



Creating and protecting Zambia's wealth

Experience and next steps in
environmental mainstreaming

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Acronyms and abbreviations

| | |
|-------------------|--|
| ADMADE | Administrative Management Design for Game Management Areas |
| CBNRM | Community Based Natural Resource Management |
| CEP | Copperbelt Environment Project |
| CIDA | Canadian International Development Agency |
| CO ₂ e | Carbon Dioxide Equivalent |
| CRB | Community Resource Boards |
| DFID | Department for International Development (UK) |
| ECZ | Environmental Council of Zambia |
| EIA | Environmental Impact Assessment |
| EMU | Environmental Management Unit |
| EPPCA | Environmental Protection and Pollution Control Act |
| FAO | Food and Agriculture Organisation |
| FNDP | Fifth National Development Plan |
| GDP | Gross Domestic Product |
| GRZ | Government of the Republic of Zambia |
| IDP | Integrated Development Plan |
| IIED | International Institute for Environment and Development |
| IUCN-ROSA | IUCN Regional Office for Southern Africa |
| IWRM | Integrated Water Resources Management |
| KSDS | Kabwe Scoping and Design Study |
| LIRD | Luangwa Integrated Resource Development Project |
| MDG | Millennium Development Goal |
| MFNP | Ministry of Finance and National Planning |
| MLGH | Ministry of Local Government and Housing |
| MSD | Mines Safety Department |
| MTENR | Ministry of Tourism Environment and Natural Resources |
| NCS | National Conservation Strategy |
| NDP | National Development Plan |
| NEAP | National Environmental Action Plan |
| NGO | Non Governmental Organisation |
| NORAD | Norwegian Agency for Development Cooperation |
| NPE | National Policy on the Environment |
| OECD | Organisation for Economic Co-operation and Development |
| ROADSIP | Road Sector Investment Programme |
| SEA | Strategic Environmental Assessment |
| SLAMU | South Luangwa Area Management Unit |
| SOE | State of Environment |
| T&CPA | Town and Country Planning Act |
| TCP | Threshold Country Plan |
| U&RPA | Urban and Regional Planning Act |
| UN | United Nations |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| WE | Water Efficiency |
| WTO | World Trade Organization |
| ZAWA | Zambia Wildlife Authority |
| ZCCM | Zambia Consolidated Copper Mines |
| ZCCM-IH | ZCCM Investments Holdings Plc |
| ZESCO | Zambia Electricity Supply Corporation |

Foreword by the Secretary to the Treasury

Zambia has a long term vision to become a middle income country by the year 2030. Vision 2030 emphasises development based on “sustainable environment and natural resource management principles”. Based on the experiences drawn from the Fifth National Development Plan (FNDP), the country will continue to provide 5-year term plans that will help to realise the goals of the Vision 2030 to reduce hunger and poverty, and foster a competitive and outward-oriented economy. This will require investment in environmental assets to support all sectors of the economy, particularly small-scale farmers and the urban poor.

The FNDP contains a dedicated chapter on environment whose main goal is “to reverse environmental damage, maintain essential environmental and biological processes and ensure sustainable use of natural resources for the benefit of the people”. Environmental assets that include water, soil, climate, forests, fisheries, mineral resources, and wildlife are a foundation of Zambia’s wealth. Accessibility of these assets to poor people and their sound management is key to alleviating poverty. On the other hand, environmental hazards that include deforestation, land degradation, poor water and sanitation, wildlife depletion and climate change are principal risks especially to the poor and are limiting to the FNDP progress.

A major constraint to sustainable natural resource and environmental management is the paucity of established and regularly monitored environmental indicators. The FNDP contains limited environmental indicators, in part reflecting the paucity of monitorable databases. Establishing the environmental baseline for strategic sector responses is essential to being able to initiate a meaningful project cycle of identification, strategy and responses in national development.

To address these issues, Government initiated the Environment and Natural Resources Management and Mainstreaming Programme (ENRMMP) that aims to bring improved coordination and implementation capacity to environment and natural resources (ENR) management and response strategies. The Programme will have an immediate focus on the sector objectives established for the Fifth National Development Plan, but the results will also initiate planning, decision-making and funding processes that will benefit all future sector initiatives. Besides providing support to government institutions and programmes, or projects linked to government institutions, the programme will also incorporate mechanisms to raise the contribution of civil society and the private sector to environmental management. The coordination role that the Environmental Council of Zambia plays in this regard is very essential for Zambia’s development and for “caring into the future”.

I wish to acknowledge that there was great value in bringing together the author expert group from many fields of expertise coming from government, business, non governmental organisations, and academia in order to produce this publication. The publication gives a reflection on Zambian experience in environment mainstreaming, and provides some lessons learned on identified key challenges for the future and best bets for meeting them. Thus the Group's recommendations will be helpful, especially in shaping Zambia's Sixth National Development Plan (6th NDP) and future environmental work of Government and Cooperating Partners. The facilitation from IIED is commendable.



Likolo Ndalemi
Secretary to the Treasury

June 2009

Preface – how this paper was prepared

Zambia's environmental assets – its forests, wildlife, soils and water – offer very rich sustainable development potentials, offering income, livelihoods, health and security. But to what extent is Zambia benefiting from these assets? In turn, have Zambia's development paths helped to generate the capabilities – the financial capital, skills, infrastructure and technology – that are needed to sustain these environmental benefits in the long term? And, given the fact that the deep-seated problems of both environmental degradation and poverty have common causes – governance, market failures, and inadequate resources – how have these problems been tackled together?

Answering such interrelated questions on 'environmental mainstreaming' is not easy. With limited data, a good starting point is to bring together expert observers who offer a wide range of perspectives and experience. Thus the Environmental Council of Zambia (ECZ) and the Ministry of Finance and National Planning (MFNP) – respectively the lead environment and development authorities – decided to bring together a dozen highly experienced Zambian professionals who work in environment and development in a range of contexts: government, business, civil society, and academia.

A short retreat, held in Chisamba in September 2008, aimed to review how far the twin endeavours of environment and development have become linked over the years in Zambia. This retreat was facilitated by the International Institute for Environment and Development (IIED), an independent research and communication organisation based in London. IIED took the group through a range of exercises to produce the material which has now been organised into this small volume. The group's work started with each participant picking out a significant case of the environment being effectively included in development – and then exploring the actors involved, the instruments/processes used, achievements, and constraints to further progress. The cases covered mining, water, forestry, wildlife and other sectors. The group went on to assess how far Zambian decision-making systems encompass environment and development links, examining the effectiveness of processes and instruments such as environmental impact assessment (EIA), environment liaison units in ministries, the five-year development planning process, and processes put in place since the ground-breaking Zambian National Conservation Strategy of 1985 – the first initiative in Zambia to call for 'conservation for development'. The discussions were supplemented by a review of recent literature by IIED.

The result is a positive, lessons-learned approach – a reflection which the group believes is long overdue. Although the group cannot point to one single umbrella initiative linking environment and development, there are many useful contributions that offer a basis for scaling up. Echoing the pioneering step of environment and development authorities co-hosting the retreat, the group's

recommendations herald a new era of coherent environment-development planning that is not just pushed by environment interests, but is now also demand-pulled by development and finance authorities. The group's recommendations shift attention away from niche environment plans towards necessary adjustments in the mainstream system associated with five-year plans and budgeting. They also suggest that the joint achievement of environmental and developmental outcomes is not a purely technical matter, but will require action on many fronts. The recommendations aim to inform a wide range of future initiatives in Zambia – by government, private and civil society organisations, by cooperating partners, and perhaps increasingly through partnerships.

We acknowledge with thanks the support of ECZ, MFNP and IIED in organising the retreat; the leadership of the United Nations Development Programme (UNDP) and Finnish Government development assistance in coordinating the inputs of cooperating partners in the design of this process; and the financial support of the UK Government's Department for International Development (DFID), Irish Aid, and the David and Lucile Packard Foundation through their agreements with IIED. We are also grateful to Professor Emmanuel N Chidumayo of the University of Zambia and Martin Mulenga of IIED, who reviewed the report.

Views in this paper constitute a broad (but not always complete) consensus amongst the authors in our independent capacities and are not necessarily the views of our organisations. The authors' backgrounds are summarised below:

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Executive summary

The purpose and approach of this paper

To what extent is Zambia benefiting from its rich environmental assets – its forests, wildlife, soils and water – in terms of income, livelihoods, health and security; and what more could it do to ensure their protection and sustainable use? To answer these questions, ECZ and the Ministry of Finance and National Planning (MFNP) convened a short retreat, bringing together a group of 12 Zambian professionals from a range of backgrounds. Facilitated by IIED, the group concluded that Zambia has a rich and varied experience of environmental mainstreaming¹, the lessons of which have been identified for the first time in the current paper. Environment and development are still not treated systematically together, but there is much upon which the country can build. The group's recommendations herald a new era of coherent environment-development planning that is focused on the mainstream system associated with five-year plans and budgeting – but alert to wider system changes e.g. in the private sector and civil society action. The recommendations aim to inform a wide range of future initiatives in Zambia – by government, private and civil society organisations, by cooperating partners, and perhaps increasingly through partnerships. The group's thoughts on problems, progress, lessons, future challenges and recommendations are summarised below.

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The problems

Seven environment-development linked problems can be highlighted as critical:

1. Many Zambians suffer from the pollution legacy of many decades of mining.
2. Zambia has the second highest per capita deforestation rate in Africa, and the fifth highest in the world.
3. Zambia is a relatively significant per capita greenhouse gas producer, even though it is not an industrialised country.
4. Many Zambians are vulnerable to climate variability and climate change.
5. Zambia's wildlife continues to be threatened, in spite of recent improvements.
6. Inadequate management of the environment partly explains Zambia's restricted development to date – in terms of poverty rates and low national income/savings.

1. We apply the term 'environmental mainstreaming' to mean any positive attempt to include relevant environmental concerns in mainstream development policy, plans, investment decisions and institutions. See Box 3 for further details.

7. As a result, key groups of poor people suffer 'environmental poverty' – notably the urban poor and the remote rural poor – and especially women, children, refugees and migrants within these two categories.

How Zambia has begun to integrate environment and development

We explore 11 case studies of approaches that have been used in Zambia to integrate environment and development – the first six concerning institutional innovations and the final five taking a sectoral perspective:

1. *The National Conservation Strategy* – an early environmental mainstreaming process that linked sectors together for common analysis and planning to realise the potentials of conservation for development, and that set the agenda for strengthening the environmental institutions.
2. *The Fifth National Development Plan* – a reinvigorated approach to national planning, following an era in which planning had been abandoned. This now stresses the importance of four main economic pillars – agriculture, tourism, manufacturing and mining – each of which depends on solid environmental foundations; and that offers both sectoral and cross-cutting entry points for environmental issues.
3. *The new Urban and Regional Planning Act* – a comprehensive reform of physical planning that offers the potential to link multiple plans at different scales – environmental integration by going local, going spatial, and linking themes.
4. *Environmental units in sector institutions* – institutional innovations to support a more collaborative approach between the environmental authorities and the sectors that guide real investment, with examples from mines, roads and electricity.
5. *Environmental education* – the importance of long-term, continued investment in awareness raising, led by Zambian civil society, and how government curriculum development can reinforce this.
6. *Environment assessment in Zambia* – the institutional changes that arise from many years of project-focused EIA, and the potentials of shifting to more policy-focused strategic environmental assessment (SEA) and state of environment reporting.
7. *Wildlife* – the integrated environmental and poverty reduction goals of innovative community-based wildlife and tourism programmes in the Luangwa Valley, and how they have helped to improve both local economies and institutions.

