



TEEB FOR WATER AND WETLANDS IN DRC

Taking into account the economics of ecosystems and biodiversity for water and wetlands in the decision-making in South-Kivu DRC



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TEEB APPROACH

TEEB (The Economic of Ecosystem and Biodiversity)

The economics of ecosystems and biodiversity for water and wetlands is a global study launched by the G8 countries and five other nations and focuses on the overall economic benefit of biological diversity costs of biodiversity loss and the absence of protective measures in relation to the costs of effective conservation (it helps to identify the impact and dependencies of the different projects on biodiversity and ecosystems). TEEB makes the case for integrating the economics of ecosystems and biodiversity in decision making. Environmentalists moving more and more analysis of the loss of biodiversity in terms of benefits or ecosystem services provided to the population. Ecosystem services enjoyed by people are economically significant and depend on both the diversity (quality) and (quantity) of genes, species and ecosystems in nature. Rapid loss of biodiversity may also jeopardize the future supply of ecosystem services and economic output associated.

- The existing "link" between water, food and energy is one relationships and one of the most fundamental challenges to society. The importance of this link was again emphasized at the UN Conference on Sustainable Development (Rio +20) in June 2012. The final document adopted at Rio +20 " The Future We Want " states that: "We are aware of the key role that ecosystems play in the conservation of water , either in quantity or quality , and we support the action taken in the country to protect and enhance these ecosystems sustainably " UNCSD (2012 , paragraph 122). Wetlands are a fundamental element cycles of local and global water and are the essence of this relationship. We also expect that wetlands play a key role in achieving the Millennium Development Goals (MDGs) and future objectives of Sustainable Development (ODD) . Wetlands are essential to ecosystem services related to water , such as drinking water , water for agriculture , water cooling for the energy sector , or the regulation of the amount of water (eg flood control) . In combination with their role in the control of erosion and sediment transport, wetlands also contribute to the formation of the land, and thus resilience to storms.

Approach context

- They also provide many services dependent on water, such as farming , fishing and tourism. Despite the high value of ecosystem services that wetlands provide to humans, they are still degraded or lost under the effects of a strong man in terms of intensive agricultural production pressure, irrigation, the extraction of water for domestic and industrial purposes , urbanization development , industry such as mining , infrastructure, and pollution (case of Lake Kivu and Tanganyika).

Policies and decisions at all levels , often do not take sufficient account of the interconnections and interdependencies. The full value of water and wetlands must however be recognized and integrated into the decision making process to meet our future social, economic and environmental needs. Maintain and improve the benefits of water and wetlands are key elements for a transition to a green economy.

Objectives of the TEEB approach in South Kivu

- We want to examine some key indicators and drivers of biodiversity loss and ecosystem degradation, and to show how present both risks and opportunities for actors both public and private levels.
- Look at how to integrate the approach of the economics of ecosystems and biodiversity for water and wetlands into decision making at the public and private sectors.

Vision: Making the DRC in general and the province of South Kivu in particular, economically viable and visible nature.

Water and Wetlands: What Are The Benefits to draw and are we likely to lose?

- The water security is a major and growing concern in many parts of the world it addresses both the availability of water quality. Understanding the value of water and wetlands helps to create a solid foundation for the protection and restoration of these resources, and thus helps to ensure water supplies safer while improving management decisions and their allocation

