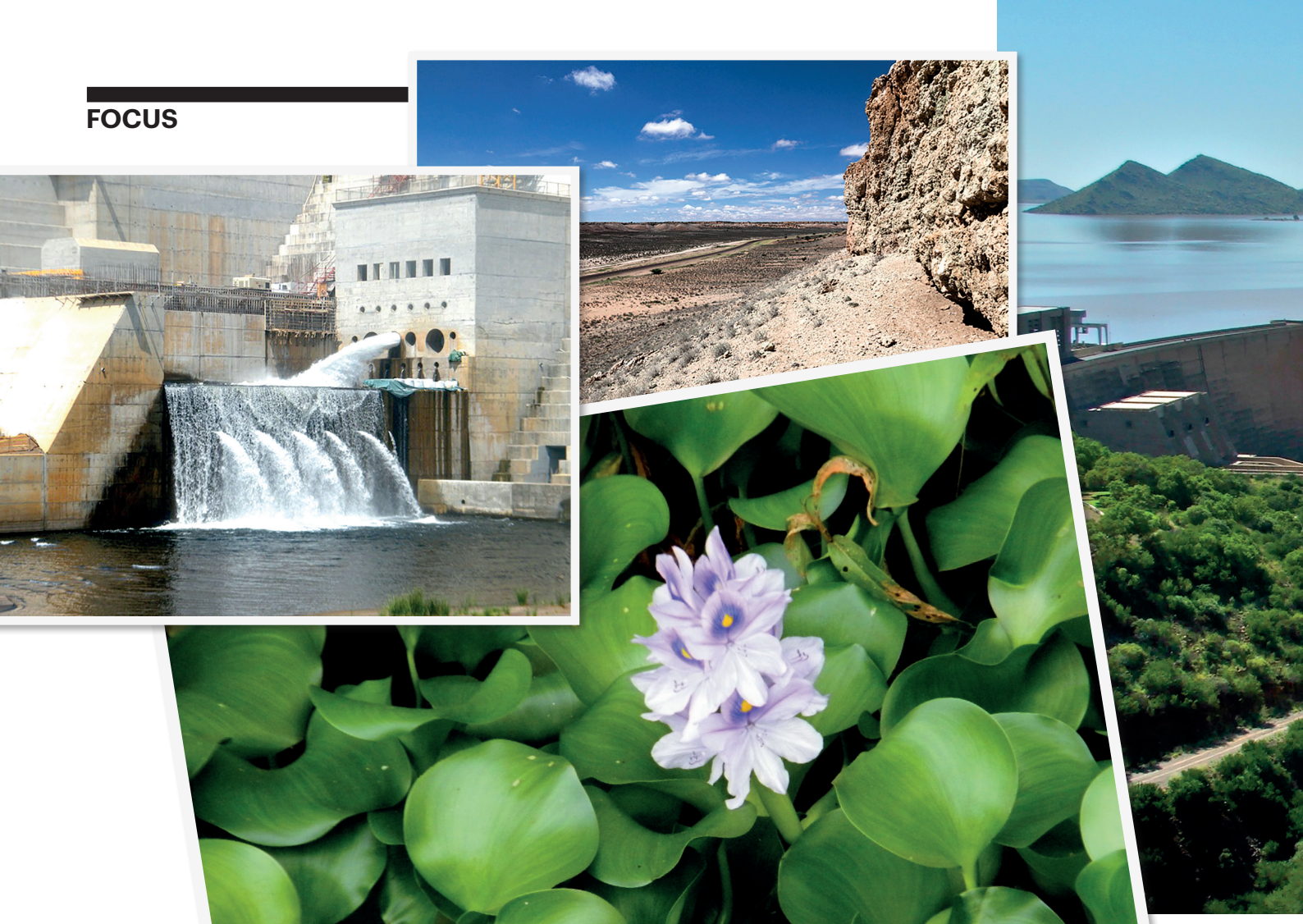

Water on Our Borders

Left to right: De Hoop Dam, Limpopo Basin, South Africa (photo: D. Alves); Water hyacinth, Limpopo River, South Africa (photo: D. Alves); Molopo River, Orange-Sengu River Basin, Botswana (photo: V.Grafhorst); Gariep Dam on Orange River, Orange-Sengu River Basin, South Africa (courtesy ORASECOM); Fisherman on Okavango River, Botswana (courtesy of OKACOM).

With Botswana and its neighbours facing water and energy shortages, the issue of sustainable resources becomes increasingly critical. Botswana joins its neighbours in making the best use of the region's rivers. By Monica Morrison

Flying though Botswana's clear, blue winter skies, passengers can look down on long stretches of dry bush, etched into light sand where, in the rainy season, streams and rivers briefly transform the land to green.

In southern Africa, the surface water found in rivers, streams and lakes is not just a scenic part of the landscape, but a sign of well-being and health.

