A decision tree for reconciling human needs with conservation in East-African wetlands

GlobE Wetlands in East Africa

http://www.wetlands-africa.de

Federal Ministry of Education and Research

Federal Ministry for Economic Cooperation and Development

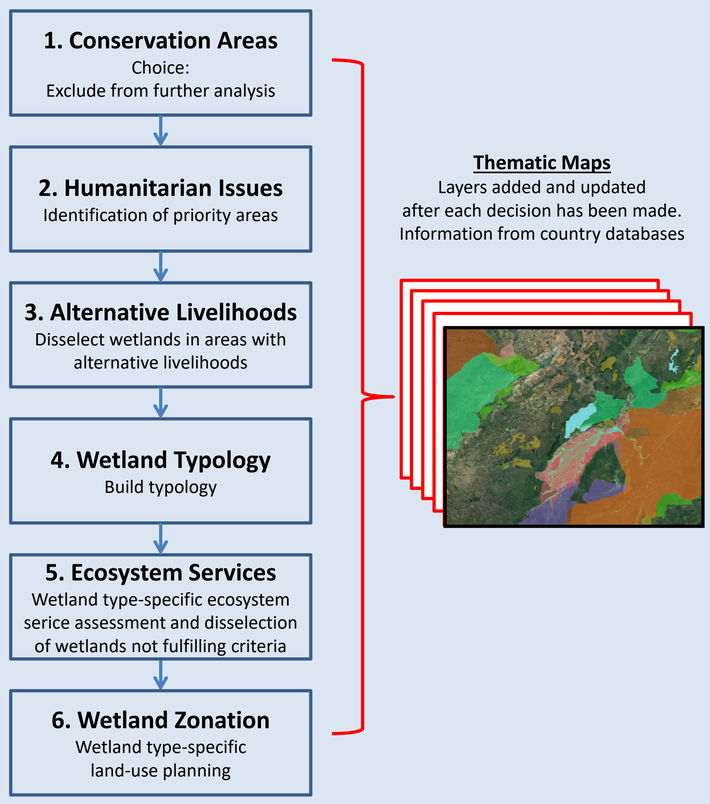
Background

Sharply rising food demands in East-Africa set wetlands under increasing farming pressure. Low environmental law enforcement, uncoordinated usage and unsustainable cultivation practices are currently leading to the destruction of large wetland areas. There is an urgent need for developing policies, tools and practices for reconciling human needs with wetland conservation.

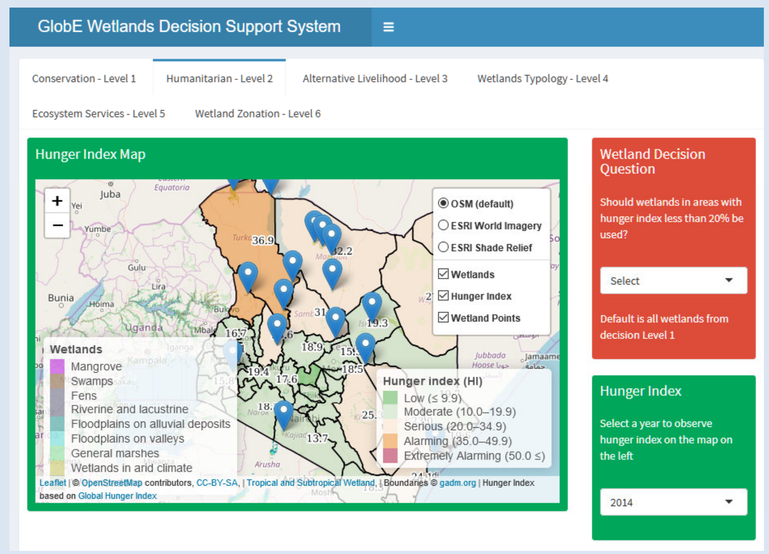
Methods

East-African wetland policy makers and wetland researchers developed a decision tree concept for supporting the development of sustainable wetland policies.
A wetland decision making tool and user interface were programmed in the statistical computing language R based on the agile modeling approach. The aim is to make wetland policy making processes more time efficient and targeted.

Decision Tree



Tool



Example screen of the decision tool showing the spatial distribution of World Hunger Index in Kenya which, among other information, needs to be known for identifying priority areas of human needs.

Levels 1 and 2
Concervancies and Human Needs

Geographical information about conservancies, hotspots of hunger, negative food supply-demand synchronies and poverty is retrieved from frequently updated national databases and displayed in thematic maps. Map functionalities are used for excluding wetlands located in concervancies from further analysis and identifying those in areas with high human needs.

Levels 3 and 4
Alternative livelihoods & Typology

Wetlands located in areas with alternative livelihoods are identified using information from national databases and excluded from further analyses.
All remaining wetlands are typologized based on climatic, hydrological, edaphic, ecological, and social criteria. Further decison making considers wetland type-specific characteristics.

Levels 5 and 6
Ecosystem Services and Zonation

Primary information, expert opinion, and national database information are used for determining values of ecosystem services. Vulnerable wetland types with low ecosystem values are excluded from further analysis. Spatial planning guidelines are given for the remaining wetlands which may be taken under crop cultivation.

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