8. *Forestry* – some new thinking on how to enable rural forest businesses to support sustainable forest management – an approach that offers promise in resolving rural poverty and deforestation.
9. *Mining* – working with health, education and business actors to tackle the hazardous legacy of the defunct Kabwe lead mines, reducing health burdens amongst the poorest group, as well as environmental hazards to everyone.
10. *Chemicals* – streamlining controls on the chemicals trade into Zambia in ways that also reduce the cost of doing business with Zambia (an economic benefit) and regulate hazards (an environmental benefit).
11. *Water* – the national development planning system highlighting a new way of managing water resources with an ecosystem and user perspective – offering potential to make ‘integrated water resource management’ a reality.

From these and other initiatives, seven particular areas of progress in linking environment and development in Zambia can be noted:

1. *Better awareness of the significance of environmental goods (assets) and bads (risks)* – especially through environmental education.
2. *Higher development values obtained from some environmental assets* – notably tourism revenue from harnessing biodiversity, hydro-electric power from harnessing water, and food production from sound farming practices.
3. *Reduced environmental risks in development activity* – especially through beginning to clean up the mining industry.
4. *Empowerment of some environment-dependent groups* – especially for community-based natural resource management.
5. *The start of an integrated policy framework* – with the new National Environment Policy and Fifth National Development Plan beginning to be mutually supportive; although environmental issues are not yet integrated adequately and systematically into Zambia’s development policy, budget, and institutions.
6. *Significant experience of mainstreaming planning tools and safeguards*, notably of project-focused EIA, but also the beginnings of more policy-focused SEA.
7. *Innovation in integrated institutions* handling the links between environment and development including: community wildlife management regimes, in which Zambia is a leading player in Africa; and environmental liaison units in some sectors.

Lessons from Zambian experience

Looking at the Zambian experience of environmental mainstreaming in its entirety, seven key lessons can be suggested as good ways to build a more systematic mainstreamed approach for the future:

1. *To truly integrate environment and development objectives is a long-term process of institutional change that proceeds on many tracks.* These tracks include education and awareness, piloting, public administration reform, political debate, and both civic and private entrepreneurship – as well as improved planning. There is no single fast track to mainstreaming, although improving the planning process is a core need.
2. *In a developing country context, it is productive to concentrate on the key mainstream institutions and processes.* These include the central economic, financial and physical planning processes such as the NDP, the government budget, urban and regional plans, and associated national and decentralised plans.
3. *Considerable progress is made when a multi-stakeholder approach to environment-development issues is taken.* For example, in Zambia the National Conservation Strategy, Luangwa Integrated Resource Development Project and effective mine clean-up processes engaged various sectors and disciplines.
4. *Early and proactive mainstreaming activities can assist a positive, can-do approach by spotting environmental opportunities for development.* In contrast, if mainstreaming is too late, it tends to focus on environmental problems.
5. *A focus on specific real opportunities and problems, in real places, facing real people, can be a better incentive for actual mainstreaming than a general exhortation to include the environment in all aspects of development.*
6. *Build on existing sources of resilience for adapting to change.* For example, communities' coping strategies for handling climate variability are a sound basis for handling climate change.
7. *Environmental mainstreaming is, in large part, a communications and education endeavour.* Whilst one-way environmental advocacy may form a part of this, it is important to use multiple channels of communication to enable environment and development stakeholders to learn from one another and to form common visions.

Challenges for the future

Emerging problems and potentials suggest the need for a more robust approach to integrating environment and development in the future – requiring debate and innovation within and beyond the formal planning process:

- *Zambia's economic growth has been high, and growth will continue in spite of difficult times in the global economy, both putting pressure on the environment and creating market potentials to develop natural resource-based enterprise.*
- *With future climate change, Zambia's growth will be increasingly vulnerable, especially in environmentally sensitive sectors such as agriculture and tourism. This will have significant impacts on livelihoods. But Zambia may also be in a position to benefit from trading carbon storage services and socially- and environmentally-friendly renewable energy options.*
- *Population growth and changing mobility (migration) will also increase pressures on the environment. Water, food and fuelwood shortages will affect the poorest groups badly as consumers. But they offer potentials for poor people as producers of water, food and energy. Yet urbanisation – if planned well – has potential to reduce the net ecological footprint.*

Thus Zambia could be producing higher levels of income and welfare from its ecological reserve of soils, water and biodiversity, including through exporting environmental goods and services. Such sustainable wealth creation is possible only if environmental assets are planned, allocated, managed and governed better – in other words, if environment is integrated throughout the development process. Thus, if Zambia is to meet the aspirations of Vision 2030, more effort is needed to integrate environment and development. We believe that this effort needs to be focused squarely on the central national development planning and budget processes and other major mainstream development processes, as well as decentralised and sector inputs to them. But it should not just be a technocratic process – it should also engage with business and civil society organisations. These are often the real drivers of change on environmental matters, helping to generate and spread sustainable options for livelihoods and small businesses amongst a majority of the population.

Recommendations

We outline a dozen recommendations for how to make further progress. They cover: generating a shared vision for environment in development; simple environment-for-development guidelines and templates for sectors to work with; key analyses of poverty-environment links and diagnostics of public expenditure on environment; efficient information and communications technology to share information at many levels; environment fully integrated into the national and decentralised planning and budget systems; and investment in best-bet linked development-environment goals, where a mix of public and private benefits can be assured. To get there will require capacity support, invigorating in particular the key change agents of ECZ, the Ministry of Tourism, Environment and Natural Resources (MTENR), MFNP and non governmental organisations (NGOs).

Key opportunities to firm up these recommendations and pursue them include:

- Reviewing the Fifth National Development Plan (FNDP)
- Developing the Sixth National Development Plan
- Implementing the imminent MTENR capacity development project
- Establishing links with the Poverty Environment Initiative of the UNDP and United Nations Environment Programme (UNEP)
- Lesson-sharing with other countries on environmental mainstreaming
- Regular reviews of Zambia's progress towards the Millennium Development Goals (MDGs)
- Zambia's international contribution to the United Nations (UN) post-MDG initiative and to aid effectiveness
- Major developments that present both opportunities and threats to Zambia's economy and land use e.g. biofuels development, carbon financing, and foreign direct investment

The environmental mainstreaming success stories profiled in this report are still isolated. They have not yet been implemented at a significant scale. This is commonly attributed to a lack of political will. But each success story also attests to the fact that many stakeholders *do* want to see the environment contributing to – and being conserved through – Zambia's development. We believe there are opportunities to affirm and strengthen political will if the findings of our small group are taken up in multi-stakeholder and multi-sector deliberations and activities elsewhere in Zambia – encouraging the creation of wealth through integrating environmental opportunities and needs into Zambia's development.

Introduction – Environment for development

1.1 Zambia's development depends upon environmental management

The environment is a rich and largely irreplaceable foundation for Zambia's development. Fresh water and fertile soils shape Zambia's high agricultural potentials; rich biodiversity and landscapes offer Zambia's tourism product; and clean water supplies and sanitation enable urban development. Like the foundations of a building, however, the environment often remains invisible and forgotten, a trend exacerbated when – as in Zambia – there is no commonly accepted meaning for environment in many local languages. We suggest that the environment can be looked at in two basic ways – 'goods' such as soils, water, biodiversity, shelter and other environmental assets, and 'bads' such as pollution, climate change and other environmental hazards.

Neglect of the environmental foundations of development can lead to huge problems. Goods can be asset-stripped, degraded or used for the benefit of just a few: for example, soils can be depleted, and wildlife and timber poached. And bads can stack up over time: for example, pollution can build up to levels that render land unviable for settlement, and climate change can alter the viability of crops, livestock and biodiversity.

Through experience, many Zambians know about the environment's importance, and many traditional systems have evolved to manage the environment well. These management systems handle both environmental goods and bads e.g. agricultural systems that make the most of soil nutrients and that adapt to floods and droughts.

But there is surprisingly little official information available on the state of Zambia's environmental foundations, and especially what they are contributing to the economy, and to the health and livelihoods of different social groups. Perhaps this is because environmental goods have been treated as free, and environmental bads have been treated as inevitable (in common with other countries until recently). This has begun to change in Zambia, especially with the new State of Environment reports produced by the Environmental Council of Zambia (see 3.2). As a result, some compelling facts are emerging about the significance of the environment to Zambia's development:

- *The largest proportion of Zambia's gross domestic product (GDP) and export value derives from environmentally-dependent sectors. Mining, tourism, agriculture, and forestry are the mainstay of the economy, between them providing the main sources of GDP and most of the current economic growth – and these sectors are all environmentally-dependent in different ways. Together, they have contributed to economic growth at an average of 5.5% per year over*

the last few years, a huge rise since the 1990s, which averaged just 0.1%. Mining provides 70% of all exports, and a major source of growth, expanding at 9% per year between 2002 and 2005. Agriculture provides 70% of all livelihoods, if just 17% of GDP and only a 2.6% growth rate. The fastest growing sector has been construction at 18% growth – especially residential and commercial developments in urban areas and mining infrastructure.

- *Environmental assets probably form the largest item in Zambia's national wealth accounts:* The World Bank has demonstrated that, of all assets available for development – financial, infrastructure, social, human and environmental – environmental assets are disproportionately important for developing countries. They amount to 27% of the total in Zambia, with cropland and forests being of particular importance, this total being double that of urban and physical capital. However, this still underestimates environmental assets as it excludes many of the service values such as biodiversity (World Bank 2006). This compares with 26% in all low-income countries and just 2% in Organisation for Economic Co-operation and Development (OECD) member countries. Yet this does not imply that environmental assets are unimportant in the development process – OECD countries have four times as many environmental assets per person as Zambia. Clearly, there is both scope and need to build up Zambia's environmental assets, as well as to convert some to other forms of capital needed for development and wellbeing – a key policy choice.

2

- *Poor people depend most on environmental assets, and they perceive environmental deprivations and hazards to be a significant part of their poverty:* Whilst the figures above indicate how the environment affects sectoral and national growth, they do not show contributions to poverty or its reduction. Financial proxies tend to dominate. Although there are good reasons for \$1 per day or food basket measures, for assessing poverty, many poor people describe their deprivations not solely in cash or food terms. They also express poverty as a lack of environmental goods such as clean water, sanitation, fuelwood, land, etc; high exposure to environmental bads such as landslips, floods and drought (the latter being biggest factor in changing poor people's incomes and livelihoods); or the lack of rights and powers to make use of environmental goods and to escape the bads. Yet figures on these key poverty-environment issues are not kept in Zambia.

