

ECONOMIC VALUATION OF THE OKAVANGO DELTA RESOURCES AND IMPLICATIONS FOR MANAGEMENT

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Okavango Delta Management Plan



Aim of Economic Valuation

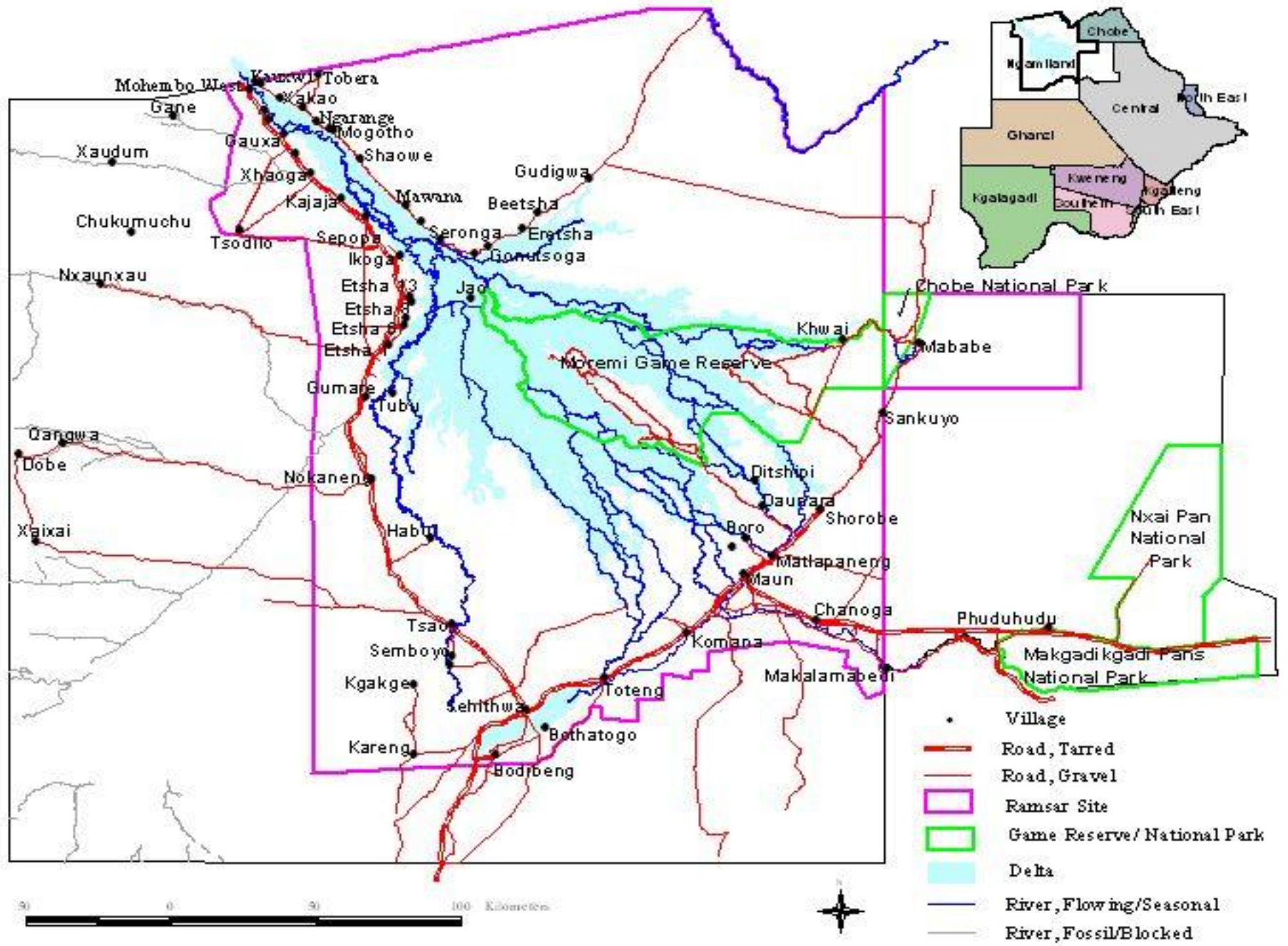
- ▶ The aim of the economic valuation study was to inform management planning and practice, in the context of current and future activities being carried out in the Okavango Delta

Current and future threats to the Delta

- ▶ Unsustainable land use and resource exploitation,
 - ▶ Inadequate freshwater inflows,
 - ▶ Habitat conversion and modification,
 - ▶ Invasive species,
 - ▶ Inequitable benefit sharing and lack of local economic incentives for conservation,
 - ▶ Unsupportive macroeconomic and sectoral policies,
 - ▶ Insufficient budget and financial support
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Approach and valuation framework

- ▶ The study was conducted using both a Total Economic Value (TEV) framework and a National Accounting framework.
- ▶ The TEV framework was slightly modified to define four different types of values considered in this study:
 - Tourism value (both consumptive and non-consumptive direct use value);
 - Natural resource use by households (a consumptive use value);
 - Indirect use value (values generated beyond the study area due to services provided by the study area); and
 - Non-use value (option and existence value)



