IMPACT ASSESSMENT CASE STUDIES FROM SOUTHERN AFRICA

John Pallett & Peter Tarr (SAIEA), with acknowledgements to ERM (2009 Scoping Report)
Client: Namibian & Angolan Governments

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EPUPA HYDROPOWER STATION, KUNENE RIVER ANGOLA-NAMIBIA - Good can come from bad!

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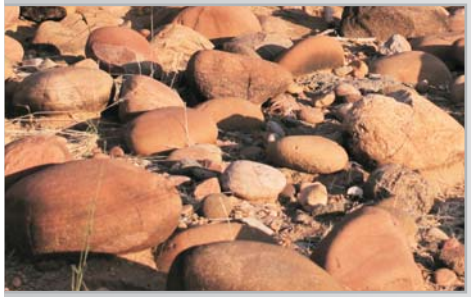
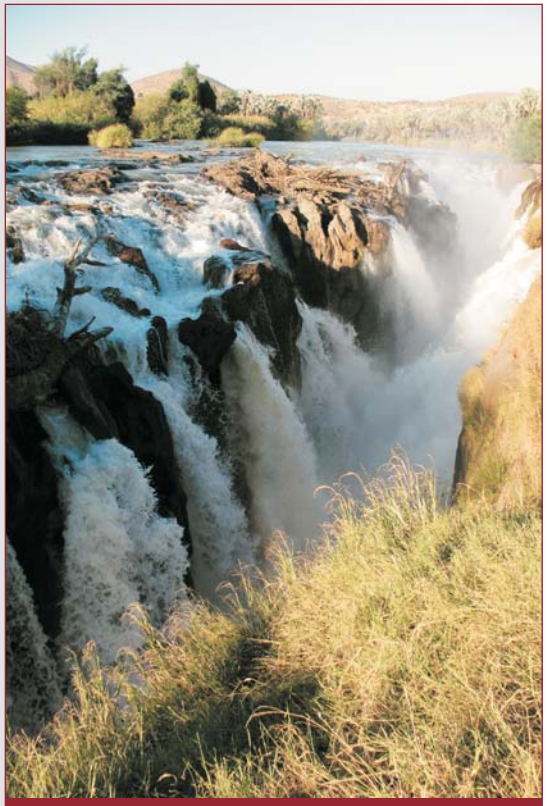


Aims of the Project



Epupa Falls

In 1990, Namibia and Angola agreed to jointly develop a new hydro-electric scheme on the Kunene River, downstream from Ruacana, at the most suitable location that could be found. Technical and economic feasibility studies, including environmental and ecological work, were required to advise the implementation of the project.

Two alternative sites were proposed, at Epupa Falls and Baynes Mountains. Epupa Falls is a dramatic series of waterfalls and cascades made all the more stunning by the oasis-like atmosphere created by hundreds of palm trees in the midst of very barren and rugged mountains. The site has strong cultural and heritage value to the local Himba nomadic pastoralists resident in the area, and would be entirely inundated by the proposed dam. The Baynes Mountain site is in an equivalent setting but is less spectacular and has very much less social significance to the Himba. It also supports significantly less vegetation and has no tourism potential due to its inaccessibility and very steep terrain.

Baines Area

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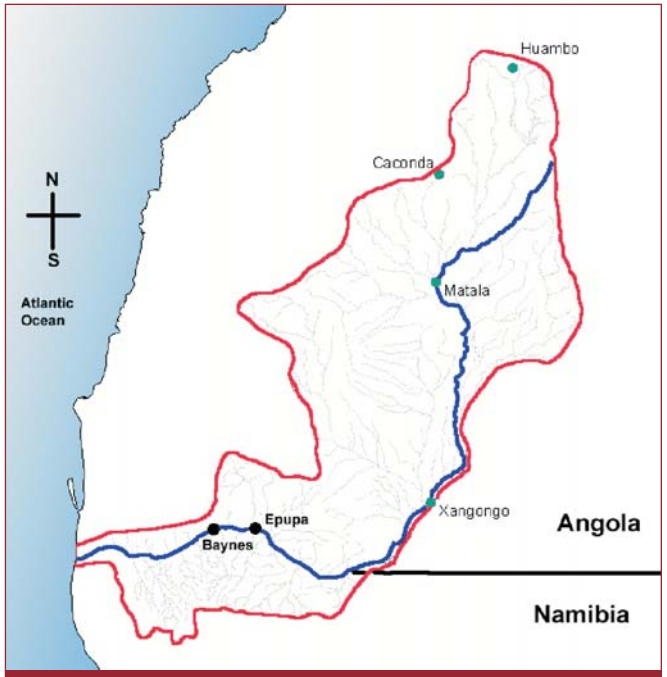
Aims of the Project

Since Namibia imports most of its power from South Africa, it desires long-term self-sufficiency in energy and therefore favoured building a large dam at Epupa. In contrast, Angola favoured a smaller scheme that required the rehabilitation of the Gove dam (located upstream in Angola), which needed repair from war damage. This would benefit Angola and give them greater influence over the whole project.