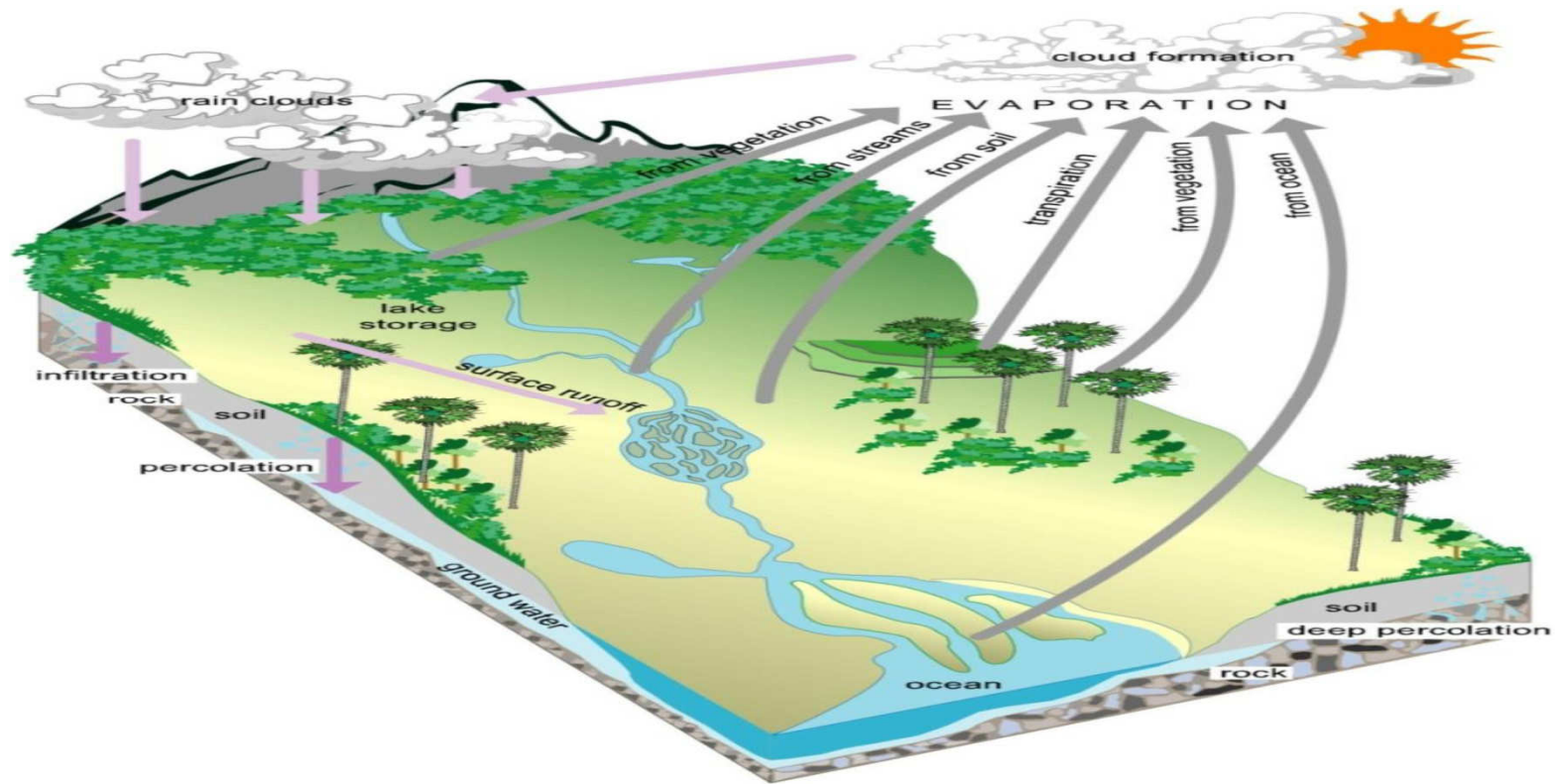
In terms of profits and losses

- Cycles of local and global water strongly depend on wetlands (see Figure 1, Ramsar, 1971, MA, 2005; SCBD, 2012). Vegetation cover affects the flow and water retention, and thus the availability of surface water and groundwater. Plant transpiration affects rainfall characteristics. Biodiversity plays a critical role in nutrient cycling and carbon cycles (carbon stored isolated and freed from biomass). Loss of biodiversity may impair the functioning of these cycles and have a major impact on people, society and the economy. Without wetlands, the water cycle, the carbon cycle and nutrient cycles would be substantially altered. On the other hand, water cycles are crucial for biodiversity and functioning of all terrestrial and coastal ecosystems.

In terms of profits and losses (suite)

- A better understanding and better knowledge will help to integrate the value of wetlands and their role in providing key ecosystem services in decision-making at local, provincial, national , regional and international scales,
A full understanding of these aspects may lead to promotion of ecosystem services supply whose values are reflected in markets (eg food, wood) compared to control services and support, which are barely visible on the markets (eg water purification, protection against storms and floods, nutrient cycles).