Data collection

- ▶ Household use of resources was quantified using primary data collected in a survey of 430 households in the study area
- ▶ The household questionnaire elicited information on:
 - Household demographics,
 - The relative importance of different sources of income,
 - The quantities of natural resources harvested and value added, and on agricultural production.
- ▶ General information on agriculture and use of natural resources, such as seasonality, input prices etc. was collected using focus group discussions and key informant interviews in the study area

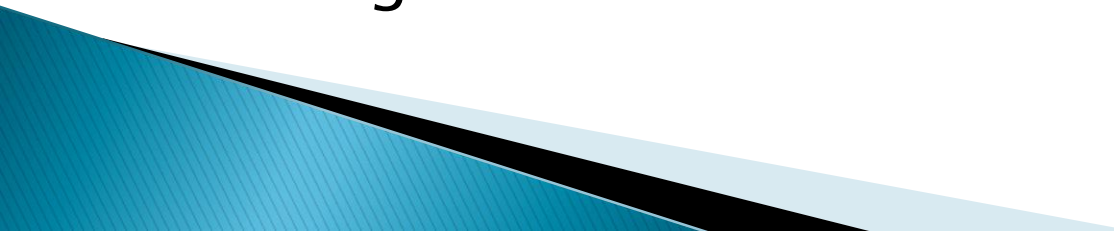
Indirect Ecosystem Functions in the Okavango Delta

- ▶ Five main ecosystem functions were identified as being important in the generation of indirect use value:
 - Groundwater recharge,
 - Wildlife refuge,
 - Carbon sequestration,
 - Water purification and
 - Scientific and educational value.

Option and Existence values

- ▶ Measurement of option and existence value was beyond the scope of this study, but a short discussion on these values was included

Analysis.....

- ▶ A national accounting framework was then used to estimate the impact of the direct use values described above on the national economy.
 - ▶ Total Economic Value was estimated in terms of direct gross output, direct contribution to national product and economic resource rents.
 - ▶ Direct impact on rural livelihoods in particular was estimated in terms of the income generated by agriculture, natural resource harvesting and through tourism
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Findings – Direct use

- ▶ The direct use values of the Okavango delta are overwhelmingly dominated by the **use of natural wetland assets for tourism** activities in the central zone.
- ▶ Households in and around the delta earn a total of **P225 million per year** from natural resource use, sales, salaries and wages in the tourism industry, and rents and royalties in CBNRM arrangements

Examples of resources and their values

Summary of the annual private values associated with household natural resources use and agricultural

Resource	Total
Livestock	61 165 831
Upland crops	4 183 004
Flood recession crops	2 191 651
Upland resources	17 965 525
Wetland plants	7 272 574
Fish	2 665 520

Findings cont... Indirect use values

- ▶ *Groundwater recharge* – Some 5.8 Mm³ of groundwater extracted from the study area, is worth an estimated **P16 million**
- ▶ *Carbon sequestration* – Based on published values and sequestration rates obtained from the literature for different habitat types in the study area, it is estimated that the carbon sequestration function is worth about **P86 million** in the delta and **P158 million** for the entire Ramsar site

Findings cont...Indirect use values

- ▶ ***Wildlife refuge*** – The use value of these species beyond the wetland area is estimated to be **P77 million**. Use beyond the entire Ramsar site is about **P30million**
- ▶ ***Water purification*** – The service is valued at about **P2.2 million**
- ▶ ***Scientific and educational value*** – estimated to be at least **P24 million** for the Ramsar site, of which **P18 million** is attributed to the wetland

Findings cont...

- ▶ The natural capital asset value of the Ramsar site is estimated to be about **P3.9 billion**, of which the Okavango Delta is worth **P3.4 billion**

Option and non-use value

- ▶ No studies have been conducted to estimate the option and existence value of the study area or the Okavango delta
- ▶ It has been estimated that tourist to the Delta alone have a willingness to pay to preserve the area of at least P13 million (net present value) – consider it a gross under estimate

Management Implications

- ▶ Management of the Okavango Delta and the Ramsar Site in general will need to **strike a balance** between meeting the needs of the people living in and around the delta and contribution to the national economy.
- ▶ People living in the study area derive roughly equal benefits from natural resources and from tourism,
- ▶ However tourism is *slightly* higher

Management Implications contd..

- ▶ However, there is an important difference in the form that these benefits take:
 - Natural resources provide subsistence value which contributes to peoples' livelihoods, as well as some cash income
 - Natural resource use have the capacity to provide a safety-net for households that suffer shocks and provide a risk spreading mechanism for poor households that are vulnerable to environmental variability
 - Tourism, on the other hand, generates hard, reliable cash income to households

Management implications cont...

- ▶ Tourism also makes a substantial contribution to Botswana's GNP
- ▶ It is recommended that future management of the Okavango Delta is centred on ensuring the:
 - Sustainability of current resource use by households (continue to provide the livelihood and other social benefits)
 - Enhancing the value of the delta for low impact – high value tourism through maintaining the extent and integrity of the conserved area.
- ▶ Policy aimed to expand the links between tourism and development through CBNRM and other economic systems such as the service industry, citizen participation; empowerment programmes; etc

Thank you