Brief description of the development & alternatives considered

With financial support from the governments of Norway and Sweden, the Angolan and Namibian governments appointed a Scandinavian company to conduct a pre-feasibility study for the project. The next step was a full feasibility study, which was also funded by Norway and Sweden. After an open tender process, the bilateral Permanent Joint Technical Committee (PJTC) appointed a consortium of Swedish, Norwegian, Namibian and Angolan consultants (NamAng) to conduct the feasibility study. This commenced in July 1995. The PJTC then appointed a technical subcommittee, called the Steering Committee for the Feasibility Study (SCFS), to supervise the consultants and to review the report on behalf of both Namibia and Angola (Figure 1). They were assisted by an independent reviewer, the IUCN.



Map showing the Cunene River (blue), the river catchment (border in red) and the Epupa and Baynes sites.
Note that the lower Cunene is the boundary between Namibia and Angola, but that the mid and upper Cunene falls within Angolan territory.

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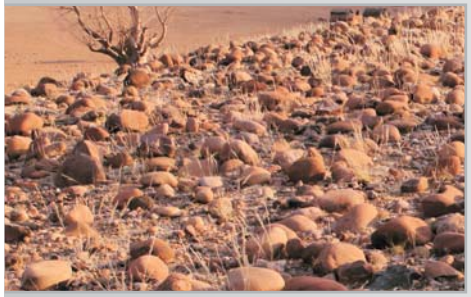
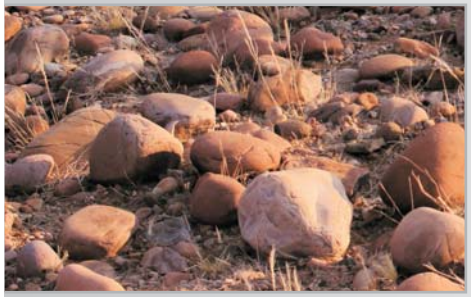




Brief description of the development & alternatives considered

Unfortunately, the feasibility study did not fully consider the alternatives to the Epupa hydropower scheme, since the pre-feasibility study and previous studies by the Namibian Government had concluded that revisiting the 'strategic debate' would not be useful. Moreover, NamPower (Namibia's government-owned power utility) was in the process of evaluating, or intended evaluating a number of other options through parallel studies. These other options included alternative energy (notably wind), power from gas, diversified electricity importation from other SADC countries, and other, smaller hydro schemes on the Kavango and Orange rivers. Nevertheless, the study considered at least three alternative dam sites, as well as combinations of dams, and the consultants initially recommended a smaller dam (Baynes) as the best option. Namibia insisted that both Baynes and Epupa be taken to full feasibility studies, which was the case.

