



Wetland valuation changes development policy perspectives in Burkina Faso

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Short title: Wetland valuation changes policy perspectives, Burkina Faso

Key Message: Development policies in Burkina Faso have historically focused on harnessing the agricultural potential of wetlands in the Sourou river valley. Preliminary results of wetlands valuation, however, indicate that agriculture accounts for only 3% of the total value of the wetlands' multiple services. These results stimulated discussion among policy makers about ways to integrate ecosystem services into development policies at both local and national levels.

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Reviewer: Clarisse Honadia

What is the problem?

The Sourou valley wetlands are among the most important wetlands in Burkina Faso, particularly for agricultural production. By the beginning of the 20th century, agricultural land in the Sourou valley covered 24,000 ha. In the mid-1980s, the government of Burkina Faso declared the region as a priority for development, leading to the creation of the Sourou River Valley Development Authority to evaluate and manage the Sourou valley. In 1994 a master plan for agricultural development was created, revealing the agricultural potential of over 30,000 ha. Plans were guided by the hypothesis that improvements to agricultural production would reduce food insecurity. As a result, little attention was paid to other opportunities embedded in the ecosystem.

More than 20 years later, the expected green revolution has not happened. Communities rely on other ecosystem services for both income and livelihood. Local efforts to combat poverty and improve community livelihoods have not received support from either donors or the government whose investments are geared towards irrigated agriculture. Moreover, current agricultural practices are causing many negative environmental impacts: the degradation of river banks and siltation, the destruction of hippopotamus and bird habitat, and reduced river flow. Such unbalanced development policy is likely to increase poverty and decrease biodiversity (an important asset to local communities).

The government intends to develop the Sourou valley as a regional economic growth pole. Taking a holistic view of the value of the Sourou valley can inform a development policy that captures the range of economic benefits from the wetland – or, at least, can reduce inconsistencies in current policy. Valuing the ecosystem services provides information about the relative economic importance of different services to local, national and global economies. On this premise, an economic case is being made to improve the development policy of the wetlands.

Which ecosystem services were valued and how?

Based on the definition of ecosystem services by the Millennium Ecosystem Assessment (MA, 2005) an economic valuation of the Sourou valley was piloted in 2009 by the IUCN together with two national research centres (Environment and Agricultural Research Centre and Economic and Social Policy Analysis Centre). The study considered the following services:

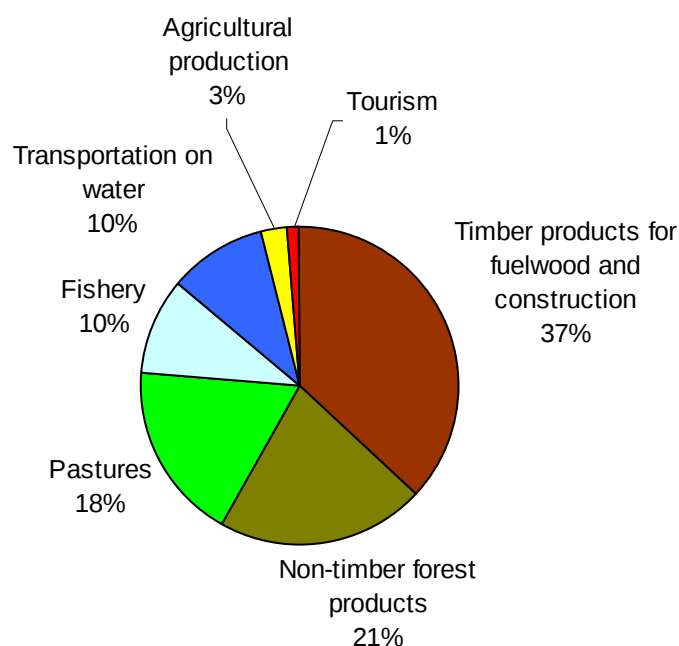
1. Crops, livestock, fish, wild foods (non-timber forest products), fuelwood, provision of water for transport (provisioning services)
2. Tourism (cultural services)
3. Groundwater recharge and discharge (regulating services)
4. Biodiversity and habitat (supporting services)

A range of valuation techniques were used to assign monetary value to wetlands services. Market prices were used to determine the value of fuelwood, fish, transport, non-timber products, fodder for livestock production and tourism. Valuing the effect of wetlands on crop production was estimated using a technique that examined difference in fertilizer use for farms near to the Sourou river and farms 10 km from it. This differential was multiplied by the market price to evaluate the effect of wetlands on soil fertility and thereby the monetary value of crop production. Qualitative analysis and focus group discussions were used to value and collect data for regulating and supporting services.

Initially a total economic value approach was going to be used to value the wetland, but this turned out to be impractical. This approach attempts to put a monetary value on both tangible and less-tangible services. In this context, local communities were more familiar with tangible services (food and other goods for households' livelihoods) than less-tangible services (biodiversity and groundwater recharge). Due to the lack of markets for regulating and supporting services, a monetary value using the market price method could not be assigned.