These water bodies have sustained traditional livelihoods, such as crop farming and livestock rearing, for centuries. Now, they are increasingly viewed as major assets, with the potential to drive economic growth, through supplying towns, cities and safari camps and lodges with drinking water, industries with electric power, and wildlife – Botswana's major tourism draw – with life-giving water.

More than 70 per cent of these fresh water resources in southern Africa are shared among two or more countries. Botswana itself shares four of its major rivers with other countries in the region.

The Cubango-Okavango flows naturally from Angola through Namibia, to finally seep into the sands of Botswana's Kalahari Desert. The Limpopo's headwaters include Botswana's Shashe and Tati rivers. The Orange-Sengu river system is fed intermittently by Botswana's Molopo River; and Botswana shares the shores of the Chobe-Zambezi in the north of the country with Namibia, Zambia and Zimbabwe.

Botswana recognises that a trans-boundary river is a 'common pool' resource: its use by one country alone will reduce the benefits to others.

Water scientists and economists agree that when a river flows through different countries, it should be treated as a single unit, both to keep it in optimal physical condition and to reduce conflicts between countries.

The days are gone when countries focused on deciding how much river water was theirs and how much went to the neighbours. Now water experts and professionals talk about sharing economic, environmental and security benefits that watercourses bring, such as water for irrigation and tourism, as well as flood control.

It makes sense for countries sharing a river to cooperate, to jointly build water infrastructure and services, and then share the accrued income.

This new way of thinking about trans-boundary water has created a family of regional watercourse management bodies called river basin organisations. Their role is to foster an ongoing formal conversation among countries, which hopefully leads to cooperative management and optimal use of shared water resources.

A signatory to the Revised Protocol on Shared Watercourses of the Southern African Development Community (SADC), Botswana has been a leader in its approach to co-managing these valuable waters.

> **Botswana shares four of its major rivers with other countries in southern Africa**

Botswana joined Angola and Namibia in the region's first river basin organisation, the Permanent Okavango River Basin Water Commission (OKACOM), in 1998; and, since then, has been a founding member in three more river basin organisations: the Orange-Senqu River Commission (ORASECOM), established in 2000 and covering Botswana, Lesotho, Namibia and South Africa; the Limpopo Watercourse Commission (LIMCOM), established in 2002; and the Zambezi Watercourse Commission (ZAMCOM), established in 2004 and covering Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia and Zimbabwe. These make up a third of all river basin organisations in the SADC region.

The Government of Botswana has taken the initiative to establish a permanent International Waters Unit in its Ministry of Minerals, Energy and Water, to facilitate and coordinate joint work among the countries sharing river basins. Ms. Tracy Molefi, head of the unit, explains the challenge of walking the fine line between technical knowledge and diplomacy in her job:

"Bringing other sovereign states to the table to discuss sensitive issues needs both time and patience. We often have to discuss matters, such as sharing the benefits of potential development projects, and that means balancing the interests of many different players within each member country.

"But, there is a tremendous will, both in Botswana and throughout southern Africa, to cooperate and make the most of the water we have – for the benefit of our peoples. That is what I find most rewarding about this work."

OKACOM

It is January. A fisherman from Mohembo, a Botswana village close to the Namibian border, sits idly on the Okavango River bank, watching a Namibian in his boat, hauling in his catch of bream and catfish. The fishing season is closed in Botswana, but Namibian regulations allow its citizens to continue to harvest from the river. His dinner tonight will be purchased from the Namibian.

OKACOM, supported by USAID's Southern African Regional Environmental Programme (SAREP), is investigating how to deal with the need to harmonise such regulations among the organisation's three member states, Botswana, Namibia and Angola.

OKACOM was established through a ground-breaking effort in 1998, following discussions of potential abstractions of water from the Cubango-Okavango system for mining and urban water supply in Botswana and Namibia.

The three member states continued talking through the challenging years of Angola's civil war. Supported by the Swedish aid agency SIDA, United Nations Development Programme (UNDP), the Global Environment Facility (GEF) and USAID, they carried out a baseline study of conditions in the river system and set up a permanent secretariat in the basin. They now jointly fund OKACOM's secretariat operations, and Botswana has endorsed its Strategic Action Programme, which outlines how management of this unspoilt resource should be carried out.

"Building an organisation that makes its decisions through consensus requires patience and mutual understanding," says OKACOM's executive secretary Dr. Ebenizário Chonguiça. "Our member states agree that we need to put the best scientific research to work in improving livelihoods in the river basin – and that takes time."

ORASECOM

In Botswana's Molopo River basin, a farmer slowly drives his cattle away from the watering point in the dry river bed; it has ceased to provide even a trickle of salty water. The rains have been poor this year, and he's not sure he'll be able to keep his animals alive for the rest of the winter season.

In response to the problem of water scarcity, ORASECOM has been working through its partners, led by the German development organisation GIZ, to analyse groundwater potential in the Orange-Sengu basin, including trans-boundary aquifers that promise to relieve the pressures on surface rivers and streams.

