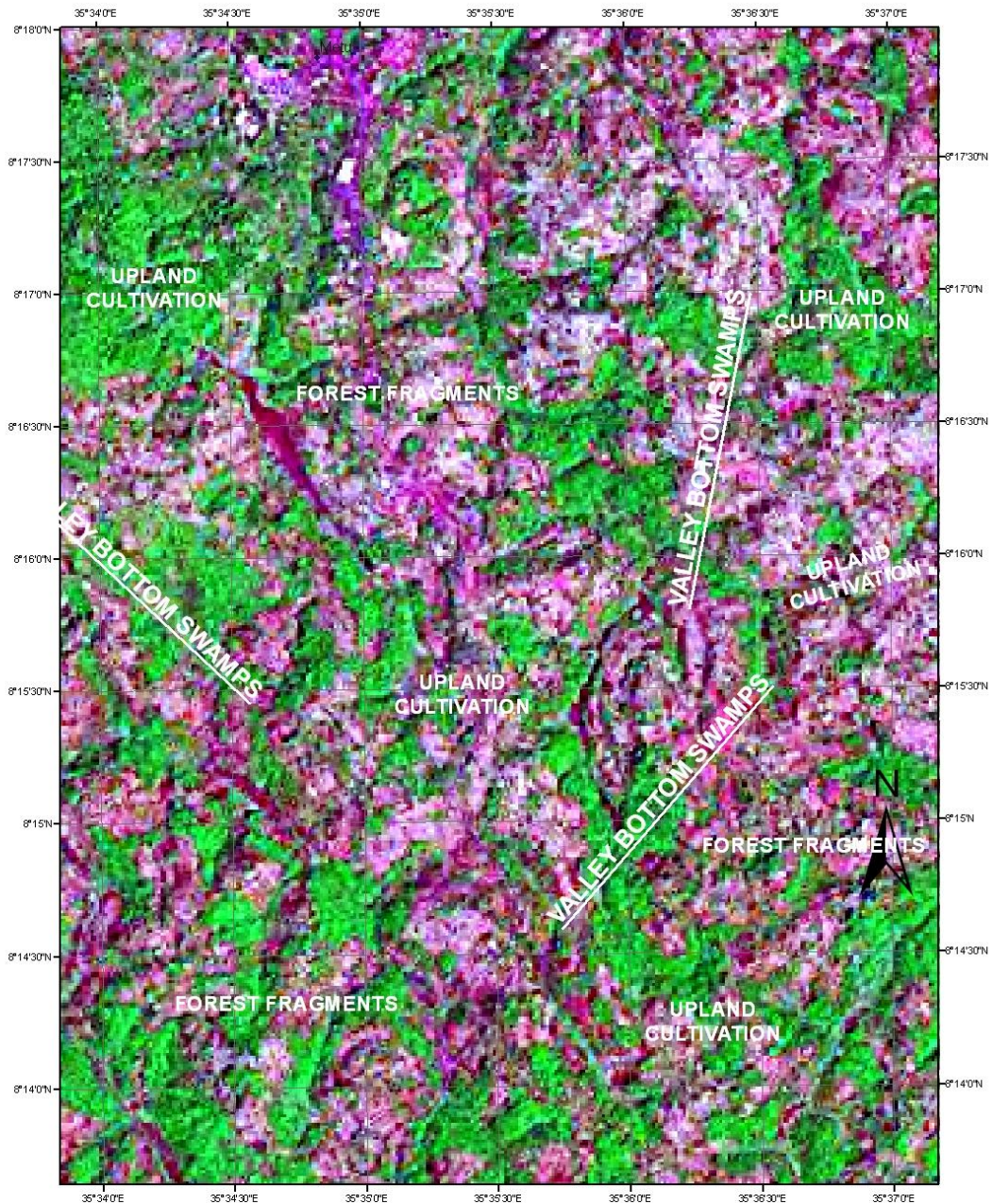
60. BARO-AKOBO SUB-BASIN: HIGH FOREST – MONTANE AND LOWLAND

ETHIOPIA
BARO-AKOBO SUB-BASIN
HIGH FOREST - (MONTANE AND LOWLAND)