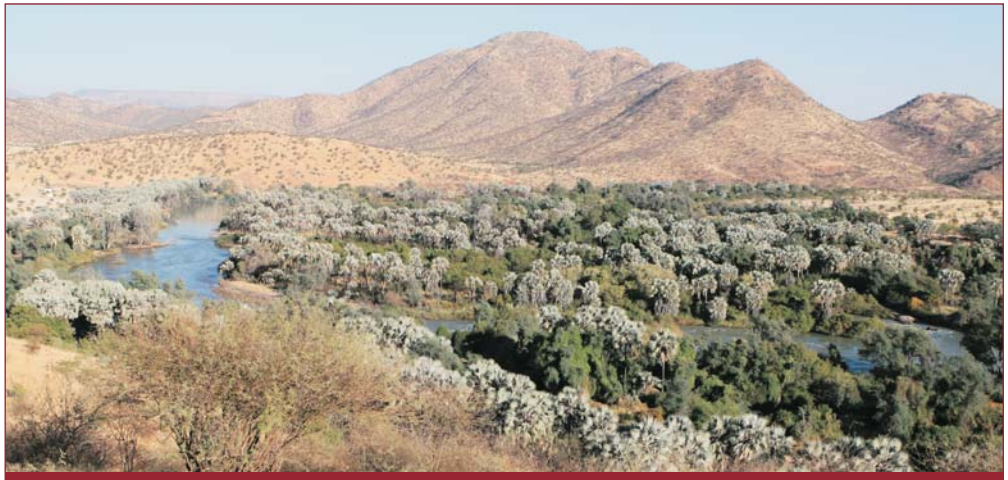
Environmental setting

Biophysical environment

The lower Kunene River passes through arid, sparsely vegetated landscapes that are regarded as spectacularly beautiful by locals and visitors alike. Namib grasslands, gravel plains and rugged mountains are a feature of the remote western areas, while sparse scrublands, grasslands and woodlands are found in the remainder of the region.

Riparian vegetation is confined to narrow strips along the riverbank. Where the river widens and braids into several channels, or where mist generated from waterfalls creates a relatively humid environment, riverine vegetation occurs in profusion.

Hyphaene palms are common and abundant at Epupa. The riparian woodlands are probably the most important habitats in the area,



Dense palm thickets and riverine vegetation at Epupa contrast vividly with the arid surroundings

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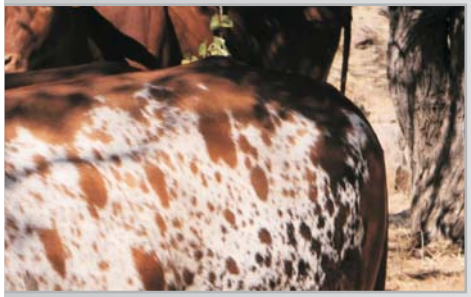

Environmental setting

supporting the highest species richness of all the habitats in the project area. Species of particular interest and concern are Rednecked Francolin, Rufoustailed Palm Thrush, Cinderella Waxbill, Yellowbilled Oxpecker, Grey Kestrel and Olive Bee-Eater.

On surrounding hillsides, mopane and Commiphora trees dominate.

The lower Kunene River has a rich diverse fish species, of which seven species (12 percent) are endemic. The area upstream from the Epupa Falls has relatively high species diversity, ranging from rheophilic species (i.e. demanding high content of oxygen in the water) to species preferring gently flowing or standing water.

Reptiles and amphibians are common in the lower Kunene, and include Nile Crocodile, Nile Monitor, Nile Soft-shelled Terrapin, African Rock Python and Green Turtle.

Human activities (e.g. poaching) and droughts have reduced almost all mammals to very low densities, though game numbers are increasing

Like most game species, the population of Hartmann mountain zebra is increasing in the arid Kaokoveld, due mainly to the creation of conservancies in the area

in the conservancies in north-western Namibia. Three species are endemic to the area: the mountain ground squirrel, the Kaokoveld dassie and the black-faced impala.

Socio-economic environment

The area is very sparsely populated, mainly because of its relative remoteness, aridity and limited land capability. Whilst the soils adjacent to the banks of the lower Kunene River are utilised for small-scale agricultural activities, the Himba mostly follow a semi-nomadic lifestyle that allows them to optimise water and pasture land. Cattle are a sign of wealth for the Himba and in 1995 the provincial herd was estimated to consist of 600,000 head of cattle and 100,000 goats in Namibia's Kunene Region, and 315,000 head of cattle in Angola's Namibe Province.

In Namibia, most of the Himba live in nature conservancies that give them control of wildlife and tourism on their lands, and they are gradually becoming more involved in conservation programmes and Community Based Tourism ventures.

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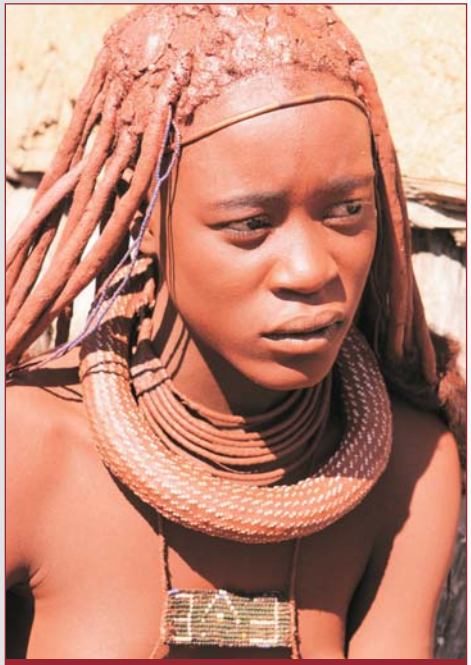
Environmental setting

Important in the context of the proposed Epupa dam, is the fact that the Himba use land along the lower Kunene for gravesites, pasture land and migration routes to pasture lands. In addition there are permanent houses along the river as well as seasonal gardens.



