POLICY BRIEF

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The livelihood value of Botswana's Okavango delta

Tourism development provides an important opportunity for reducing pressures on the delta's natural resources as well as reducing people's dependence on the these resources for their livelihoods.

BY JANE TURPIE - APRIL 17, 2010

In spite of a plethora of legislation to encourage their protection, more than half of the world's wetlands have been lost (Barbier 1993), probably largely due to a lack of appreciation of the existence and value of the services they provide. At the local level, these include the provision of harvested goods such as raw materials, and their contribution to agricultural productivity. Such services contribute to the livelihoods of millions of people living around the large floodplain and deltaic wetlands of sub-Saharan Africa (Turpie et al. 1999, Schuyt 2005). Understanding what drives the extent of wetland use and contribution to livelihoods will be critical to the successful conservation of wetland systems such as the Okavango delta.

Key Points

- Many types of natural resources are harvested by households living around the Okavango delta, several by a very high proportion of households.
- These resources are worth some 26 million Pula in net income to households, of which P12.5 million is from the wetland. (P1 = US$0.19)
- P1.2 million of the net income from livestock and 0.6 million of crop production is attributed to the wetland and its functioning.
- The delta contributes about 11% of household net income.
- Use of certain resources was positively related with proximity to the wetland, while others were related to the preponderance of different types of dwellings. These were influenced by off-farm income, which in turn was positively correlated with education.
- Understanding of these relationships can be used to devise effective conservation strategies.

The Okavango Delta, located in north-western Botswana, forms the inland sink of the Okavango River, and is listed as a wetland of international importance under the Ramsar Convention. The delta is relatively complex and rich in diversity compared to the surrounding areas, and provides the focus for agro-pastoral land use, fisheries and other natural resource harvesting as well as supporting highly valuable tourism activities. However, demands on its water and other resources are expected to grow significantly in future (Mendelsohn & Obeid 2004).

There are at least 67 settlements around the deltaa, with a total population of about 110 000 people in 2001. Ethnic composition varies, with the Bahambakushu dominant to the north of the delta, and the Bayeyi dominant to the south. Numerous

other tribes also inhabit the area Most people are rural and poor, and have diversified production systems to reduce risks in an unstable environment (Scudder *et al.* 1993). Households are heavily reliant on government support, although employment levels are high relative to other large sub-Saharan wetland systems.

The contribution of the wetlands to household livelihoods

Livestock is considered the most important agricultural activity, providing cash income, meat, milk, draught power, wealth store and social status. Grazing is mainly at cattle posts, well away from the wetland. About 47% of households have upland fields, and a further 28% have *molapo* fields (in seasonally flooded areas or areas moistened by rising groundwater). Production in the latter is about 40% higher than in upland fields. In total, some P1.2 million of the net income from livestock and 0.9 million of crop production is attributed to the wetland and its functioning (2005 values; 1 Pula = US$0.19.

Many types of natural resources are harvested by households living around the Okavango delta, several by a very high proportion of households. Natural resources harvested in the area included an estimated:

- 76 million bundles of firewood, the main source of fuel;
- 280 tonnes of wild plant foods, including berries used in produding beer;
- 160 tonnes of wild meat,
- 450 tonnes of fish,
- 276 000 poles, used in house construction;
- 150 000 bundles of reeds, used for house construction, mats and fishing gear;
- 174 000 bundles of grass, used for thatching, brooms and basketry;
- 2300 bundles of papyrus, used for sleeping mats; and
- 9000 bundles of palm leaves, used in construction and crafts.

Medicinal plant use is significant but relatively uncommon, and timber, pottery and honey harvesting/production is uncommon. In total the natural resources harvested are worth some 26 million Pula, of which P12.5 million is from the wetland.

Agriculture and natural resource-based activities generated a total net value of over P80 million to households in the study area, of which over P15 million (19%) is attributed to the wetland. The wetland contributes 11% of overall household net income, including off-farm income.

What influences the use of resources

The use of resources can be influenced by either supply factors or demand factors, or a combination. Around the Okavango delta, the proportion of households harvesting wetland resources (papyrus, reeds, grasses) and engaging in traditional fishing was positively influenced by proximity to permanently- or frequently-inundated wetland areas. The total harvests of some raw materials (poles, grass and reeds) in a particular area was positively related to the numbers of traditional dwellings. In other words, use of the resources was driven by demand for subsistence purposes. The number of dwellings, was in turn, influenced by the level of household income, which in turn, was strongly correlated with the level of education of the household head. In addition to having more dwellings, wealthier households also had more cattle, as tends to be the case in many rural areas (Shackleton et al. 2001).