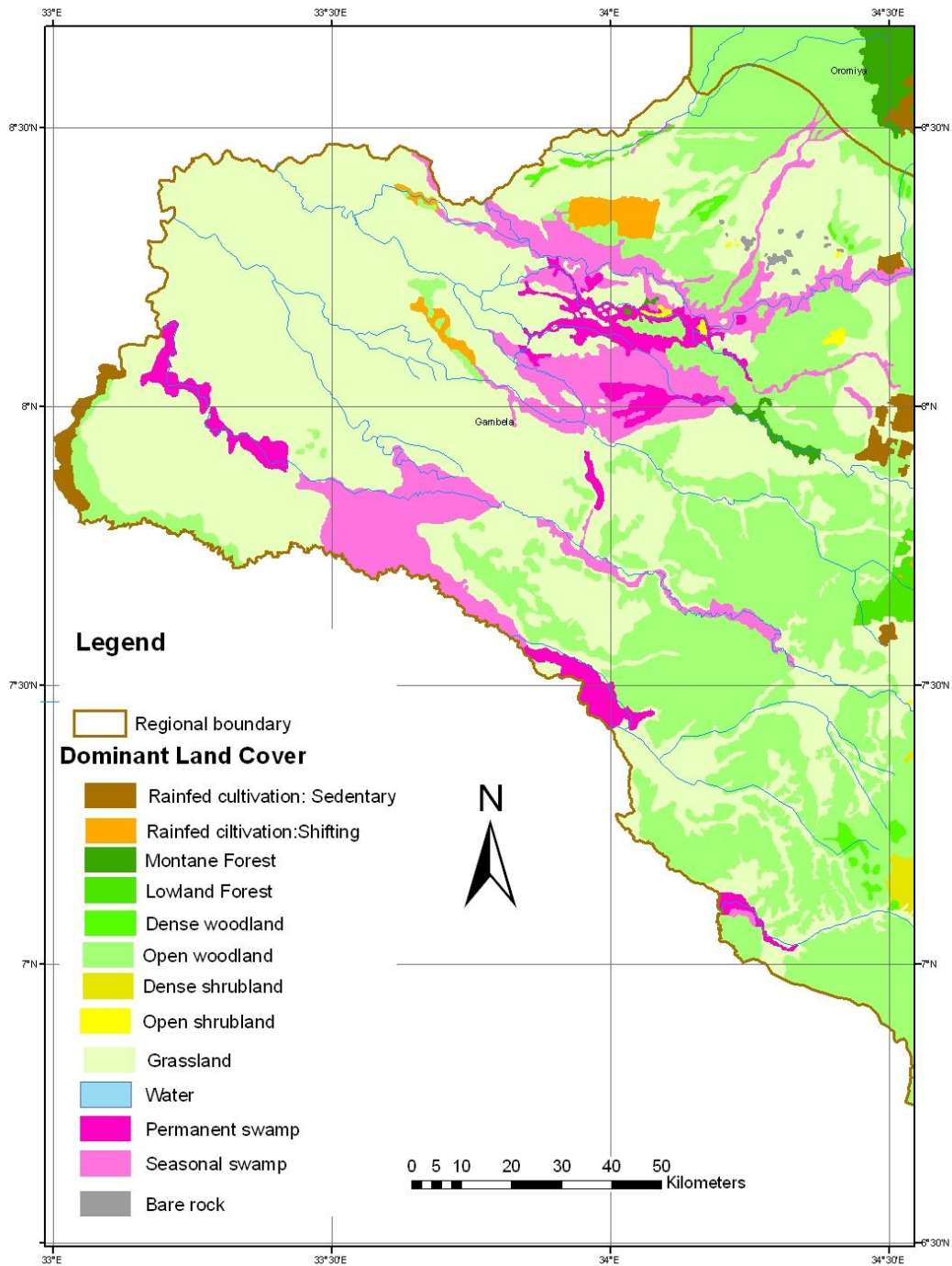
61. BARO-AKOBO SUB-BASIN: HIGHLAND VALLEY-BOTTOM SWAMPS (NR METU)

ETHIOPIA
BARO-AKOBO SUB-BASIN
HIGHLAND VALLEY BOTTOM SWAMPS
(NR. METU)



62. BARO-AKOBO SUB-BASIN: LOWLAND WETLANDS

**ETHIOPIA
BARO-AKOBO SUB-BASIN
LOWLAND WETLANDS**



63. BARO-AKOBO SUB-BASIN: REGIONAL FOREST PRIORITY AREAS

ETHIOPIA
BARO-AKOBO SUB-BASIN
FOREST PROTECTION
REGIONAL FOREST PRIORITY AREAS

