

CROSSING BOUNDARIES

Botswana and its neighbours make plans with Nature through research and knowledge sharing for sustainable use of the Okavango waters

By **Monica Morrison**

Photos courtesy of **Dr. Jackie King and Chaminda Rajapakse**

An African fish eagle surveys its hunting grounds from a dead tree overlooking a stretch of water at the confluence of the Chobe and Zambezi Rivers. The big, beautiful bird – the very symbol of northern Botswana’s waterways – is one moment in Botswana and the next in Zambia, soaring and dipping into the water to catch a fat bream, crossing a political boundary.

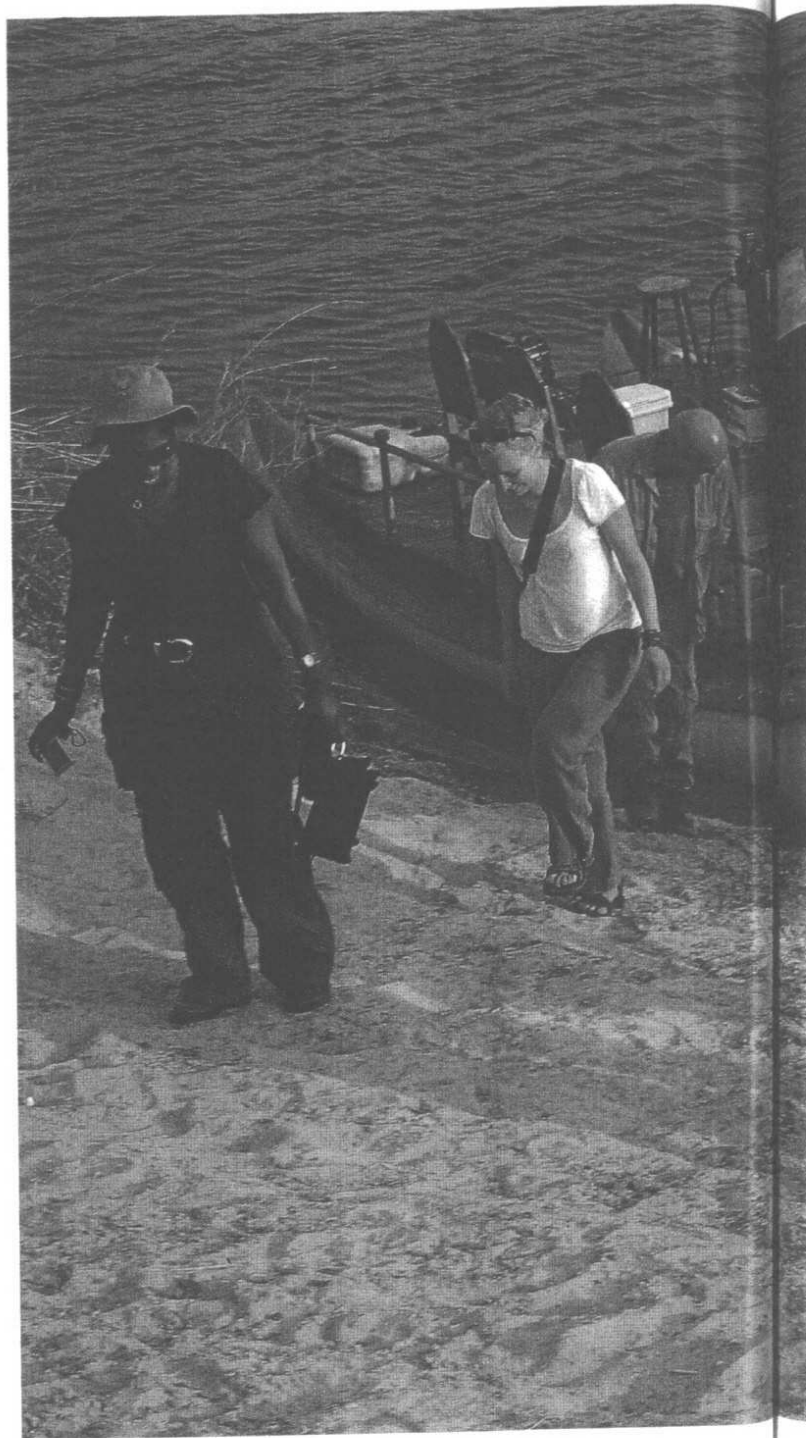
A group of female kudu casually browse their way through the bush, unaware that their last steps have taken them from Angola to Namibia. And, in the Molopo River valley, a cheetah chases a springbok, crossing from Botswana to South Africa at 120 kms an hour, no Customs or speed traps in sight.