What we risk losing (the overall water cycle)



That we may lose more



What we risk losing



That we might lose (water quality, soil and habitats of Biodiversity)

Pollution!!!



BIODIVERSITY and CONSERVATION

- Wetlands are among the most biodiversity areas in the world and provide essential habitat for many species. The global network of "Wetlands International Importance" by the Ramsar Convention (Ramsar Sites), which has more than 2,000 sites covering over 1.9 million km² (Up to 15 % of the estimated global wetland), supports unique biodiversity in ecosystems (eg coral reefs, bogs, lakes, freshwater marshes and mangroves), species (eg waterfowl, amphibians and mammals dependent wetlands, such as hippopotamus, manatees and river dolphins), and genetic diversity. The integrated management of water resources should take into account these more benefits to balance human needs and nature and help improve water security through the conservation of biodiversity and ecosystem services, that would provide sustainable and profitable options at community conservation with emphasis on key areas Biodiversity outside protected areas do not have legal statutes.

VALUES OF WATER AND WETLANDS SHOULD BE FULLY INTEGRATED IN THE DECISION MAKING PROCESS IN DRC

- The Ramsar Convention, with its 163 signatory governments (contracting parties) which included the DRC and its current Strategic Plan 2009-2015 , invites Parties to apply principles of rational use of water and wetlands . Actions by the Parties in order to ensure rational use of these resources lead to important initiatives for the protection of critical services related to water and wetlands. The integration of values of water and wetlands can facilitate and inform decision making for rational use . The Strategic Plan for Biodiversity 2011 - 2020 accepted worldwide (launched at the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity in 2010 and supported by the Declaration Rio +20) includes commitments to take action to raise awareness of biodiversity values and their integration into the plans, strategies and accounts (Aichi Targets for Biodiversity 1 and 2). The 193 parties to the CBD are currently reviewing their strategies and action plans for biodiversity (NBSAP) to reflect physical assessments flow of ecosystem services and the increasing number of initiatives to assess the nature by means number monetary and non-monetary .

The ecosystem services

TABLE 1.1: Ecosystem services provided by, or derived from, wetlands (adapted from MA, 2005)

Services	Comments and examples
Provisioning	
Food	Production of fish, wild game, fruits and grains
Freshwater	Storage and retention of water for domestic, industrial and agricultural use
Fibre and fuel	Production of logs, fuelwood, peat and fodder
Biochemical	Extraction of medicines and other materials from biota
Genetic material	Genes for resistance to plant pathogens, ornamental species. etc.
Regulating	
Climate regulation	Source and sink for greenhouse gases; influence local and regional temperature, precipitation and other climate processes
Water regulation (hydrological flows)	Groundwater recharge / discharge
Water purification and waste treatment	Retention, recovery and removal of excess nutrients and other pollutants
Erosion regulation	Retention of soils and sediments
Natural hazard regulation	Flood control and storm protection
Pollination	Habitat for pollinators

The ecosystem services

Cultural	
Spiritual and inspirational	Source of inspiration; many religions attach spiritual and religious values to aspects of wetland ecosystems
Recreational	Opportunities for recreational activities
Aesthetic	Many people find beauty or aesthetic value in aspects of wetland ecosystems
Educational	Opportunities for formal and informal education and training
Supporting	
Soil formation	Sediment retention and accumulation of organic matter
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients

Degradation of wetlands

- Considering now that wetlands are just as farmland and forests, and are among the main life support systems of our planet.

Disappearance, drying and degradation of remaining province of South Kivu wetlands still less known , and it would influence on climate change that we face , loss of biodiversity, natural disasters , disruption of functions ecological and negatively impacting the flow of ecosystem services , with adverse effects on the health of the population , natural resources , well-being of communities and their livelihoods.

Since 1900, the world has lost about 50% of its wetlands (UNWWAP 2003) and according to the FAO, the last loss rate reaches up to 1 % per year.