1.2 Great scope to use Zambia's environmental assets for sustainable development

There is real potential for Zambia to develop an economy 'based on sustainable environment and natural resource management principles' as envisaged by Zambia's high-level Vision 2030. WWF's 'Living Planet Report' assesses the stresses that different countries exert on the environment through using water, farmland, forests, energy, etc – whether in the home country or abroad through e.g. importing produce (WWF 2008). It reveals that the United States is using the equivalent of 9.0 global hectares per person. In contrast, Zambia was using only 0.8 global hectares per

person in 2005 – one of the lowest in the world. Significantly, and in spite of the relatively high rate of deforestation, current Zambian use is lower than Zambia's potential sustainable capacity of 2.9 global hectares per person.

Although there are many caveats around such figures, the Living Planet Report would suggest that – with better resource allocation, management and governance – Zambia could be producing higher levels of income and welfare from its reserve of environmental wealth of soils, water and biodiversity, including through exporting environmental goods and services (Box 1). Countries such as Zambia with the potential to offer global benefits – such as storing carbon to protect against climate change, conserving biodiversity to protect future crop and medicine sources as well as ecosystem regulation – are in a position to benefit from the increased willingness of richer countries to pay, either as direct transfers for global benefits, or through tourism. The same might be said of food production, with many observers suggesting that 'instead of the world feeding Africa in times of disaster, there is potential for Africa to feed the world' (IIED and Ecoagriculture Partners 2009); if this is the case, Zambia in particular stands to benefit.

Box 1. Zambia's environmental wealth

Careful assessment, investment, management and safeguards can bring many rich environmental assets into the heart of Zambia's sustainable development:

- *A wealth of wildlife* – rich biodiversity assets, with many species being unique to Zambia, and driving much of Zambia's booming tourist industry.
- *World Heritage landscape* – landscapes such as Victoria Falls, which is a UN-registered World Heritage Site, an icon for Africa, and a flagship for Zambia's tourism industry.
- *Some of the richest farmland in Africa* – with huge potential given that Zambia is a nation of farmers; 70% of the population has real knowledge of how to make the most of land.
- *An abundance of water resources* – estimated at 186.65 km³, Zambia's water resources drive both ecosystem health and a diverse economy of agriculture, mining and manufacturing, energy, tourism and domestic consumption; yet the reliable irrigation potential is far higher than currently exploited.
- *Renewable energy* – 99% of electricity is generated from renewable hydroelectric sources, and there is potential for biofuels.
- *A great green carbon store* – over 40% of the country is covered with forest, which can hold carbon to mitigate climate change, as well as produce thousands of other products.
- *A minerals bank* – Zambia has one of the largest reserves of copper, cobalt and other minerals for global development.

These facts would indicate that Zambia could do well to invest in environmental management and institutions, which would yield some high returns. A recent global review of internal rates of return achieved from environmental investments shows that they can be highly competitive (Pearce 2005). For example, rates of return of up to 15:1 have been achieved from controlling air pollution; from providing clean water and sanitation 14:1; from natural disaster prevention 7:1; and from soil conservation 4:1.² One of the studies reviewed by Pearce (2005)

estimated that the environmental services of the Barotse floodplains produce an average net financial return of US\$405 a year for each household (see Box 2). With protected areas covering nearly 42% of Zambia – a system largely drawn up in 1948 when Zambia’s population was one-third of current levels, there is much potential for investing in national parks to support income and livelihoods as well as to secure global and local environmental services – as the Luangwa Integrated Resource Development Project (LIRDP) case demonstrates (3.7).

Box 2. Contribution of Barotse Floodplain wetlands to household wealth

A recent study attempted to assess the economic value of the Barotse Floodplain, in particular wetland resource use by local wetland communities. A major motivation for the study was that, in the Zambezi Basin, the ecological and economic value of wetlands to communities is not fully appreciated in river basin planning and land and water management decisions. As a result, decisions often interfere with wetlands of local economic importance, impacting heavily on local communities. The study confirmed:

- The entire Barotse Floodplain has a net economic value of some US\$8.64 million a year from local use of wetland resources
- At the household level, wetlands generate an average net financial return of US\$405 per household per year. 83% of this was comprised of subsistence values and home consumption.
- Without access to wetland resources, households would lose both the value accruing from natural resource use and support services for other forms of production – such as water for crop farming and livestock keeping, increasing seasonal risk and uncertainty.

Source: IUCN 2003.

4

1.3 Zambia’s environmental assets and hazards are not yet managed well enough

Some alarming environmental statistics are now associated with Zambia’s development:

- *Many Zambians suffer from the pollution legacy of many decades of mining:* Over the years, significant areas of land and water have become toxic due to mine and processing waste, in many cases rendering them unfit for use. And there has been local air pollution from manufacturing. In spite of clean-up activities such as the Copperbelt Environment Project, and better technology in new mines reducing the pollution burden, the large number of new mines around the country will inevitably add to the total environmental burden, with negative impacts on people.
- *Zambia has the second highest deforestation rate in Africa, and the fifth highest in the world:* Over 4,000 km² of Zambia’s forests were lost every year from 1990 to 2005 – with signs that the rate has recently increased (UNDP 2008). This is driven largely by increasing demands for agricultural land and woodfuel harvesting (Mupimpila *et al.* 1995), in turn driven by high prices of agricultural inputs and

2. These rates would be higher if longer time frames were taken into account in the calculation, and if the needs of the poor were given due weighting. Investment in associated social capital, such as common property regimes that improve the management of environmental assets, can also produce high returns.

alternative energy sources, many of which are inaccessible to the majority of Zambians. With only 19% of the population connected to electricity supplies, the majority depend on fuelwood – with charcoal for Lusaka’s residents now coming from over 200 km away (compared to 50 km in the 1980s – Lusaka City Council and ECZ 2008). Deforestation is also caused by land clearance for urban development, road construction, electricity transmission grids and open-cast mining. It has many knock-on impacts, such as soil and water problems, and indoor air pollution and respiratory disease from continued dependence on fuelwood burning.

- *Although it is not an industrialised country, Zambia is a relatively significant greenhouse gas producer* – due to deforestation: Zambia has some of the highest per capita emissions in the world if land use change and deforestation are counted (Food and Agriculture Organisation – FAO) – 12th in the world on a per-person basis in 2000 at 24.6 tonnes of carbon dioxide equivalent (CO_{2e}) per person. This is expected to rise by 35% between 2000 and 2020 if the collection of wood for fuel from natural forests continues (2003 cited in UNEP 2008). However, excluding such land use change and forestry emissions (which make up by far the highest proportion of emissions, with admittedly contestable figures), Zambia was only 120th in the world in 2000, at 2.4 tonnes CO_{2e} per person as it is a low user of fossil fuels. Yet even this is higher than the 2.0 tonnes CO_{2e} which Lord Stern identified as the target for *all* people in the world for climate stabilisation by 2050, if we adopt an equitable right to emit green house gases.³
- *Many Zambians are vulnerable to climate variability and climate change*: Zambia is already vulnerable to existing weather patterns and hazards. Zambian communities consulted by IUCN found that drought was the most severe climatic problem, followed by above-normal heat, then floods, with the most severe impacts on farmland and water availability and quality, and consequently on incomes and health (IUCN 2007). Furthermore, most communities felt that the climate has been changing for the worse since 2000. Scientifically projected climate change impacts in Zambia include a decrease in rainfall of 8-30% in key agroecological zones and an increase in the frequency of extreme events such as droughts and flooding; even where rainfall does not decrease, changing patterns in rainfall (such as its timing or intensity) will negatively affect agriculture (European Commission 2007).
- *Too many Zambians suffer low rates of sanitation and access to clean water*: While 90% of Zambia’s urban population has access to an improved water source, only 40% of rural people have such access (2004 figures in UN Statistical Division 2008). Meanwhile, with localised population growth, demands on available water are increasing and are difficult to meet reliably. Net water demand in Lusaka almost tripled between 1995 and 2005 (Lusaka City Council and ECZ 2008). The figures of 59% and 52% respectively for urban and rural access to improved sanitation mask even lower levels of sanitation. This is because the UN criteria for improved access do not meet people’s expectations: they allow for pit latrines –

3. <http://cait.wri.org/>

which account for 56% of the target reached by rural residents and 40% of urban (Government of the Republic of Zambia – GRZ 2005). In many circumstances, pit latrines can lead to water contamination.

- *Zambia's unique range of wildlife continues to be threatened, in spite of recent improvements:* The problem of commercial poaching – which was significant for many years, especially for elephant and rhino – has been reduced considerably due to successful enforcement, bans in ivory trade, and community incentives to conserve wildlife. Problems of subsistence poaching remain, however, where enforcement is weak and community-managed schemes are not yet strong enough. The area conserved for biodiversity in national parks and game management areas is high at 41.5%, but 11 of the 19 national parks are considered to be degraded in their environmental status (GRZ 2005) and improvements need to be made if this large area is to produce the benefits expected.

Inadequate management of environmental assets and hazards partly explains Zambia's restricted development to date:

- *Millennium Development Goals (MDGs):* In the Zambian Government's MDG progress report for 2005, two MDGs are identified as being unlikely to be met: maternal health (MDG5) and environmental sustainability (MDG7). At current rates of progress, Zambia will not meet MDG7's targets to integrate environment in development strategy, provide adequate clean water and sanitation, slow deforestation, and protect biodiversity by 2015. (GRZ 2005).
- *National Domestic Savings:* The World Bank's estimate of Zambia's wealth suggests a net decline of total wealth per person of 6.5%, due in part to population growth at over 3% for many years as well as degradation of natural capital (World Bank 2005).
- *Human Development Index:* Zambia is 165th out of 177 countries in the UN's Human Development Index – which measures health, education and other wellbeing levels – having moved in a negative direction in recent years (UNDP 2008).
- *Poverty rates:* Zambia's poverty rates have not declined significantly in the last two decades and remain high. 68% of Zambians live below the national poverty line, down slightly from 73% in 1998 – 78% in rural areas and 56% in urban areas.

Environmental poverty remains at high levels: The above poverty rates are measured in financial and food-basket terms. We have identified three distinct groups of poor people who suffer 'environmental poverty' – poverty deriving directly and indirectly from environmental problems:

- *The urban poor* who suffer mainly from brown environmental problems: lack of clean water and sanitation, indoor air pollution from dependence on solid fuels and outdated cooking equipment, unsafe and insecure land and housing, and solid waste problems. Zambia is already one of the most urbanised countries in Africa, with Lusaka and the Copperbelt towns alone accounting for 69% of the

total urban population in 2000. Yet 74% of the urban population were classified as slum-dwellers in 2001, living on less than 20% of urban residential land (UNEP 2008). If the environmental problems facing poor urban people are not resolved, the entire urban population also suffers many of the consequences.

- *Small-scale farmers, especially in remote areas* who suffer mainly from green environmental problems: unproductive land on which to grow food, notably in woodland zones, lack of access to markets and services to develop that land, dependence on unreliable rainfall, and increasingly extreme climatic vulnerability. Agricultural growth to date has passed these farmers by, concentrating instead on cash crops such as cotton and tobacco (MFNP 2006), so that poverty rates are 78% in rural areas. If the environmental problems facing small-scale farmers and other poor rural people are not resolved, the urban population will tend to suffer from unsustainable immigration.
- *Women, children, refugees and migrants* within the above categories tend to be particularly vulnerable, mainly due to their lack of assets and rights.