Preliminary results indicate that the annual (minimum) value for the ecosystem services evaluated is about 15 million Euros (US\$ 21.2 million) for a population of 62,224 (Somda et al., 2010). This amount included tax revenue derived by government and municipalities. It was not possible to estimate which share went to local communities, government and municipalities. Valuation of services provided by the Sourou valley revealed that crop production is not the region's major economic good (Graph 1), despite important investments since 1970.

The study also showed that the diversion of the Mouhoun river water into the Sourou valley improved groundwater recharge, decreasing the time required for communities to fetch drinking water from boreholes. The Sourou wetlands was also identified as important to biological diversity, in particular as home to the hippopotamus, migratory birds and various wildlife, some exploited for Safari tourism.



Graph 1: Ecosystem services in the Sourou valley in Burkina Faso that were valued by (Somda et al., 2010). Preliminary estimates value the sum of these ecosystem services to be at the minimum 15 million Euros (US\$ 21.2 million) for a population of 62,224 people (Somda et al., 2010).

What was needed to assess the issue in terms of data, resources and capacity?

The study was carried out from April to December 2009 in three municipalities in the Sourou river valley (Di, Lanfiera and Kassoum). From April to June secondary data were collected as there was little data on wetlands services readily available (except from scattered statistics on crop and livestock production). Primary data collection took place between June and September. Individual surveys were conducted with 310 household representatives (130 women and 180 men) to determine the annual production of fish, fuelwood, crop, livestock, tourism and transport fees, etc. Focus group discussions also took place. These involved 50 representatives from decentralized technical offices (agriculture, environment, livestock, health and the Sourou River Valley Development Authority), municipalities and customs. Focus group data included qualitative information regarding the potentials, constraints and utility of natural resource management in the Sourou river valley. The data were analyzed and reported from September to December.

Several prerequisites to economic valuation were identified:

- Substantial secondary data on provisioning services are required to integrate the seasonal variability of services. If this cannot be done, annual values need to be used.
- Other economic valuation techniques (such as contingent valuation) to estimate non-market services require preparing informants well to avoid free-riding effects.
- Conducting an economic valuation of wetlands requires resources. Although donors are willing to support the economic valuation of wetlands, Burkina Faso needs to provide additional funds to allow an in-depth, countrywide assessment of the economic value of natural ecosystems. Including economic valuation in the early

stages of wetland development can also facilitate more targeted development actions.

- The capacity to conduct an economic valuation study in Burkina Faso, as in many West African countries, is still very low. Few scientists are familiar with the concepts and methods of valuation and current curricula in universities and/or high schools could be improved with the addition of applied ecological economics. Applied ecological economics research could also be developed in national research centers.

What was the policy uptake?

Decision makers have appreciated the findings. The participatory approach used during the study allowed various stakeholders to be involved and raised public awareness of the usefulness of valuation as a decision-making tool for wetlands development policy. 22 representatives from national institutions and socio-professional groups concerned with the development of the Sourou river valley participated in an event to disseminate the results of the study. Local councillors, the national directorate of economics and planning, decentralized natural resource related administrators and ecosystems services users all participated. There was an expressed willingness from all parties to make use of the information to define the appropriate role of natural ecosystems in the national strategy for growth and sustainable development which is under preparation. Further, the Sourou riparian municipalities stated that these results will be used to improve their local development plans.

According to the participants, the attempt to assign monetary value to ecosystems services is worthwhile for at least two reasons:

1. Valuation is useful for decision making. Without economic data, it is very difficult to both incorporate the environment into national and local policies and establish the role it should play in poverty reduction. Recommendations were made for using this approach country-wide and for providing economic data on natural ecosystems for the entire country to the national committee in charge of developing the Strategic Paper on Growth and Sustainable Development.
2. The Sourou river valley ecosystem provides more than agricultural services. The monetary values of the different services provides guidance to local decision makers responsible for allocating resources between biodiversity conservation and other socially valuable objectives. Recommendations were made to use this information in the next local development plan.

The conditions for this effort to actually influence the public management of wetlands in general and the Sourou valley in particular are:

1. The identification and involvement of all stakeholders at all stages of valuation. For this study, stakeholders at both local and national levels were consulted: farmers, fishermen, women, customers, decentralized natural resources related administrations (agriculture, livestock, environment, health), centralized administrations (economics and planning) and national nongovernmental organizations.
2. Developing partnerships between institutions in other sectors by improving collaboration with government planning officers responsible for preparing and implementing economic development strategies and plans.
3. Raising public awareness about the usefulness of economic valuation tools. From this study a documentary on the economic values of Sourou valley will be produced

so that decision makers and the general public can be made aware of the economic value of wetlands and the creation of an integrated development policy for Sourou valley communities.

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