Policy implications and recommendations

In conclusion, the findings of this study suggest that the improvement of household income through interventions such as tourism development and education could lead to an increase in the numbers of livestock and dwellings, both of which would increase the aggregate demand for upland resources, but could also lead to a reduced dependence on wetland resources, and on natural resources in general for household livelihoods. This would leave households less vulnerable to changes in the availability of natural resources, e.g. due to changes in climate or environmental flows. Such developments would have to go hand in hand with improved management interventions, particularly in the upland areas. These findings are summarised in Figure 1.

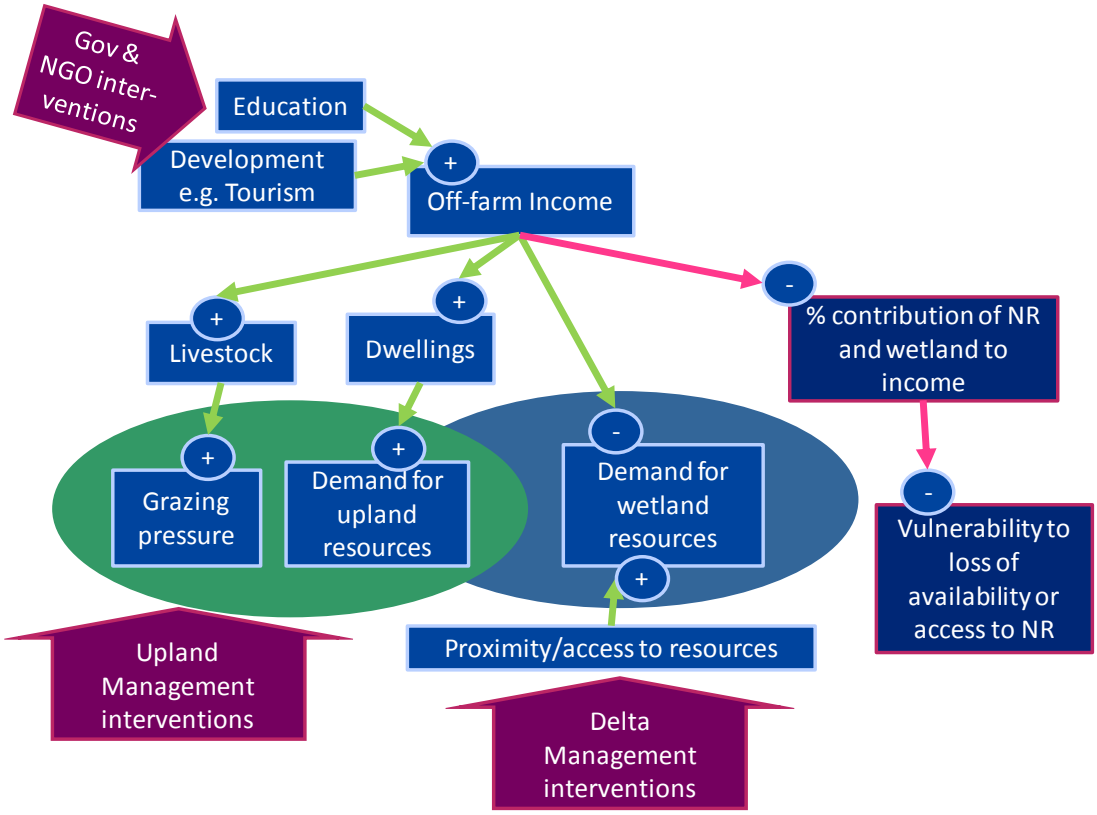

Figure 1. Conceptual model of the factors influencing pressures on wetland and upland resources in the okavango delta area

ABOUT THIS BRIEF

This brief is based on results from: Turpie, J.K., Barnes, J., Buzwani, B., Nherera, B. & Arntzen, J. 2010 "The livelihood value of the natural resources of the Okavango Delta, Botswana: spatial variation, influencing factors and implications for management " Working Paper Series, Environmental Policy Research Unit, University of Cape Town, South Africa.

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