1.4 Despite progress, environmental concerns are not yet mainstream

If environmental contributions to Zambia's economic growth and people's health and livelihoods are so significant (1.1), with potentially high rates of return (1.2), why is Zambia's performance inadequate (1.3)? It appears that development authorities and other actors (investors, businesses, etc), are giving poor consideration to environmental issues as described below.

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Zambia suffers from prevailing governance constraints that keep environment and development apart: The answers to the above question lie in a range of governance constraints that marginalise environmental issues. The significance of governance constraints in Zambia is also indicated in some key international rankings:

- *Zambia ranks low on the independently produced Environmental Sustainability Index of countries – at 130th out of 149 countries* assessed in 2008. This is due largely to poor performance against governance criteria (Yale and Center for International Earth Science Information Network 2008).
- *Zambia's relatively poor standing in the World Bank's Cost of Business Assessment – at 100th out of 180 in 2008, despite some recent improvements in public sector reform, is an additional indicator of the difficulties facing effective planning and investment⁴.* Government institutions in general often function poorly, due to a diverse range of problems.

Environmental institutions have not had adequate recognition and support. The Environmental Protection and Pollution Control Act (EPPCA 1990) enabled the

4. Poor access to domestic and international markets, inputs, extension services and information – and high costs of energy, transport, water and professional services – have undermined Zambia's overall competitiveness and serve as constraints to pro-poor growth (World Bank 2008).

establishment of the Environmental Council of Zambia (ECZ). The ECZ is a board corporate under the supervision of the Ministry responsible for Environment, with statutory responsibility for protecting the environment and acting as a regulator. Its mission statement is to:

'regulate and coordinate environmental management, promote awareness, and ensure environmental protection through enforcement of regulations and the prevention and control of pollution in support of sustainable development – so as to provide for the health and welfare of persons, animals, plants and the environment of Zambia.' (ECZ 2002)

The ECZ has a very comprehensive environmental management mandate, but its powers and capacities compare unfavourably with equivalents in other countries in Africa. For each of its functions it is reliant on other organisations. For example, to prepare the State of Environment report it requires information that only other agencies can collect and offer. Thus, in practice, environmental management is largely dependent upon the interest and competence of other line ministries who typically regard the environment as an externality to their principal business, while at the same time the existence of the EPPCA and the ECZ reduces the incentive for those ministries to act. Furthermore, new institutions such as the ECZ – and the Zambia Wildlife Authority (ZAWA) – were established without adequate resourcing, with fiscal constraints requiring them to be partially self-funding (60% in the case of ECZ). This form of funding does not always enable them to address public goods issues (Doolan 2007).

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This weakness in statutory environmental regulations needs to be viewed alongside the gradual weakening of community and traditional institutions that were once key for governing resource allocation and use in the past – something that CBNRM schemes have recently tried to reconstitute (3.7).

Formal environmental institutions are not well linked to development planning, finance and sector institutions. Environment institutions are separate from development institutions, as well as weaker politically and in capacity terms. The ways in which they do interact are principally for advisory purposes rather than for joint decision-making – with the exception of a few procedures, notably EIA. However, EIA tends to be carried out only when major investment location decisions have already been made and it is often side-stepped by politicians (ECZ 2007 – see 3.6). In part, this is due to a disconnected institutional regime, into which new environmental institutions have had problems becoming established. For example, the Zambia Forestry Commission has not been established yet, even though it was provided for legally in the 1999 Forests Act. With a majority of the country's land surface covered with forests, the 1999 Forests Act offers innovative legal means for joint forest management and benefit-sharing between the state authorities and communities on a major scale. Although the management of forests has only limited potential for poverty reduction, the safety net function of forests is often worth investing in (Campbell *et al.* 2008). But without the administration in place, this potential goes unrealised except for a few pilot projects.

In Zambia the mainstream planning institutions address economic and physical planning, neither of which has fully absorbed environmental dimensions yet. However, each offers different entry points. They are the Ministry of Finance and National Planning (MFNP) and the Ministry of Local Government and Housing (MLGH) which currently administers the Town and Country Planning Act (T&CPA) – to be replaced soon by the New Urban and Regional Planning Act (U&RPA).

The national development planning and associated budget processes tend to keep environment as a separate sector. Budgeting of government bodies is still sectoral, and as a cross-cut contributor, environment loses out. MFNP deals with national economic planning and allocation of budgetary funds to Government Ministries and Agencies and Sectors. It allocates funds in a sectoral manner, according to priorities determined by the Government. In this regard priority ministries like Health, Education, and Agriculture tend to be allocated more funds than MTENR and MLGH which are important for environmental issues. This has usually been reflected in the organisation of the National Development Plan, although there are both sectoral and cross-cutting entry points for the environment in the FNDP (3.2).

Although the Government considers environment to be a cross-cutting subject, for budgeting purposes the environment is regarded by the MFNP as part of MTENR's mandate, while the Environmental Council of Zambia (ECZ), ZAWA, the National Heritage Conservation Commission (NHCC), and the Zambia National Tourist Board (ZNTB) are treated as MTENR's grant-aided institutions and funded as components within the overall Ministry's budget. Over the years, MTENR's budgetary allocations from MFNP have not been commensurate with its global and national environmental responsibilities, resulting in heavy dependence on donors for support to fulfil national obligations under international environmental conventions.

MLGH is equally inadequately funded by MFNP. Over the past five years, allocations to MLGH have been less than 50% of the Ministry's budget estimates, resulting in failure to fulfil its national and international obligations. For example, less than 10 of the Country's 72 Councils have had their Integrated Development Plans (IDPs) prepared and approved during the last 10 years, contrary to the planning law.

In stark contrast to the potentials, levels of investment in the environment remain very low in Zambia – much of it being picked up by outside donors: The environmental investments associated with the environment chapter of the FNDP are minimal. The medium term expenditure framework proposes just 2% of the FNDP total for environment. Although the FNDP plans for a doubling of the agriculture budget, this emphasises fertilizer subsidy and does not include much on the diversification, technological, irrigation and environmental aspects that would help small-scale farmers. Moreover, a disproportionately high proportion of the environment-related expenditure is expected to be covered by aid: 85% of the rather limited environmental investment sums as well as water investments in the FNDP are targeted at aid funding (GRZ 2006). Finally, the spread of environmental investments does not align effectively with either the mandates of concerned

environmental authorities (i.e. investment is not following the mandate) or the significance of the environmental assets (i.e. investment is not following the potential returns). Clearly, there is much to be done to improve the case for investing in Zambia's environmental wealth (See 3.2).

Until recently, there was no over-arching environmental policy and institution that would serve to clarify how environment should be treated in the development process. Now the new National Policy on the Environment, EPPCA and legislation associated with ECZ are in place, but lack the capacity to exert effective influence (Doolan 2007):

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- The very recently approved *National Policy on the Environment (NPE)* was designed through a participatory process, to create 'a comprehensive framework for effective natural resource utilisation and environmental conservation' for a 15 year period, while being 'sensitive to the demands of sustainable development'. It is defined in terms of four basic environmental assets (atmosphere, land, water, and biodiversity and heritage resources) and for the major sectors of the economy (agriculture, tourism, fisheries, forestry, wildlife, mining, water, industry and commerce, energy, and heritage). It recognises that particular attention should be given to six main environmental problems: deforestation; wildlife depletion; land degradation; heritage destruction and loss of spiritual and cultural values; air pollution; inadequate management of water resources, water pollution and sanitation. The NPE is generally comprehensive in nature, although it has some weaknesses in its coverage. These include its weak consideration of engagement with private sector and civil society, beyond some aspects of community-based natural resource management. Climate change features only briefly. Overall coordination of NPE implementation lies with MTENR, which will need strengthening to carry out this role – with a multi-donor project on its way to do just that. Only now coming into force, the NPE will hopefully help Zambia to tackle the problem to date of being without a single over-arching policy or institution mandated to integrate all environment issues (if not yet environment and development issues).
- *Zambia's body of environmental law* is spread over more than 33 sets of legislation, much of which is regarded as inadequate by the NPE. In general, the policy and legislative framework has been characterised as fragmented, with dispersed responsibility across at least ten line ministries. MTENR, despite being the main environmental authority, is responsible for only two pieces of legislation and about 10 international instruments. A lack of intra- and inter-sectoral institutional arrangements, scarcity of operational coordination mechanisms between policy-setting institutions and implementing institutions, and the diversity of interests among responsible ministries, have all resulted in inconsistencies across policy, legislation and strategies. Codification of international treaty agreements (a total of 21) into national law is particularly weak, so that much international law is unenforceable. National environmental law does not yet take account of the decentralisation policy. Enforcement of national environmental legislation is

carried out by 11 line ministries through statutory bodies or institutions such as directorates. However, with the exception of ZAWA, the enforcement institutions must rely on prosecutors from the Police Service to investigate and prosecute cases, even though these may not understand the principles and objectives of environmental management. Collectively, such constraints pose a major implementation challenge. The harmonisation of existing laws, and incorporation of new legislation, requires central oversight, given the failure of the existing looser inter-ministerial coordination model of environmental management to do so.

- *A National Consultative Forum on Natural Resources (NRCF) is promising, but has not yet forged strong environment-development links.* NRCF is supposed to act as an interface across civil society, academia, business, development partners and Government ministries. It set out to provide a mechanism for consultation and information-sharing among stakeholders, to provide technical advice to high-level Government officials on emerging issues and, most importantly, to initiate and support enabling policy for managing natural resources. Its start-up has been problematic, with limited support from many institutions, thus leaving it open to individual influences and dissonances. A review of its initial operations revealed variable levels of attendance and responses to advisory activities by Government members, and the lack of a mechanism for achieving balanced stakeholder representation. However, NRCF's perceived neutrality and potential influence makes it the best available platform to bring the views of the private sector, civil society and traditional authorities on the natural resource sector to the attention of donors and government.

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Information on Zambia's dependence on environment, and on its links to development, is limited. Our glimpses into the importance of environment at livelihood, sector and national level in 1.1 are quite compelling, but they are also incomplete. There is no systematic picture of environment-development links, of how the environment is being used in development and with what costs and benefits, and of how environmental limits are being approached and the climate changing. As FNDP points out, there has never been a comprehensive assessment of ecosystems in Zambia which, given that 'achieving [all MDGs] will require the support of functioning ecosystems... may have serious ramifications for the sustainability of the economy' (GRZ 2006).

The robustness of the Central Statistical Office assessments of different sectors' contributions to Zambia's GDP has been questioned. It is difficult to provide good evidence for investing in the environmental assets that underpin those sectors. Although some of this will improve with the publication and web access of the imminent State of Environment Report 2006, the signs are that environment information is not being used by development decision-makers in either a voluntary or a statutory capacity – with the partial exception of EIA (3.6). Environmental factors have not been routinely covered in national and household statistics or in monitoring of development initiatives. Rates of return on environmental investment are not routinely assessed and neither are the costs of inaction suffered through lack of

investment in controlling land degradation, floods, and pollution. There have been one-off studies to make the case for environmental investment (Box 2), but these are not routinely fed into development decision-making. For example, the State of Environment Report 2000 has no database interface with development reports and has no automatic link to development procedures.