Nature has no respect for human borders and boundaries, something which Botswana recognises, and is incorporating in its national development planning. The country participates in several major trans-boundary partnerships with neighbouring countries: the Permanent Okavango River Basin Water Commission (OKACOM), the Kavango Transfrontier Park (KAZA), the Orange Sengu River Basin Commission (ORASECOM) and the Limpopo Water Course Commission (LIMCOM). Through OKACOM, Angola, Botswana and Namibia are jointly planning for the future of the Okavango River Basin.

SHARED KNOWLEDGE FOR SHARED BENEFITS

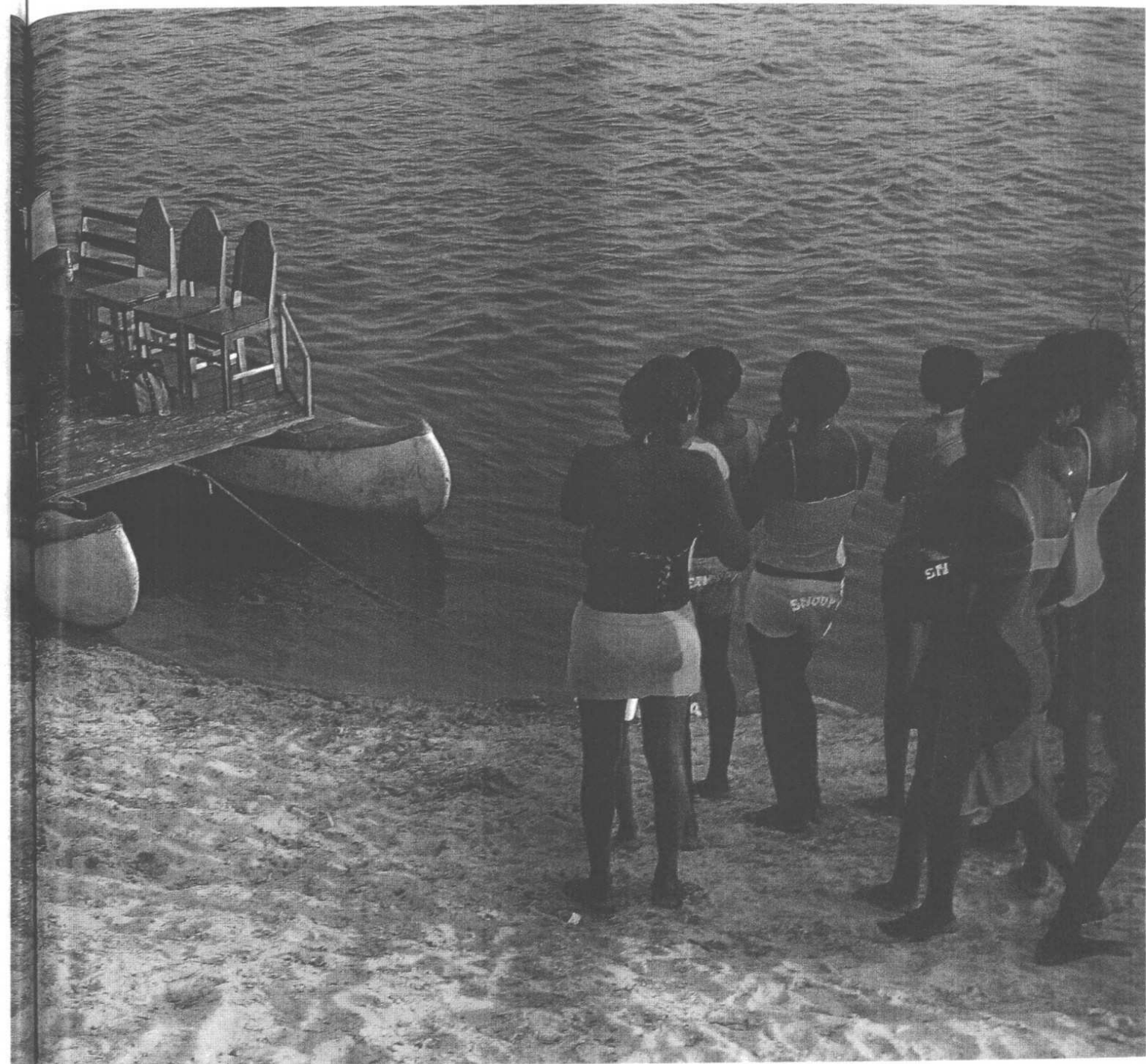
The southern African summer brings rain to the highlands of Angola, swelling streams that move fresh water through the Cuito wetlands to meet the Rio Cubango, then on to Namibia where the flow is called the Kavango, and then on to Botswana where, crossing the border, it becomes the Okavango River.

