

Introspection on the state of natural resources, indigenous knowledge, waste management and tourism development in the Botswana

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Natural resource management is multi-faceted and multi-layered, which lends it a degree of complexity. Multi-disciplinarity is increasingly being embraced as a tool for analyzing environmental resources management strategies and their effects. This special issue is a compilation of multi- and trans-disciplinary research by seasoned researchers and graduate students from the Okavango Research Institute (ORI). The compilation deals with issues related to natural resource management in Botswana. The ORI has a wealth of academic work on multidisciplinary research on environmental and natural resource management issues, including environmental policies, natural resource scarcity and resource conflicts, and indigenous knowledge and tourism management, among other broad themes. The value of bringing together such themes under one publication has many advantages, most of which will become apparent as we summarize the articles in the issue below. The issue documents Botswana's current and future development within the broad themes of the state of natural resources and environmental pollution, human-wildlife conflicts, indigenous knowledge, waste management and tourism management.

Tsheboeng *et al.* highlight the significance of the role played by riparian woodlands on the hydrological cycle in the Okavango Delta. They address the literature gap on the regeneration status of riparian woodlands in the Delta by investigating the spatial variation in the regeneration structure of different riparian tree species in the Okavango Delta. They conclude that there is variation in the regeneration structure of different species between different sites, and recommend further research on the environmental factors that influence the regeneration of the woodland species in the Okavango Delta.

The Okavango Delta has experienced negative natural resource dynamics, including water pollution, biodiversity loss and some cases of natural resource depletion over the years. There has also been an increasing competition over natural resources in the Delta, resulting in land-use conflicts. Notably, there is conflict between livestock and wildlife. Joseph Mbaiwa's paper uses the concepts of sustainability, human wildlife conflict and conflict resolution to analyse the causes, consequences and management options for human-wildlife conflicts in the Okavango Delta. The paper concludes that community-based tourism, land zoning and compensation for crop damage and livestock predation are potential options for sustainability and human-wildlife conflict resolution.

The issues of human-wildlife are not unique to the Okavango Delta as Ngaka, Rutina and Maude have observed. The construction of a fence to mitigate the human-wildlife by separating wild animals from farmers in the Makgadikgadi Pans National Park in the Boteti region between the years 2004 and 2005 resulted in fewer reported kills. Their article recommends that there

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should be continuous maintenance of the fence in order to ensure that it stays intact and mitigates human-wildlife conflict.

Botswana is one of the popular destinations for wildlife and safari tourism. However, there is a dearth of research on wildlife-based leisure activities and associated consumption patterns in the country. Emmanuel Mogende and Naomi Moswete's paper examines the perceived environmental impacts of wildlife based tourism development at the Chobe National Park in northern Botswana. The park has been experiencing increased wildlife activities over the years, leading to mass tourism, particularly during peak season. The paper argues that there is need for active monitoring of tourist activities for the long term sustainability of the tourism industry. It concludes that there is evidence that the ecological sustainability of the park is compromised.

A paper by Patricia Mogomotsi and colleagues assesses the contribution of tourism to household income relative to other livelihood activities in the Boteti sub-district. The paper concludes that the percentage of participation in the tourism sector is lower than the participation of selected communities in arable farming and livestock farming. It further concludes that tourism related activities do not contribute significantly to household income. Therefore it recommends a review of the 1990 Tourism Policy in order to design relevant approaches through which the contribution of tourism to households in tourism hubs could be improved.

In their paper, Kolawole and colleagues investigate the relationship between the people's quality of life and support for tourism development in Maun. They conclude that there is a significant positive relationship between the people's quality of life and their support for additional tourism development. The paper argues that the perceived costs and benefits of tourism to the people of Maun affect their decisions to support or not support additional tourism development in their community.

Environmental pollution can undermine a country's efforts to promote tourism development and improve tourism sector returns. The negative environmental externalities associated with plastic waste have prompted calls for the eco-friendly behaviour of consumers and pro-environmental interventions. A paper by Goemeone Mogomotsi and colleagues analyses the behaviour of the youth towards their environment. The paper found that the youth are willing to pay for continued plastic bag use and, at the same time, are willing to shift to eco-friendly alternatives. It also found that the higher the price of plastic bags the lower the willingness to pay for plastic bags among the youth. This implies that the hiking of price of plastic bags could serve as a pro-environmental intervention.

In their paper Gondo and Kolawole argue that institutions, whether indigenous or modern, play an important role in the management of water resources. Their paper presents a review of literature on customary and statutory water resources management institutions in Botswana and Zimbabwe. It concludes that in both countries, there exist both customary and statutory water management institutions, which while they differ can complement each other and therefore they argue for legal pluralism in the management of water resources in these two countries. The paper highlights the place of indigenous institutions in the modern day society.

As part of the global village, the society depends on westernized or scientific sources of information to inform policy. In their paper, Mabophiwa *et al.*, assess arable farmers' understanding of the various aspects of seasonal weather forecasts. The study established that some farmers, especially those with low levels of education, do not use the weather forecasts in their planting decision-making mainly because they do not understand them. They therefore suggest that the weather forecasts be explained to help farmers make sense of them, especially how they can plan their farming activities based on the information they get from weather forecasts.

Finally, Motsholapheko and colleagues examine access to grid electricity in Botswana, particularly in the Okavango Delta. The paper aims to create awareness on issues relating to access to energy, especially the use of renewable energy technologies in the tourism-supporting wetland. It argues that renewable energy technologies that have minimal impact on the environment should be promoted, especially in environmentally-sensitive areas and pristine wetlands such as the Okavango Delta.