International environment and development initiatives have been influential in Zambia. Where donors promote environmental issues within Zambia (most notably climate change at present), such issues at least get a hearing. The same has occasionally been true of international environmental NGOs, such as the influence of IUCN in Zambia's decision to prepare a National Conservation Strategy (3.1). Donors in Zambia have made considerable progress in ensuring harmonisation amongst themselves on environment and alignment with Zambia's national plans with a donor coordination group on environment helping to ensure consistency. The donors have prepared a Joint Assistance Strategy for Zambia which responds to the FNDP. For environment, it focuses on (Irish Aid 2008):

- Increased capacity and funding for environmental planning and mainstreaming
- Introducing strategic environmental assessment, and strengthening EIA application, including participatory approaches
- Evidence-based advocacy and communication
- Joint analytical work with government
- A focus on renewable energy, land, forests, wildlife and fisheries
- A special focus on adaptation to climate change

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Several donors are now rolling out a major programme primarily to improve the capacity of MTENR – the Environment and Natural Resources Management and Mainstreaming Programme, but which also aims to address the environment capacity of the mainstream planning and finance institutions. However, as the European Commission (2007) points out, there are risks that the Joint Assistance Strategy may result in several donors leaving environment entirely up to a few donors to lead, offering instead rather vague mainstreaming promises for the rest of their support portfolio.

Yet incoherence in the international aid and environmental institutional landscape also means that international influence may not always be productive for Zambia:

- *Development assistance fashions* on environment and development have changed rapidly, with useful initiatives such as sustainable livelihoods, national sustainable development strategies, and support to environmental investments being introduced and then withdrawn. Climate change is the current donor environmental emphasis – itself being mainstreamed into growth-oriented donor policy through the notion of the low-carbon economy – but how enduring and consistent will this be?
- *Multilateral environmental agreements* (notably the biodiversity, climate change and desertification conventions) are not aligned with the MDGs in spite of recent integration of the 2010 biodiversity target into the MDGs.

- *It is not yet clear what the impact of the current global financial crisis will be on international initiatives in environment and poverty reduction.* Within the richer donor countries, both financial (credit) and environmental (climate) crises have been driven by a short-term-profit mentality – seeking benefits today at the expense of tomorrow's generations. Both have resulted from a value system that encourages people to live beyond their means. Both have resulted in a mismanagement of assets due in part to misaligned economic and financial incentives. It is possible, however, that the new swing back towards security and stability in the finance sector will also provide a new climate for environmentally sustainable investment.

Zambia's own dominant development paradigms have not made environmental issues a central concern – but this is changing: As with most countries, neither the central planning of the 1970s and 1980s, nor the liberalisation of the 1990s, adequately included environmental issues. The environment was largely considered to be a constraint to development (with EIA procedures being introduced in the late 1980s to handle that constraint – see 3.6 – and foreign donors often being asked to cover the costs). In addition, environment was treated as a minority sector (principally around wildlife-based tourism), rather than as a foundation for income, growth and safety nets in all sectors and livelihoods. This is common with many low-income countries, which used to conclude that environmental protection is something that can only be afforded once middle- or high-income status has been reached. There is now greater realisation that this creates a paradox that Zambia faces too: countries place hopes in the same development paradigm – high economic growth based on high fossil-fuel and materials intensity – to generate enough resources to somehow fix the environmental problems that economic growth itself produces.

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Many of these challenges are persistent, and so it is important to identify and build on any progress made in tackling them. The report of the National Environment Situational Analysis, conducted to inform the development of the new NPE, asserts that there is a 'systemic failure of environmental and natural resource management with characteristic symptoms of weak leadership; conflicting policies; incomplete and outdated legislation; inadequate finance; weak and divided institutions; lack of capacity; lack of resource assessment, poor information flow, and inadequate planning; implementation failure; insufficient awareness and education, and inadequate private sector participation. *Essentially the issues remain the same as they were [14] years ago, at the start of the National Environmental Action Plan'* (MTENR 2005a, our emphasis). This would suggest that the environment is still an externality in Zambia's development and institutions. However, we are less pessimistic, and have identified several areas of progress.

Indeed, it is testament to the energy of many Zambians who are concerned about the environment that we have been able to identify these. Some innovations in governance and investment have begun to shed light on new development models that include environment from the beginning. If Zambia's development

depends so closely upon environmental management, any such innovations that support synergies in environment-development relations, and that work well in the Zambian context, are going to be increasingly important. They could help us to shape a national development plan that more proactively encourages environment's contribution to development – creating wealth in pro-poor sectors through managing environmental assets and hazards, realising the 2030 Vision of an economy founded on sustainable environmental management. We will introduce these areas of progress in section 2, and examine some of the innovations in more detail in section 3.

Table 1. Environment is still an externality: but some innovations are beginning to influence mainstream decisions and institutions

| Problem: environment is... | Current status | Innovation that can be built on |
|----------------------------|---|---|
| Uncoordinated | There are limited strategic links between different environment institutions, and between environment and development institutions. | National Conservation Strategy (3.1), Urban and Regional Planning Act (3.3), ministerial environment units (3.4); import coordination (3.10); and development planning innovations (3.2). |
| Unintelligible | Decision-makers still see environmental as complex and vague – although the public is increasingly aware of its importance. | Much investment in NGO environmental education and national curriculum (3.5). |
| Unmonitored | Infrequent and incomplete inventory of environmental assets; with few parameters being assessed. | State of Environment reports (Box 9); mine pollution participatory monitoring (3.4). |
| Unvalued | No central accounts are kept of any environmental assets | Case-specific studies e.g. Barotse floodplain wetlands (Box 2). |
| Unpriced | Water and biodiversity use is often free to industry and agriculture | Integrated water management tackling efficiency problems (3.11). |
| Untraded | Carbon, water and biodiversity markets are thin, and poor producers cannot access them. | Recent pilot projects in payments for environmental services. |
| Unowned | Ownership of some environmental assets by communities and poor people is often unclear or insecure. | Improvements in community wildlife (3.7) and forestry (3.8). |
| Unprotected | State authority scrutiny and enforcement is weak. EIA is used but ignored politically. Consequently environmental damage is unpunished. | Improved approaches to EIA and SEA (3.6) as well as community control (3.7). |
| Uncertain | Little work on environmental trends, futures and scenarios. | Climate change vulnerability assessments and economic studies beginning. |
| Unimproved | Little recognition of environmental assets in planning and accounting. Environmental degradation left untackled. | FNDP now has some environmental cross-cutting objectives (3.2). Mining clean-up is being treated increasingly seriously (3.9). |

Drivers and activities for environmental mainstreaming

2.1 Initiatives that integrate environment and development objectives

With environmental management increasingly recognised as critical for Zambia's development and Zambians' well-being – and with stubborn blocks remaining to including environmental concerns in development activity, it is not surprising that there are renewed calls for environmental mainstreaming.

We apply the term environmental mainstreaming to mean any positive attempt to include relevant environmental concerns into mainstream development policy, plans, investment decisions and institutions. Our metaphor is a river, where various environment tributaries are able to effectively join the development river – not merely to be swept along by this mainstream, but to change it, perhaps by enriching its nutrients or altering its destination. (Box 3)

Box 3. What is environmental mainstreaming?

Environmental mainstreaming is the inclusion of relevant environmental concerns into development policy, plans, investment decisions and institutions

Environmental mainstreaming produces several useful outcomes:

- Better understanding of environmental goods (assets) and bads (risks)
- Higher development values obtained from environmental assets (food, energy, wood, water, tourism, etc) – realising income, health, security and other benefits
- Reduced negative environmental impacts of development activity
- Empowerment of environment-dependent groups
- Improvements over longer time frames that cover ecosystem change

All of these outcomes are critical to development, since good development itself entails:

1. Improving the productivity of assets per person – including environmental assets
2. Reducing risks at national, sector, livelihood level – including environmental risks
3. Empowerment – including environmental rights
4. Holistic and long-term perspective – including environmental changes

Thus environmental mainstreaming is critical for a country such as Zambia where both the economy and peoples' livelihoods are heavily dependent on natural resources.

The key issues in beginning the task of environmental mainstreaming are (a) the choice of entry points into the mainstream, and (b) the drivers who target those entry points.

2.2 Mainstream entry points and drivers for environmental concerns

No one entry point alone is sufficient to mainstream environment into development: Entry points for environmental issues in Zambia are connected to the development cycle of information, analysis, dialogue, policy, planning,

investment, implementation and review. To date, mainstreaming has relied on one-off initiatives designed by environmentalists to break into the cycle, such as the National Conservation Strategy (3.1). Increasingly doors into the mainstream system are being opened, notably in the national development planning system (3.2). But some entry points tend to condense environmental issues into a single (and therefore marginal) procedural hurdle to be overcome in development, as EIA has in part become (3.6).

The drivers of environmental mainstreaming have also been varied. Traditionally, the push for environmental inclusion in development has come from Zambian environmental interest groups, international environmental NGOs, some environmentally dependent community groups, politicians acting on their behalf, and government authorities responsible for international environmental obligations. In addition, donors concerned with coherence of aid and global public goods, and businesses exposed to environmentally discriminating markets, are increasingly driving mainstreaming. Finally, and much more recently, the Ministry of Finance and National Planning has developed an interest in ensuring synergies between environmental and development goals – indeed, sponsoring our current exercise. Each has different strengths and weaknesses.

Unlike many other countries, environmental mainstreaming in Zambia has not been driven primarily by a distinct environmental science professional community. Until recently, many environmental champions in Zambia tend to have come from other fields, such as mining, engineering or agriculture. They do not necessarily have long-term incentives to drive a coherent environment agenda. By the same token, in such integrated professionals may lie the seeds of more routine mainstreaming – if only the larger institutional system would encourage it.

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2.3 Categorising environmental mainstreaming approaches used in Zambia

We have mapped the various environmental mainstreaming approaches used in Zambia, most of which are further explained in section 3:

- *Planning processes and instruments* – The national development planning process now includes some provision for the environment (3.2). Safeguard approaches such as EIA and more recently SEA have reduced the risks of negative environmental impacts and (in the case of SEA) helped to identify ways of realising positive environmental potentials (3.6). Spatial planning is a way to integrate both environmental and developmental issues in key localities, and to decentralise responses to a wide range of national policies (3.3). Several milestone environmental initiatives have been influential (Box 4).
- *Information* – State of Environment reporting at national and now district levels is bringing together disparate information on what constitutes environment (Box 9). Some (one-off) studies of development-environment links are improving awareness of dependences and synergies.