In its 1 000 kilometre journey, the water passes through villages where farmers wait for the annual flood to nourish



their riverside crops, through the rapidly growing towns of Menongue in Angola and Rundu in Namibia, down to form the lagoons and swamps of the Okavango Delta, where tourists from across the globe delight in the spectacular array of animal and plant life.

People living along the river in the three countries have a shared history and livelihoods adapted to its pulses and abundant resources. But, all this water is a rarity in a dry continent; and growing demand in Angola, Botswana and Namibia for economic development, and the accompanying required land and other resources, has made the



Local girls greet the OKACOM TDA research team as they conclude a long day in the field.

governments of the three countries look carefully at options for making the benefits of the river available to all.

In 1994, the three countries agreed to plan for the collaborative management of the Okavango's natural resources, forming the region's first river basin organisation – OKACOM. It was established with representation from senior government officials from the three countries, and given the mandate to meet and discuss all issues relevant to planning and development in the Okavango Basin. Whilst the political will to share the management of the river was strong, Angola was

still involved in a long and difficult bush war that made movement in the rural areas of the country impossible.

In 2002, when peace was finally declared and the long process of reconstruction began in Angola, OKACOM started to consider the increased potential for upstream developments of interest to the three countries. Would Angola be building new dams? Would Namibia be drawing off more water for new irrigation projects? Would Botswana want increased water supplies for mining operations? The Commission realised that it needed a base of reliable information to make wise joint decisions.

In 2003 OKACOM, assisted by the United Nations (UN) Global Environment Fund, UN Food and Agriculture Organisation, and UN Development Programme, launched the EPSMO project to respond to this need.

The Okavango River Basin is unusual in that its water and shores are relatively pristine, protected by low human population pressures. Experience with other river basins in the world has shown that remedial action – repairing the damage that inappropriate development brings – is much more costly than wise management.

OKACOM designed the EPSMO Project to evaluate the condition of the River Basin, to identify possible threats posed by increasing demands on the river system, and to develop a policy programme, including legal and institutional reforms – a Strategic Action Programme – to meet and manage these demands.

The first step was a Trans-boundary Diagnostic Analysis (TDA) of the entire River Basin, a study that looked at all its environmental and social conditions.

INNOVATIVE RESEARCH RESULTS

Innovative methodology was used to design and carry out the process. Where most studies of this kind identify existing problems, the Okavango study was designed to identify potential problems in the future, based on how the river would look if different kinds of activity took place.

Multi-disciplinary research teams from universities in Angola, Namibia, Botswana and South Africa joined together to review previous studies and to collect new data – to produce what the scientists call ‘integrated flows analysis’. This assessed how the river’s complex ecology would respond to activities like the use of water for hydro-power, irrigated agriculture and municipal sanitation, as well as to the big issues of changing land use and climate.