What future could we book Wetlands of the province, where the policies of their rational management is not the appointment that it is in the public and private sector, while we effectively fight against food insecurity sustainable manner, face the challenge of climate change.

Degradation of wetlands

- Eutrophication of marsh wetlands and wetlands inland freshwater can lead to domination of the ecosystem by algae, which in turn would decrease the population of fish, health risks and reduction of recreational, tourism and economic activities associated opportunities.
To Lake Kivu and the Rusizi River, it goes am the water level of the lake has decreased by more than 2 meters, the dam Ruzizi Mururu runs at 25% of its production with a turbine (Josué ARUNA 2011). Although four turbines were repaired, SNEL will not have the speed necessary to run it, because the water will miss in 10 years, 20 years, 50 years. And this assumption also affects SINELEC despite the construction of the Ruzizi1,3 and 4.

Degradation of wetlands

- In Bukavu, water pump comes more regularly result in (flow) which declined (progressive low water), from the source to the point of abstraction Murundu with effects denuded watershed, and population fall back on the innocent REGIDESO, without remembering the Congolese generosity hosted Rwandans and Burundians refugees on Congolese soil in 1994 and these have highlighted the massive deforestation through the sale of fuels and construction of shelters and consequences were immediate soil degradation, after 20 years we feel distant consequences is the drop in water level as the water table responds. It starts recording sexual harassment of women and the girl drowning in the lake and in the Rusizi River due to the search for water. This question requires an understanding of the level of common and separated responsibility.

Degradation of wetlands

- We find among the pressures on wetlands conversion (eg drainage of wetlands) , invasive species, pollution , siltation , overfishing (eg unsustainable fish farming) , the excessive water extraction (eg for irrigated agriculture), nutrient loads (eg due to urban sewage), and climate change (eg temperature increases resulting in a change of ecosystem conditions) , the planning as is the case of fright zones of Lake Kivu and the marsh Mukukwe we lost due to the urbanization of the city of Bukavu , etc. .

"These problems occur in the eyes of the people and leaders that when the balance is broken and already installed crisis. We must therefore take care to prevent and not to suffer adverse consequences '(Kathy Masirika , in Josué ARUNA 2011) , incorporating into our policies in decision making, the approach of the Economics of Ecosystems and biodiversity for water and wetlands.

MEASURE FOR MONITORING

- Having a better evidence base on the interconnections between wetland ecosystems and the economic and social systems contribute to a better management of wetlands. Moreover, the evaluation of the value of water and wetlands can help to demonstrate their importance in decision-making at different levels, both in the public and private sectors. Indicators on the status and trends of biodiversity and the flow of ecosystem services represent a crucial evidence base for decision-making at all levels. Indicators can identify the levels and changes in the quality and quantity of water, biodiversity or ecosystem services such as carbon storage, water retention in the land, and the number of people benefiting of pure water supplied from the ecosystem.

MEASURE FOR MONITORING

- Mapping the location and extent of wetlands in South Kivu , as well as their correlations with ecosystems, population centers and artificial infrastructure , provides essential information about their interdependencies. Communities may depend on ecosystem service flows of a wetland , while the health of the wetland and its functions may depend on management by the local community and the level of decision-making for planning the use of land management and investment decisions (eg in the mining sector) in South Kivu , where we can develop a system of reports and the sustainability of mining companies , establishing and Loss accounts environmental benefits , and the natural Capital Declaration into account the economics of ecosystems and biodiversity for water and wetlands through a social dialogue with local communities based on a participatory planning.

RECOMMENDATIONS

Transforming our approach for Water and Wetlands

- Wetlands and ecosystem services related to water should be at the heart of water management in the transition to a green economy. We find among the key elements for the transformation of our approach:
The assessment and consideration of the values of water and wetlands in private decisions and public policy. This aspect includes both the development of more comprehensive knowledge in relation to the economic importance of water and wetlands, and the commitment of their integration policies and investment decisions;
Engage in rational use of wetlands and integrated management of water resources;

RECOMMENDATIONS

- Set priorities to avoid further losses / conversions of wetlands by taking better account, more comprehensive, ecosystem services of wetlands in a Strategic Environmental Assessment (SEA) of policies and programs , and an assessment of the environmental Impact Assessment (EIA) at the project level for a restoration of balance interrupted.
Develop ecosystem capital accounts to contribute to the assessment of environmental issues, planning land use , regulation , development of appropriate incentive measures and their application;
Promote the restoration of degraded wetlands to improve water security , food and energy , conservation of biodiversity, climate benefits (mitigation and adaptation) , natural protection against extreme events and the benefits for the people and resources.