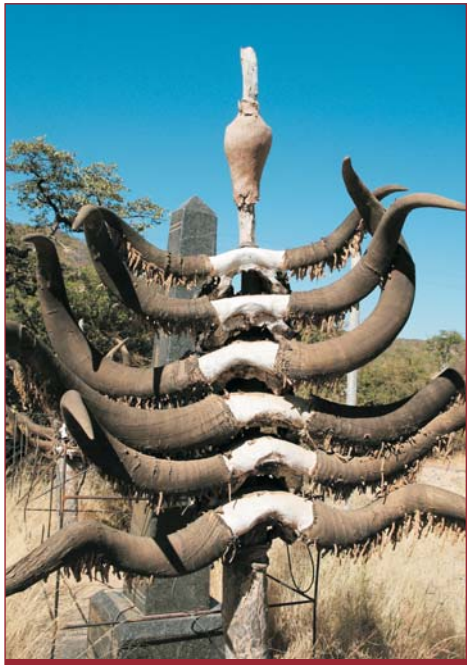
A Himba woman

Ancestral gravesites are of great importance to the Himba people, as they define their relationship to the land, their cultural identity and social relationships. They are also a focal point in religious ceremonies.

At the time of the Epupa study, there were 165 (recorded) graves along both sides of the river in the project area. Graves are more scattered along the river than in the hinterland (where they are more distinctly located to a limited number of graveyards).

In both Namibia and Angola, customary law is recognised and most decision-making is in the hands of chiefs. There are currently fifteen Himba chiefs, each responsible for a particular area occupied by a well-defined group of people with traditionally defined grazing rights. Five to seven counselors, generally wealthy older men, assist each chief.

Himba families have traditional ownership rights over land immediately around their homesteads, gardens, graveyards, and nearby pastures. Grazing rights are held communally and each Himba community must respect the grazing rights of the other communities. Before land can be used



A Himba grave

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Environmental setting

permission should be sought from the guardian of the land in this way the cattle of many families often graze together. Grazing lands are carefully used and some areas are held in reserve for drought periods. Since cattle have great value, these grazing rights are among the most valuable assets of a community.

Infrastructure in both northwestern Namibia and south-western Angola is minimal, which has largely contributed to the 'sense of place' that makes this a sought after and valuable adventure tourism destination. Educational, health and economic services are regarded as inadequate.

Legal and Multilateral obligations

There are a number of Multilateral Environmental Agreements that are relevant to this project, especially the Ramsar Convention on Wetlands (1971) and the International Convention on Biodiversity (1992). Both Namibia and Angola are signatories to these conventions and Namibia has elaborated a comprehensive National Biodiversity and Action Plan. However, the Namibian government decided not to declare the Cunene river mouth a Ramsar site even though it qualifies based on the biodiversity it supports. Environmentalists have speculated that the proposed hydro scheme might well be the reason why the Cunene Mouth was excluded from the list.

At a sub-regional level, the SADC protocol on Shared Water Systems (signed in 1995, revised in 2000 and entered into force in 2003) is the most important in the context of this project. The objectives of this Protocol are to encourage closer cooperation between SADC states for judicious, sustainable and coordinated management, protection and utilization of shared watercourses. The Protocol requires basin states to establish joint river commissions, and one has been established for the Cunene (known as the PJTC). The Protocol does not explicitly require EIAs for projects on shared rivers, but the stated need for "balancing development with conservation" implies that reasonable safeguards must be put in place. In the case of the Epupa Project, the PJTC formally agreed that an EIA would be done.

In addition to having obligations with respect to international and regional instruments, both countries have their own policies and laws that are relevant to this project, and that required an EIA to be completed.

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EIA process followed including the public consultation process & participation by civil society

The environmental component of the Epupa Dam study was plagued by controversy from the start. The Namibian Government led a high-profile pro-dam lobby, which included senior government officials in Windhoek, local government officials in the Kunene Region and leading business persons from Opuwo. The President and the Deputy Minister of the Ministry of Mines and Energy made numerous public statements in favour of Epupa Dam, and labelled all those against it as 'disloyal or misguided'. In particular, they singled out NGOs as being 'interfering' and urged them to stop meddling in Namibia's internal affairs.