The researchers found that the population in the Basin’s three countries is growing, that food self-sufficiency programmes are expected to increase irrigated agriculture, and that tourism in the region is increasing. Hydro-electric power stations are under consideration to meet the demands of urban populations growing at a rate of more than two percent annually.

Using this information, the researchers developed three scenarios – low, medium and high water use – creating possible pictures of how the Basin could change by 2025, in response to these developments.

The pictures that emerged from this analysis show the types of trade-off the three countries would have to make when planning for water use and development projects. Irrigated agriculture in one area might mean less tourism further downstream; a hydro project might mean a loss of traditional flood recession farming in another. But food might be more available and affordable, and income from employment might rise.

HOW TO USE THE RIVER – WITHOUT USING IT UP

The TDA provides guidelines for OKACOM in its development of a Strategic Action Programme for the management of the Basin. Amongst the recommendations:

- The benefits that people and nations derive from



Top: The bridge over the Cubango River, Caindo Hydrometric Station, Angola; Above: Aquatic ecologists in the field; Facing page: Community consultation meeting, Menongue, Angola.

the river are dependent on the variability of its flow. Proposed developments should consider the impact of the hydrology on the river.

- Irrigated agriculture in the Basin’s poor soils needs careful planning, as it has the potential to extract large amounts of water and to affect water quality.
- The Cuito tributary in Angola should be left to act as a wetland buffer for other developments by moderating flow fluctuations, diluting pollutants and continuing to supply crucial sediment.
- While big storage dams are not recommended, smaller run-of-river schemes located on tributaries with effective mechanisms for allowing the continuous flow of sediments, control of water discharge from poor quality reservoirs and consideration for migrating fish might be a good investment.
- Considering the high costs of treating contaminated water, conserving the good water quality of the Okavango offers the most cost effective option.
- The conservation of river banks and buffer zones can allow riparian vegetation to recover in urbanised areas, and protected areas can support wildlife migration



Research shows the types of trade-off the three countries would have to make when planning for water use and development projects.

and tourism. The links between land use and water management are important, considering the river Basin's poor soils.

- The benefits of intensive water resources development appear to be fewer than alternative approaches, such as low impact, community-based ecotourism, municipal water supply and sanitation schemes that use efficient, environmentally friendly state-of-the-art technology, and harmonised land use planning that balances sustainable agriculture and fish harvesting with good housing and business facilities.
- The current near pristine state of the River Basin is a clear comparative advantage for the Okavango.

OKACOM took these findings to communities in the River Basin to hear people's reactions and comments. Farmers, municipal officials, tourism operators, fishermen and community members responded with their own particular priority issues – such as clean water supplies, invasive weeds, and economic opportunities offered by better roads and communication systems.

These findings and recommendations have helped OKACOM to develop its Strategic Action Programme for the management of the river, taking a long-term view of how the Basin may be developed in a sustainable way, in accordance with integrated water resources management

principles.

OKACOM will be working with the three country governments to develop investment opportunities for people in the River Basin, whilst at the same time tracking the changing state of key ecological and livelihood conditions identified by the study.

Basin-wide tourism – sharing the experience and professionalism of Botswana's and Namibia's high-end tourism operations with Angola – is likely to become one of the outcomes of this joint planning and development, as are community-based natural resources management and improved agriculture and fisheries.

Knowledge gaps identified by the study are included in the Strategic Action Programme; and the countries will support new research about how land use change affects water resources, the importance of sediments in the river's ecosystem, the relationship amongst ecosystems and socio-economic benefits, and the likely impacts of climate change on the river's systems and the livelihoods it supports.

For the first time, the countries that share the Okavango River also share the knowledge that will help them get the best return on investment from its natural resources, considering the needs of both people and the environment.

Whilst coordinating the national agendas of three countries is a challenge, OKACOM is demonstrating that it is possible to cross political boundaries to understand, complement and sustainably utilise Nature's gifts. ■