Box 4. Environmental milestone initiatives to date

- *1985 National Conservation Strategy (NCS)* – a comprehensive ‘conservation for sustainable development’ policy and strategy responding to the UNEP/WWF/IUCN World Conservation Strategy (3.1).
 - *1990 EPPCA* – the supreme environmental law in Zambia: a comprehensive Act to put in place the powers and functions to implement the recommendations of the NCS. It focuses and to some extent rationalises environmental legislation.
 - *1992 Environment Council of Zambia (ECZ)* – an autonomous corporate body to implement the EPPCA, with a multi-stakeholder board. Its general function is to ‘protect the environment and control pollution’.
 - *1994 National Environmental Action Plan (NEAP)* – a detailed plan for investment in the environment, ostensibly an action plan for the NCS; but also prepared in response to World Bank requirements to cover environmental issues if Zambia is to be able to obtain loans under IDA-10.
 - *1990s and 2000s national plans and responses to multilateral environmental conventions:* (a) National Biodiversity Strategy and Action Plan – the national response to the Convention on Biodiversity, covering access and benefit sharing, sustainable use and protection; (b) National Communication on Climate Change – the national response to the Convention on Climate Change; (c) National Adaptation Plan of Action to support adaptation to Climate Change 2007 – a further response to the Convention on Climate Change; (d) National Action Plan for implementing the UN Convention to Combat Desertification; (e) Zambia Wetland Strategy and Action Plan – the national response to the Ramsar Convention on Wetlands; (f) Zambia Forestry Action Programme – the national response to the FAO Forestry Action Programme.
 - *2004 National Solid Waste Management Strategy* – prepared by ECZ through a consultative process and adopting a waste cycle approach, aiming to minimise the generation of waste, maximise the efficiency of waste collection, reduce waste needing disposal by maximising its economic value, and adopt environmentally sound treatment and disposal.
 - *2004 Integrated Water Resource Management/Water Efficiency Plan* – the national response to the 2002 Earth Summit’s call for an integrated approach to water planning.
 - *2008 NPE* – tackling the problem of Zambia having been without a single over-arching policy or institution mandated to integrate all environment issues (if not environment and development issues).
-
- *Awareness and education* – the long-standing Chongololo Clubs run by the Wildlife Conservation Society of Zambia in close liaison with the government have influenced many Zambian schoolchildren – including most of the authors in younger days. This is reinforced by the formal education system and its curriculum, which have included environmental education for some time (3.5).
 - *Business systems* – environmental management systems have helped a few companies to set and meet both regulatory and voluntary environmental targets. Certification of production processes (such as sustainable agriculture and forestry) has distinguished some products as being environmentally sound in the marketplace. This is having an impact on some export-oriented producers (e.g. organic honey producers and wildlife tourism) – see Box 4.
 - *Natural resource management frameworks* – community-based approaches (CBNRM), especially in wildlife management and forestry, have sometimes helped to ensure resources are used in pro-poor, pro-environment ways. The key to success is the community having legal recognition of their rights to use land, but this is not yet routine and often requires significant

Box 5. Corporate environmental and social responsibility in Zambia

Zambia is currently less involved in environmentally-discriminating markets than some other African countries, but concerns are now growing in mining. The domestic market is not yet seeking responsibly produced products. Most corporate and environmental social responsibility in Zambia is confined to corporate philanthropy and work on HIV/AIDS – rather than environmentally-sound production and marketing processes. A Zambian group, the Partnership Forum, is raising the profile of corporate *environmental* and social responsibility. Furthermore, it is helping to localise the concept, forming partnerships between small-scale producers and larger players – and notably Shoprite, the big supermarket chain which is attempting to procure more products for the Zambian market locally. Zambia is also involved in the UN's 'Growing sustainable business for poverty reduction' initiative (Kivuitu *et al.* 2005).

donor support. Thus CBNRM initiatives, though highly promising for environment-development win-wins, still tend to be restricted to isolated pilot projects. However, in 3.7, we review a very significant example in wildlife management, which has had widespread impact in the Luangwa Valley. In the case of forestry (3.8), CBNRM is limited by the lack of legal provision for joint forest management allowing a sharing of revenues between the community and government, even though the Zambia Forestry Action Programme aimed to ensure multiple uses of forests for multiple stakeholders. Integrated water resource management (IWRM – see 3.11) has recently been developed to reconcile competing production and direct consumption uses of water with the need for environmental flows in ecosystems.

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- *Multi-stakeholder institutions* – these have been a principal means for ensuring environmental mainstreaming, although they have not always been employed throughout the full development cycle, tending to focus on analysis, dialogue and policy formulation stages. They include the NCS Committee, the Interagency Environment Regulatory Committee, the Natural Resources Conservation Forum, the Agriculture Consultative Forum, the Zambia Water Partnership, Provincial Development Consultative Committees and their District equivalent consultative committees. Some are explored in section 3. Some attempt to mainstream environment into wider development processes, but most of them are rather self-contained. Moreover, there is no overriding and continuing umbrella for all of them.

Few of the above environmental mainstreaming approaches are long-standing and routine – though EIA, some CBNRM and environmental education approaches have become well established. In addition, we also cannot ignore other ways of influencing environmental outcomes in development – traditional governance, the news and other media, and politics, all of which have had key influences at times. Ultimately, many decisions to include or exclude environmental concerns are properly in the realm of social and political choice.

But how well are these approaches to environmental mainstreaming working in Zambia? We begin to look at some of the innovations from two decades experience in Zambia in section 3.

Case studies of Zambia's environmental mainstreaming experience

We begin with six stories from the perspective of particular environmental mainstreaming methodologies (3.1-3.6), and then look at five stories from sectoral perspectives (3.7-3.11):

3.1 The National Conservation Strategy (NCS) – a pioneer mainstreaming process⁵

With its aim of conservation for development, NCS was the first major Zambian environmental mainstreaming initiative. Adopted by Cabinet in 1985, NCS was a first in many areas:

- It was the first initiative to promote the environment as a positive foundation for development. Previous environment initiatives had tended to focus on preserving nature from the impacts of development.
- It was an early multi-sector, multi-disciplinary assessment and planning process – drawing on government-wide consultation and placing business, NGO and scientific inputs on an equal footing with government. Previous multi-sector work had primarily been limited to the national development planning process.
- It was one of the first national conservation strategies in the world – translating the principles of the ground-breaking 1980 World Conservation Strategy, produced by UNEP, WWF and IUCN, into policy and plans relevant to Zambia. Prior to this, the concerns of environment groups had not been elevated to issues of national development policy. NCS helped to do this by promoting three ecological principles for development – sustainable use of natural resources, maintaining ecological processes, and protecting biodiversity.
- It was the first initiative to promote many sustainable development concerns that are now commonplace, including climate change, the need for community participation in using the environment sustainably, and the need for safeguards such as EIA in development planning.

Many Zambian initiatives for environmentally sound development can trace their origins back to NCS. As a pioneer, however, NCS was itself perhaps a step too far ahead, and did not become part of the mainstream planning process. Mainstream change was to rely more directly on several initiatives that were identified and inspired by NCS. For example:

- EPPCA and ECZ were recommended and outlined by NCS. They introduced procedures such as EIA, so as to better handle environmental issues. This path was also paved by NCS calling for new environmental planning capacity in

5. This section is by Steve Bass and Lubinda Aongola.

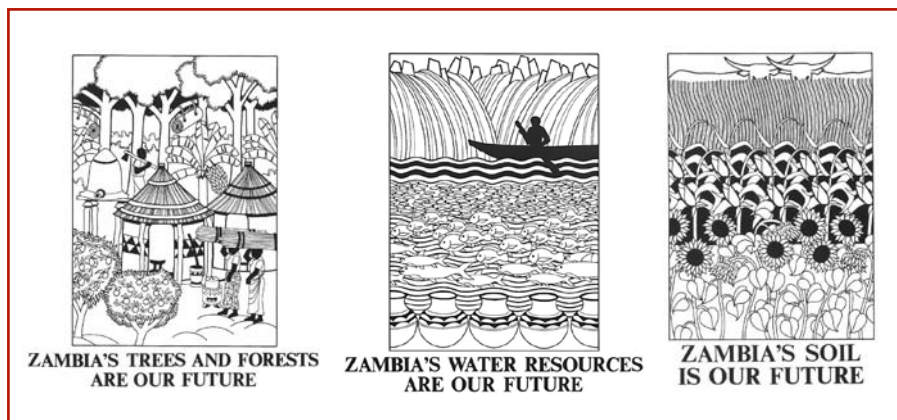
the then National Commission for Development Planning, and supporting EIA training.

- Two emerging local exercises were identified as pilot projects in an NCS Development Plan – the Luangwa Integrated Resource Development Project (LIRDP) to make pro-poor sustainable use of wildlife, and the Human Settlements of Zambia project for environmentally sound squatter self-help in the slums of Lusaka. As section 3.7 discusses in the case of LIRDP, these helped to restructure local economies to build on sound natural resource use, and to enable communities to claim and effectively manage environmental assets under their control.

High-level champions and inclusive process innovations were important factors in NCS. At least eight of these can be identified. First and foremost, then-President Kenneth Kaunda, an enthusiast for nature conservation, had helped to launch the World Conservation Strategy and had a strong vision for Zambia being one of the first countries to internalise its principles. Secondly, the then National Council for Scientific Research offered to provide a neutral, forward-looking platform for the many kinds of assessment that would be needed. Thirdly, several Permanent Secretaries and other senior officials took a strong interest in the exercise, notably as they needed to develop renewable natural resources in the search for diversification beyond copper. This ensured stronger government ownership than previous high-profile environmental activities promoted by international bodies. Fourthly, the Government official coordinating the NCS process had excellent networking attributes, helping participants to more easily cross the hard institutional boundaries that normally separate officials – even though he was based in the Department of National Parks and Wildlife, not normally a body with broader influence. Fifth, the IUCN process support offered useful inter-disciplinary frameworks for the unprecedented cross-cutting assessment and planning, derived in part from the WCS. Sixth, it was agreed that NCS would be forward-looking – and not focus on critiquing past efforts for their lack of inclusion of environmental action. Seventh, the Swedish and Dutch government support, while financially modest, was flexible and supportive of innovation. Finally, the open policy space created by these attributes enabled many individuals to be bold in suggesting analyses and ideas that departed from the norm.

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Compared to today's standards, NCS was weak on public and political engagement: In spite of its innovations, there is a lot that NCS did not do. The most striking omission – compared to how things would be done today – was the lack of public participation. Although there was good participation amongst central ministries, parastatals and NGOs, there was much less from private business, local authorities, civil society (apart from environmental NGOs) and communities. Instead, NCS invested significantly in public relations – posters and booklets provided to all secondary schools and local authorities, children's painting and essay competitions, sessions with the media, and stands at agricultural shows (see Figure below). But there was little to directly seek the views of local people. As such, a clear picture of what environment means to



Posters used in the 1985 Zambia National Conservation Strategy education campaign – one of the first environmental mainstreaming initiatives in Zambia

poor people – in terms of their dependences and deprivations as well as the joys – was not obtained.

A second area of omission was to address the institutional separation of organisations involved in environment and development. This meant that there was no clear identification of the motivations that an NCS would have to respond to, or of political blocks to progress. Such matters are key when environmental mainstreaming is, in effect, an institutional change process – getting institutions to better understand and act on environment-development links.