ORASECOM was set up to tackle the challenges faced by Botswana, Lesotho, Namibia and South Africa in sharing the resources of the largest and most developed river basin south of the Zambezi.

The Orange-Sengu hosts much of the industrially developed parts of southern Africa, and is the site of more than 25 storage dams. Supplying water to growing populations and industry, while controlling pollution, is a major issue in the region.

Supported by international partners UNDP, GIZ, the European Union and the French Global Environment Facility (FGEF), ORASECOM is looking at the basin's groundwater, recycling and desalination projects, and the rehabilitation of degraded wetlands as solutions.

ORASECOM's executive secretary Mr. Lenka Thamae explains how history has influenced the organisation's tasks: "South Africa under the apartheid system was an isolated economy. In that regard, it developed natural resources to the extent that they could be resilient to isolation.

"Because water resources are one of the drivers of development, it's inevitable that as one moves to a more regional approach to economic growth that water resources are one key issue that need to be addressed – to find ways to use the resources more equitably."

LIMCOM

The owner of a riverside cottage near Martin's Drift, on the Botswana side of the Limpopo River, points to the mat of green covering the water around his dock and extending almost to the

riverbank on the South African side. The floating water hyacinth plants, with their beautiful purple flowers, have invaded from the Crocodile River system further south, and are slowly choking the life out of the river system.

The lodge owner can't fish in that section of the river anymore, because oxygen and food to sustain the fish are no longer available.

Not far away, the staff of both the Botswana and South African water departments, supported by LIMCOM and USAID's Resilience in the Limpopo River Basin (RESILIM) programme, are working together to erect mesh barriers that will keep the weed from spreading further.

LIMCOM advises Botswana, Mozambique, South Africa and Zimbabwe on how to manage such threats to water quality in the rapidly dwindling flow of another iconic African river system, the Limpopo. Managing the river's flow and the periodic floods that threaten people and industries along its banks are other top concerns.

LIMCOM is developing an integrated management plan for the river's resources that supply drinking water to growing urban areas, irrigation for orchards, large scale mining of coal and precious metals and tourism in the region's beautiful forested hills and undulating plains.

Negotiating joint solutions to problems, such as the spread of invasive aquatic weeds and determining the environmentally appropriate amount of water to release from upstream dams, are among the young organisation's urgent tasks.

Mr. Sergio Sitoe of LIMCOM's Secretariat, points out: "We have had challenges when it comes to the water quantity to be allocated to member states. Limpopo is a stressed river basin. Water is now scarce, and this is made worse because of the effects of climate change."

ZAMCOM

It is dinner-time in Gaborone, Botswana's capital, and suddenly the lights go out. Householders rush to light paraffin lamps, or switch on lights attached to inverters, which have been storing electricity during the day. This time there has been no advance notification of load shedding, and people resign themselves to preparing dinner in twilight.

Botswana's dependence on electrical power from its neighbours, and the possibility of increased supply from more dams on the Zambezi, are issues for ZAMCOM's consideration.

Some electrical power already enters the Southern African Power Grid from Zimbabwe's Kariba and Mozambique's Cahora Bassa dams on the Zambezi River.

Proposals for additional dams to service the power-hungry, growing urban areas of the region need to be evaluated for their impact on both the Zambezi's ecology and the livelihoods of people living along the river.

ZAMCOM's Integrated Water Resources Management (IWRM) strategy includes looking at these issues, and the likelihood that climate change will bring more droughts and extreme flooding to the basin.

ZAMCOM has had a lengthy development path, dating back to the 1980s when discussions among the eight countries sharing the region's largest perennial river stimulated creation of the SADC Protocol on Shared Watercourses.

SADC supported an interim project, ZACPRO, to identify priorities for the basin's joint management. By 2012 an interim secretariat for ZAMCOM was in place, supported by international partners, including the Norwegian aid organisation NORAD and GIZ, to begin the enormous task of coordinating activities related to the river.

Mr. Mike Mutale, executive secretary of ZAMCOM's interim secretariat, comments: "Spatial distribution of natural resources does not respect political boundaries and neither do their management regimes. Cooperation ensures that common management approaches are adopted by various countries for a win-win situation."

Botswana and its neighbours have realised that water cooperation generates economic gains, preserves water resources, protects the environment and engenders peace. Together they are steadily building institutions to ensure that the water on their borders continues to provide benefits for coming generations. **P**

UN YEAR OF WATER COOPERATION

The year 2013 has been designated the 'United Nations Year of International Water Cooperation'. The initiative recognises the challenges facing water management globally, in light of burgeoning demands for water access, allocation and services. It also highlights the history of successful water cooperation projects, and identifies critical issues in water education, water diplomacy, trans-boundary water management, finance cooperation, and institutional legal frameworks.

For more information, visit http://www.unwater.org/watercooperation2013.html]

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ZAMCOM

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