BUSINESSES

- For businesses, it can be a means of securing resources for the future and reduce the risk of availability of resources;
Restoration can also help minimize the responsibilities and provide employment opportunities for local communities;
Identify the impacts and dependencies of companies with respect to ecosystem services related to water and wetlands in the short term to long term through an environmental assessment ;
Assess risks and opportunities associated with these impacts and dependencies ;
Develop an ecosystem business valuation and loss accounts and environmental benefits to improve communication ;
Take measures to avoid, minimize and mitigate the risks to biodiversity and ecosystem services.
Commitment to reduce the footprint on the water resources in order to preserve the availability of future resources for private and public benefits.

TO NATIONAL AND INTERNATIONAL POLICY MAKERS

- Integrate the values of water and wetlands in national development strategies , provincial and decision making - in policy , regulation and planning of land use , incentive measures and investments , and application. Full use of the process of NBSAP (national biodiversity strategies and action plans) to facilitate integration;
Ensure that the options and benefits of ecosystem services provided by wetlands are fully considered solutions to the management objectives of the land use and water and their development;
Develop better measures and address the gaps in knowledge , using indicators of ecosystem services and biodiversity and the environmental accounts . This calls for better science-policy and support for scientific and research communities interface.

LOCAL POLICYMAKERS

- Assess interactions between wetland ecosystems , communities , artificial infrastructure and economy , and ensure that the evidence base is available to policy makers or space planners, licensing authorities , the authorities charge of investment , inspectors or the legal department program;
Integrated planning systems (eg water supply and management to reflect infrastructure based on ecosystem and human infrastructure) ;
Ensure proper engagement / participation of communities (including indigenous peoples) and ensure that traditional knowledge is well integrated into management solutions .
Communicate the values of ecosystem services at the local level - to repurchase for site management, attract funding for measures of management and protection, and reduce pressures on wetlands, including the risks of decisions of authorization of land use that can undermine public things.

ACADEMIC FIELD

- Complete knowledge about the value of water and wetlands on best governance solutions, measures and tools to support the development of environmental accounts and different assessments in this sector;
Improve knowledge on hydrological functions of wetlands and how they influence ecosystem services in and beyond the wetlands;
Oriented focus in the management of water ecosystems and wetlands in helping the government to have a database scientifically proven research.

NON-GOVERNMENTAL ORGANIZATIONS (NGO)

- Support wetland management through funding and expertise, including the commitment of volunteers to assist in monitoring, science and restoration.

Understand, demonstrate and communicate the value of wetlands to local communities. Work with other stakeholders in a synergistic action to help identify and implement practical reactions.

Assess the sustainability of ecosystems in the evaluation of project before. Embed note quotation management of ecosystems and their restoration of balance in the implementation of humanitarian emergency projects, logistics, shelter sector, Wash, food security etc...

CONCLUSION

- The vision of a large number of economic services of nature led to the widespread neglect of natural capital, leading to decisions that degrade the ecosystem services and biodiversity.

The destruction of nature has now reached levels where serious social and economic costs are felt and will be felt at an accelerated pace if we continue with business as usual.

The economic valuation of ecosystems is much less useful in several situations in the DRC continued ignorance about potential tipping points in nature.

In such circumstances, the prudent policy actors in the DRC and in the province of South Kivu should invoke complementary approaches including the precautionary principle that living conditions of uncertainty with nature that is part of our life.

FINAL CONCLUSION

- « Conclude with the slogan of the Congolese Institute for the Conservation of Nature / ICCN South Kivu
Who said this in memory of 2014

"When the last tree has been cut down, the last river
poisoned, the last fish caught, then we understand that
money cannot be eaten" »

THANK YOU