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NCS also omitted to express the importance of investment in environmental management in economic terms. NCS made a scientific and, to some extent, political case, but not in the terms that are now sought – e.g. what income can businesses, governments and poor groups make from investment in forests, soils, water, etc, and at what cost. This meant that NCS itself did not attract mainstream government or private investment; consequent investment was limited to donors who already favoured environmental action. The fact that the Ministry of Lands and Natural Resources championed NCS and presented it to Cabinet may also explain why NCS never fully became part of the five-year planning process; today, MFNP would have been the obvious focal point for a conservation strategy aimed at development.

The final area of weakness was the depoliticisation of environmental issues. NCS was essentially a technocratic exercise. Although it involved a few Cabinet sessions, it included almost no involvement of parliamentarians which exacerbated the lack of engagement with local communities. Today, the intensely political nature of environmental rights, and of development debates, would demand more political engagement.

3.2 The Fifth National Development Plan – new entry points for the environment⁶

Zambia has comprehensively reformed its approach to national development planning. From Zambia's independence in 1964, three national development plans were implemented. The fourth was launched in 1989 but was soon abandoned in preference for an open market system. The market approach brought huge changes to the economy – if not any significant reduction in poverty. But its inevitable short-term, narrow sectoral focus also helped GRZ to realise that, even in a liberalised economy, development planning remains necessary to set long-term vision, set priorities, guide resource allocation, and form a basis for working with international cooperating partners (i.e. donors). The consequent resurgence of planning from 2002 resulted ultimately in FNDP 2006-10.

FNDP's theme is 'broad-based wealth and job creation through citizen participation and technological advancement'. Its approach is to achieve economic development through four main economic pillars – agriculture, tourism, manufacturing and mining. As the title of our publication suggests, we believe that the environment is key to creating and protecting that wealth, especially given the fact that each of these four sectors have strong environmental foundations.

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There are several attributes of FNDP that set it apart as a more robust product than previous national plans – and notably than the previous World Bank-directed Poverty Reduction Strategy. Firstly, it was far more participatory – involving 21 Sector Advisory Groups including a Tourism Environment and Natural Resources Sector Advisory Group and 72 District Development Plans approved by district organisations. These involved government, politicians, civil society and private sector. Secondly, it included a critical *review of poverty dynamics* in Zambia: notably the gender and rural biases in poverty, but also the non-income aspects of poverty in which environment is key. Thirdly, it put emphasis on *sectors with direct potential to reduce poverty*, notably agriculture, tourism, rural development and manufacturing – again, all of these have significant environmental issues. Finally, it included a *medium-term expenditure framework* which helps to shift the plan away from a project approach towards the possibility of major programmes including sector and budget support by donors. These attributes are all good entry points for environmental mainstreaming.

FNDP includes a separate chapter on the Environment. FNDP rightly recognises environmental problems as both a cause and a consequence of poverty, and calls for ecosystem assessments in order to avoid 'serious ramifications for the sustainability of the economy'. But it is weak in its analysis of the environmental risks that may severely undermine development paths, notably climate change. Although it recognises the causes of environmental problems, it is weak on developing solutions that address the deep-rooted, cross-cutting causes of

6. This section is by Maswabi Maimbolwa, Lubinda Aongola and Stephen Bass.

environment and development problems, and therefore in mainstreaming environment across the sectors.

FNDP treats the environment more in terms of problems than opportunities. Although its vision is 'a productive environment and well-conserved natural resource for sustainable development', in practice it emphasises safeguards against environmental problems rather than a more positive approach – that well-managed environmental assets can offer a route out of poverty, or at least a safety net for the poor. FNDP calls for 'mainstreaming environmental issues into national development programmes and enforcement of existing laws and policies to protect the environment'; the finalisation of NPE as a solution to inconsistencies between the more than 30 institutions and agencies involved in the environment, as well as coordination through a Natural Resources Consultative Forum (NRCF); the need to build capacity of environmental authorities; and associated awareness and information tasks. However, it accords priority status to the out-of-date NEAP for planning this work.

FNDP includes a large range of major but vague and unprioritised demands for sustainable environmental management (Table 2). Its lack of prioritisation is common in many of the sector chapters, which take on a wish-list character. Although it espouses a results-based, monitored approach, indicators and systems for assessing all relevant environmental outcomes related to development are not in place. Perhaps the acid test is that the medium term expenditure framework accords only 2% of the entire budget to environmental expenditure.

There was no rigorous cross-cutting approach to the environment in the other FNDP chapters – but environmental issues found their way into some. Chapters on tourism, manufacturing, energy, health, water and sanitation, and science reflect environmental issues. In addition to an environment chapter, FNDP includes a chapter on natural resources with an equally comprehensive set of programmes, albeit few indicators to assess their contribution to poverty reduction – perhaps most notable in the case of forestry (Irish Aid 2008).

Table 2. Environment provisions in the Fifth National Development Plan

| Sector: Environment | | |
|---|--|--|
| Programme | Objectives | Strategies |
| Environmental Institutional Capacity Building | To improve institutional capacity and coordination for environmental management | <ul style="list-style-type: none"> a. Enhance national and regional coordination; b. Improve human resources for organisation and administrative systems; c. Improve financial management systems; d. Improve the legal and policy framework; e. Improve data management systems; f. Improve monitoring capability; g. Improve coordination and administration; h. Develop institutional and build capacity; i. Promote effective participation of women in decision making at all levels in institutions dealing with management of the environment. |
| Sustainable Environmental Management | <p>To protect essential environmental processes and functions;</p> <p>To promote sustainable development by minimising irreversible environmental damage, biodiversity loss, waste production and pollution.</p> | <ul style="list-style-type: none"> a. Formulation and implementation of appropriate gender sensitive policies, legal frameworks and plans in order to enhance environmental sustainability; b. Incorporation of provisions for strategic and environmental assessment, biological diversity impact assessment and management in all economic and development activities; c. Pollution; d. Maintenance of a representation of eco-systems for the benefit of current and future generations; e. Integration of international environmental conventions in national laws and local programmes; f. Environmental rehabilitation; g. Waste collection, transportation and disposal; h. Retention in the sector of charges for environmental offences and license fees. |
| Management of Environmental Information | To establish and support and effective institutional framework able to effectively manage environmental information. | Improved coordination and partnerships for environmental information management. |
| Public Participation and Awareness | To promote public participation and a sense of responsibility for the environment. | Use environmental education methodology to publicise vulnerability of the environment. |
| Gender and HIV and AIDS | To mainstream gender and HIV and AIDS in environmental concerns. | <ul style="list-style-type: none"> a. Promote gender and HIV and AIDS awareness; b. Mainstream gender and HIV and AIDS in wetlands management. |

3.3 New Urban and Regional Planning Act – environmental integration by going local, going spatial, and linking to thematic plans⁷

Provincial and district planning have yet to realise their potential for integrating environment and development. Decentralisation is one clear means by which the tasks of integration (or making trade-offs) between otherwise distinct sectoral issues can be made, usually with respect to a local spatial unit. Zambia's National Decentralisation Policy (2004) retains central government powers of general policy formulation, monitoring and implementation. But it devolves implementation, use of assets and monitoring to provincial level; and, further, management of natural resources, service delivery (including environmental services and water and sanitation), and disaster management to district level. However, the process of achieving decentralisation has been slow. Most funds, functions and public services are still delivered by the local offices of central government institutions – extending further the silos that have hindered an integrated approach at national level. Furthermore, most national policies predate the decentralisation policy and underplay the potentials of planning at district level and involvement of the private sector in service delivery.

However, the new Urban and Regional Planning Act (U&RPA) is promising. The Government is in the process of reviewing the country's outdated T&CPA and other related spatial legislation, in order to enact the new U&RPA. Unlike the T&CPA, the U&RPA's main objectives are to facilitate actions for improving people's lives – such as protection of the environment, poverty reduction, employment, satisfaction of basic needs like affordable housing, transport, provision of safe drinking water and sanitation, secure tenure, and promotion of investment.

The new Act's major tool is the IDP for Urban and Regional Areas, which has replaced Structure Plans. Unlike Structure Plans, IDPs will be used by the MFNP as components in the national budgetary and economic planning processes, thus linking physical and economic planning. Councils are mandated to prepare and approve IDPs in conjunction with relevant stakeholders, and will also factor IDPs into their plans and budgets.

The IDP will include various sector plans such as water and sewerage, housing, agricultural land use, transportation networks, energy networks, environmental management, wildlife management, commerce, industry, recreation, and heritage sites. In turn, these sector plans are expected to integrate relevant global environmental and other obligations. It is expected that this provision would attract local and international support and funding.

7. This section is by Maswabi Maimbolwa.

The new Law also provides for environmental protection through:

- Regional Plans for protecting natural habitats, forests, watershed areas, heritage sites (e.g. Victoria Falls), river basins (e.g. Kafue River Basin), National Parks and Game Management Areas
- EIA and SEA for incorporating environmental concerns into IDPs and investment programmes and projects
- Efficiency and waste minimisation through promotion of integrated public transport systems, new building standards, and promotion of clean technologies
- Securing land tenure in both urban and rural areas – an incentive to look after land which can also attract investment

As a departure from the T&CPA, the new Act provides for decentralisation of planning powers to local authorities and communities in order to involve them in the design and implementation of local programmes and projects which should take into account cultural, environmental and other local aspects.

With community involvement in local planning and implementation provided for by the proposed U&RPA, it is hoped that enforcement of planning decisions (currently a big problem in Zambia) will be facilitated by self-enforcement by local communities and other local stakeholders, provided the necessary local capacities are developed and funding is provided as proposed in the new planning law. Monitoring and gathering information on development, environmental trends and project impacts in local areas will also be facilitated by the involvement of local stakeholders.

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The new U&RPA also provides for the involvement of both the public and private sectors in designing and implementing IDPs, to ensure the delivery of much-needed services to the local communities – provided the necessary incentives are offered.

In conclusion, the proposed Urban and Regional Planning Act is a big improvement on the outdated T&CPA in terms of coverage and provisions. The mainstreaming of IDPs into MFNP and local authority planning and budgetary processes would provide opportunities for essential investments in both urban and rural areas. Thus the U&RPA offers great potential for mainstreaming the environment into Zambia's physical development – but it will take a lot of resources and capacity, and will not be effective unless MFNP allocates adequate funds to the relevant ministries and sectors.

3.4 Environmental units in sectoral institutions – examples from mines, roads and electricity⁸

Institutional reforms for integrating environmental management in sectors have been at the centre of environmental policy debates in Zambia. The main institutional responsibilities for ensuring implementation of the NCS and subsequent policies and strategies were vested in the Environmental Council of Zambia (ECZ) in 1992. A major debate was the powers the Council would need for it to be able to influence other organisations. One option at the time was an apex environmental institution under the Vice President's office, proponents arguing that this would be able to pass decrees requiring line ministries to address environmental issues, and to ensure compliance. In contrast, proponents of the current ECZ felt that a command-and-control approach had little place in a changing world where participation and partnerships were becoming the norm, and where environmental management has so many dimensions that cannot be handled by one group alone. Nonetheless, the more collaborative institutional arrangements for ECZ had its own challenges with regard to influencing other institutions. The question was how to get a wide range of very different line ministries to internalise environmental management, as opposed to being forced to take requirements from an external body.