On the other hand, the approximately 1,000 Namibians and Angolans (mostly Himba) who lived in the Epupa area were reportedly opposed to the Epupa Dam and they received assistance from local and international NGOs, especially in the form of transport to and from meetings, and some technical advice. In answer to charges of meddling, the NGOs countered that they wished only to ensure that the Himba people were not tricked into agreeing to the project without properly considering and understanding its implications. The highest-profile NGO support was in July 1997 when a German organisation sponsored and accompanied the project's most vocal Himba antagonist, Chief Kapika, on an overseas tour. Kapika addressed political and business audiences in Europe and Scandinavia and urged the international community to stop the controversial project.

Main environmental impacts & issues

During the EIA numerous articles were published by international and regional newspapers and magazines and organisations such as the International Rivers Network.

The EIA report concluded that, while both dam sites were technically and economically feasible, Epupa was better in terms of self-sufficiency because it would hold three times the volume of water compared to Baynes, but Baynes was less destructive environmentally (see table below).

The main impacts likely to occur were identified as:

(1) the social impact of disrupting the local tribe (Himba) and drastically changing their lifestyle and circumstances,

(2) destroying the beautiful Epupa Falls and undermining the wilderness value of the Kunene Region (Namibia) and the remote Namibë province of southwestern Angola, and

(3) altering the flow of the Kunene River and perhaps jeopardising its ecological functioning and biodiversity.

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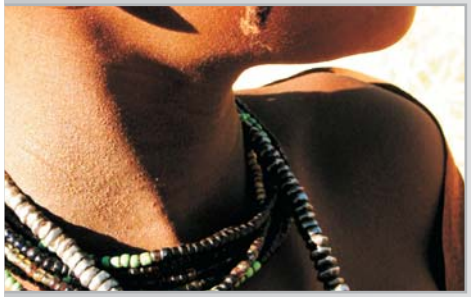

Main environmental impacts & issues

Table 1 presents a comparison of the most significant impacts predicted for the Baynes and Epupa sites.

Significant impact issue	*Epupa site*	*Baynes site*
Biophysical environment		
Inundation of land	380 km^2	57 km^2
Biomass lost (CO_2 released)	1,200,000–2,300,000 t	7,000–13,000 t
Evaporation	630 million m^3/year	80 million m^3/year
Epupa Falls	Lost	Retained
Riparian vegetation lost	3.3 km^2	1.5 km^2
Loss of Hyphaene palms	6,000 mature trees	A few mature trees
Fish species diversity	Two critically endangered species present; one at risk of extinction	Two critically endangered species present; no risk of extinction
Virtually dry downstream river reach	8 km	3.6 km
Social environment		
Influx of workers	5,000 persons	5,000 persons
Archaeological sites lost	95	45
Graves flooded	160	15
Dwellings lost	110	25
People displaced (permanent users)	1,000	<100
Tourism lodges / campsites flooded	3	None

Source: Adapted from the NamAng EA report (1997)

Table 1: Significant impacts expected from the construction and operation of the proposed hydropower dam at the two alternative sites.

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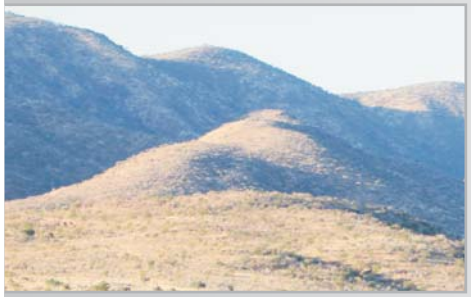

Decision-making process

The plethora of agendas, allegations and counter-allegations, and resultant atmosphere of mistrust between stakeholders seriously undermined the EIA process. Unfortunately, communication and coordination within the EIA team was inadequate, and the result was a sectoral Inception Report which was severely criticised by the SCFS and the reviewer.

Similarly, the public (mostly in Namibia) expressed their dissatisfaction with both the process and interim products. Consequently, a series of meetings was held between the SCFS and NamAng in an attempt to improve the EIA component of the feasibility study. In spite of constant attempts at 'damage control', the utterances of Namibia's politicians resulted in a complete breakdown of communication between NamAng and the affected community and NamAng finally submitted an 'incomplete' feasibility report to the SCFS in September 1997. NamAng (with some justification) argued that the Namibian situation had made it impossible for them to investigate social mitigation measures and that they were not to blame for the shortcomings.

In July 1998, the Namibian and Angolan Governments accepted that NamAng had provided a reasonable technical study and both agreed that the environmental impacts (mainly social) had been inadequately assessed. Other deficiencies included the absence of an Environmental Management Plan and proper guidance on bilateral issues.

While no opinion surveys have been conducted outside the project area, Namibians and, to a lesser extent, Angolans were divided over the project. By the end of the three-year process which cost N$25 million (US$ 2,37 million)[1], the Angolan and Namibian Governments could still not agree on which project, if any, to pursue.

By 2005, Namibia had accepted the fact that Epupa would never be supported by all the stakeholders. In 2008, the two governments agreed to pursue the Baynes option after all, and a new EIA was commissioned. After a competitive tendering process, the UK-based consulting company ERM was contracted to conduct the study. It is fair to conclude that the EIA persuaded the Angolan and Namibian governments to abandon Epupa in favour of Baynes. Were it not for the EIA and improved governance in the region, it is possible that Epupa would have gone ahead in spite of public opposition. It can thus be concluded that the EIA made a fundamental and long lasting positive contribution to the decision-making process. Moreover, the Terms of Reference for the new study are explicit in the need for a process that avoids political manipulation.

[1] Based on the mean exchange rate during 2002 of US$1 to N$10,52.

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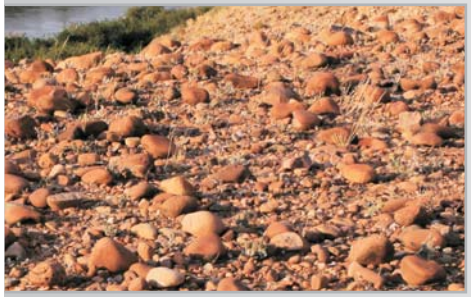

Main elements of excellence in this SEA / EIA

As noted earlier, the PJTC contracted an independent reviewer to review both the EIA process and the completed EIA report. This was extremely valuable, as it improved objectivity and rigour in virtually all aspects of the study.

For example, the external reviewer attended some of the public meetings, commented on draft reports and advised both governments on the quality of the work produced by the consultants. The fact that there was an external reviewer comforted most of the stakeholders (including the governments involved), who realized that he would reduce the chances of the project being high jacked/derailed by special interests. In many developing countries, authorities have limited expertise and resources, and this can often lead to poor quality work.

Most government departments in southern Africa do not have the expertise to review complicated EIA reports internally. In addition to being complex, the report was voluminous by any standards – numbering 14 substantial lever-arch files! In this case, the external reviewer provided a review report to the SCFS, which was then in a good position to instruct the consultants to remedy any deficiencies in their report. After external review and report revision, the individual governments were able to receive a report that was as polished as possible under difficult circumstances.

In spite of the flawed public participation process, people who were previously unaware of environmental issues became involved, attending public meetings, joining discussions on radio talk shows and submitting letters to newspapers.

The process also heralded a new approach towards providing information to the public. In addition to the regular public meetings, people had access to the full feasibility report at public offices, libraries, and on the Internet. Furthermore, an independent filmmaker received permission from the PJTC to film the activities of the team conducting the feasibility study, and the issues surrounding the project. The footage was shown at regular intervals on television so that people, including the illiterate, could inform themselves of developments.

This might be the first time that video has been used to document an EIA in southern Africa – all credit to the respective governments for allowing (even facilitating) this innovative approach even though there is no requirement in legislation for such an action.

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Lessons learnt

The Epupa Dam study is one of the most important EIAs conducted in Angola and Namibia. It illustrates how neighbouring countries can collaborate on an EIA for a project on a shared river, which is also their common boundary. The Epupa Dam EIA was also extremely controversial, and thus illustrates the tensions that can result from a process that is highly charged with emotion and where stakeholders adopt entrenched positions from the start.

Key lessons:

- Transboundary EIAs can be successfully pursued, using the PJTC framework to oversee the technical work.
- High-profile political influence, especially early in an EIA study, is not conducive to a transparent process, causing polarisation between stakeholders.
- Communities can be effective in mobilising support from local and international NGOs if they are marginalised by either Government during EIAs.
- The use of multimedia, such as video, is an excellent way of popularising an EIA. An external, independent review process is very useful, especially in a controversial project.

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