This resulted in the 1994 National Environmental Action Plan recommending the establishment of environmental units within line ministries and institutions, with specialist skills suited to their different mandates. This section describes the cases of three institutions that have established environmental units, and how these have performed in integrating environmental management. These are the Ministry of Works and Supply (in the case of roads), Ministry of Mines and Minerals development, and the Zambia Electricity Supply Corporation (ZESCO).

The fact that environmental units have been established in three high-priority sectors of the country's economy – mines, roads and electricity – is itself a mainstreaming success. In general, other ministries' planning departments are tasked with handling all the mainstreaming issues including environment, gender and HIV/AIDS – and can give none of these adequate attention.

Road infrastructure and development: Zambia is a landlocked country with a relatively low population density and a high dependence on commodity exports. The road network therefore plays a critical role in development. But roads were neglected for many years: by 1991, about 80% of the road network had deteriorated, and Zambia had lost 15% of road assets (costed at US\$400 million) due to neglected maintenance. The country then embarked on a comprehensive road sector reform programme that has seen substantially increased expenditure on road construction and maintenance from a road fund levy on fuel, together with international aid and government funding.

8. This section is by Lubinda Aongola.

The Road Sector Investment Programme (ROADSIP) has been the flagship, with the current phase 2004-2013 investing US\$1.6 billion, of which 60% will be from local sources and 40% from external sources. The priority is to provide a framework for the sustainable management of roads in Zambia, improving the condition of the road network to at least 50% 'good' road categories and only 10% 'poor'.

Mining and development: Zambia is now the fourth largest producer of copper and holds 6% of the world's deposits (Media 4 Africa, 2007). Historically a mining country, and specialising in copper, Zambia's comparative advantage is likely to continue into the future with recent new discoveries of gold, diamonds, uranium, silver, gas and oil – as well as further copper. Although there have been attempts to diversify the national economy, copper still provides most of the foreign exchange and government revenue. Between 2002 and 2007, copper output doubled, and copper export earnings tripled (ibid, 2007). Formal employment in the mining sector recovered from an all-time low of about 35,000 in 2001 to over 49,000 in 2007, with investment by new private mine owners reaching US\$3 billion over the same period.

Electricity and development: The total installed generation capacity is 1,750 MW, of which 1,200 MW is currently available on the Zambian grid (GRZ, 2008). Peak demand in the country is about 1,450 MW, resulting in a deficit of 250 MW. The sub-sector is made up of four companies, of which ZESCO Ltd is by far the largest. ZESCO is a vertically integrated utility involved in generation, transmission, distribution and supply, with transmission and distribution networks throughout the country (ZESCO 2007).

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The sub-sector has experienced continued growth in electricity demand over the past five years, primarily driven by strong growth in mining, industrial and domestic demand. This has rapidly put pressure on existing generation capacity and pointed to the need to increase capacity. Major new investments, primarily in hydro-electricity, are under way through Indian and Chinese partnerships.

The institutional arrangements for environmental management vary between mines, roads and electricity sectors:

Roads – setting up a special Environmental Management Unit in the Road Development Agency: Until the NEAP (1994), there had been neither policy emphasis nor legal requirements for road authorities to submit EIAs. A few EIAs were prepared for a few roads, mainly as a result of the specific requirements of international funders. The Government subsequently formulated the Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations in 1997, requiring a project brief and environmental impact study for any new project, extension, or maintenance of an existing project (see section 3.6). ROADSIP set out to customise the EIA regulations to the needs of the road sector, and to propose specific mitigation measures, including the creation of environmental management capacity in the roads sector.

An environmental management committee was established, with private and public sector participation, to put together specific proposals for strengthening environmental management in the road sector. These included environmental standards and guidelines for use in all future road works, and staffing a specialist roads Environmental Management Unit (EMU).

The specialist roads EMU was, in large part, driven by external donor requirements, associated with the heavy foreign component of road funding. Currently under the Road Development Agency, the EMU is a well-established institution whose principal objective is to facilitate integration of environmental concerns into project formulation and implementation, so as to ensure sustainable environmental management in the road sector. It is responsible for:

- a. Facilitating the integration of environmental matters in the planning and implementation of road projects;
- b. Assisting key stakeholders/agencies in carrying out EIA checklists and monitoring implementation of environmental management plans;
- c. Promoting the involvement and cooperation of all relevant institutions;
- d. Preparing and revising technical standards/guidelines and regulations; and
- e. Training and awareness raising in environmental management.

Many more roads are being planned – a total of 20,419 km are proposed under ROADSIP II over five years – an increase of 400% of the total distance covered under ROADSIP I. This presents a potential burden for a staff level in the EMU of just four professionals (compared to three under ROADSIP I) with the resources to make only one monitoring trip per month for the entire country. 50% of the proposed roads are in the feeder and tourist category, passing through sensitive environments, suggesting that EIA is even more of an imperative. Yet some are worried that the reduced dependence on donors for funding roads may bring with it a reduced level of attention to EIA – an acid test as to how far environment has really been mainstreamed in the road sector. Some recent road works have been started without EIA being undertaken, e.g. the Mongu-Kalabo Road. Due to poor design, this road was washed away in floods in the Barotse plains. However, this case is also a positive one – the damage forced the Government to reconstruct the road, this time undertaking an EIA.

Mining – evolving a new environmental mainstreaming capability for the Mines Safety Department: The extent of the environmental liabilities and obligations incumbent on investors in the mining sector is determined by several laws (3.8). The EPPCA of 1990 requires that all effluents and emissions from mining operations are regulated through a system of permits, licenses and fines. Dumps, including overburden dumps and tailings dams, are similarly regulated. The EIA regulations of 1997 require that EIA be prepared for all investments that have a major impact on the environment, and must include the identification and implementation of adequate environmental mitigation measures. The new Mines and Minerals Act of 2008 and the Mines and Minerals Environmental Regulations of 1997 address the environmental, health and safety aspects of the mining

licences delivered by the Mines and Minerals Development Department. They also regulate environmental protection and pollution control in the areas where prospecting, exploration and mining operations are carried out. This legislation now requires any licensed mining operator closing down a mining facility to first decommission the site to a level where it does not pose any danger to public safety and health. A major driver of this is rapidly-emerging international sustainability legislation and best-practice standards in the sector.

The Mines Safety Department (MSD) within the Mines and Minerals Development Department is responsible for monitoring and enforcing compliance. But many other sectors are also involved: water affairs, tourism, transport, radiation protection, health, energy, national heritage conservation, local government and land. The respective sector authorities are responsible for their own sectoral regulations and constitute Delegated Authorising Agencies under the EPPCA. ECZ refers specific technical issues to these sectoral agencies, but retains the role of overall coordination of their respective contributions.

Thus the MSD is the Delegated Authorising Agency for issues arising from mining licences. With this wide range of legislation, close coordination between ECZ and Delegated Authorising Agencies regarding mining activities and procedures is therefore crucial (see Box 6). Realising that there was weak coordination between MSD and ECZ, the Government has implemented a number of programmes aimed at enhancing both the capacities of ECZ and MSD and their coordination. This began with the Environmental Management in the Mining Sector Project. Completed in 2001, it was followed by the Copperbelt Environmental Project (CEP), which has recently been extended to 2010 – strengthening the capacity of ECZ, MSD and delegated authorising agencies in reviewing EIAs, negotiating environmental management plans with private investors and ZCCM-IH, issuing licences, monitoring compliance with environmental standards in the implementation of environmental management plans, issuing pollution permits, and collecting fees and other charges. As a result, environmental aspects of mining are increasingly tightly controlled.

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Unlike the EMU in the road sector, MSD was not created specifically for integrating environmental management in the mining sector. It has a wider mandate and has been in existence for a long time – during most of which environmental management was barely considered to be an issue. The task at hand has been to re-orientate staff in MSD and to build their capacity for the added mandate of environmental management. The implementation of the various mining environmental regulations is now going well, despite the systemic challenge of achieving environmental compliance in a sector that has operated for almost a century without serious environmental management.

Electricity – establishing an Environment and Social Affairs Unit in the major company, ZESCO: As in the two cases above, the EPPCA and its EIA Regulations were the major driving forces towards establishing ZESCO's Environment and Social

Box 6. Environment framework in the mining sector

Key steps in establishing a mining project as laid down by the regulations:

- Preparation of a project brief to the Director of Mines Safety describing the site, proposed activities and all aspect of potential environmental impact.
- The Director may request more information or can forward the brief to ECZ recommending one of: rejection; acceptance after submission of a full Environmental Impact Statement; the project be accepted and be allowed to proceed immediately.
- Preparation of an Environmental Impact Statement and submission to the Director of Mines Safety.
- The Director of Mines Safety submits his recommendations to ECZ for a final decision.
- Environmental Impact Statements, if called for, to be updated annually or within fifteen months of the first statement.
- Environmental audits of project to be completed annually.
- If a developer finds the provisions of any regulation unduly onerous, he may apply to the Minister or Director of Mines Safety for an exemption from that regulation. The exemption may be granted under prescribed conditions.
- Developers of large-scale mining projects to contribute to the Environmental Management Fund for rehabilitation purposes.
- Once an Environmental Management Plan is made, ECZ and MSD conduct joint monitoring visits, with ECZ concentrating on pollution control and MSD on safety issues.

Source: www.zambianmining.com

Affairs Unit. A number of standard projects relating to the electricity sub-sector are listed as requiring either an environmental project brief or an EIA, e.g.: hydropower schemes; transmission and distribution line construction; projects affecting wetlands and natural forests; dams and barrages and flood control schemes; and diesel-powered generating plants. Furthermore, most power construction and rehabilitation schemes have significant external funding, and the foreign investors and donors invariably also require EIAs. Recognising its environmental responsibility, ZESCO established the Environment and Social Affairs Unit in 1996 with a wide mandate including (ZESCO 2008):

- Ensuring ZESCO operates in accordance with multiple environmental regulations;
- Developing environmental guidelines and environmental operational plans for ZESCO, and offering associated advice and training;
- Liaising with Government ministries and other institutions, and representing ZESCO on environmental and social issues in national and international fora;
- Developing baseline environmental and socio-economic databases for catchment areas where ZESCO operates;
- Conducting environmental impact assessments for ZESCO projects;
- Managing land acquisition, resettlement programmes and compensation related to implementation of ZESCO projects; and
- Conducting public awareness and consultation processes.

Since its inception, the Unit has undertaken nearly 30 EIAs and environmental project briefs. It has gone beyond carrying out EIAs and is now integrating environmental management in ZESCO's operating system. It has developed

ZESCO's Environmental Policy and Environmental Management System; carried out environmental awareness campaigns for ZESCO staff; conducted nation-wide inventory of transformers and sample testing of transformers for PCBs; prepared guidelines on handling of equipment and oil with PCBs; monitored construction of a PCBs Storage Facility; and trained Environmental Coordinators under the Environmental Management System.

Conclusion – the importance of sectoral responsibilities and capacity. Zambia's environmental management policy and legislation assume that sectors should increasingly take up their own environmental responsibilities. Rather than have them directly defined, circumscribed and controlled by an external authority, they are encouraged to set up their own capacities and to work alongside ECZ. Although EPPCA and EIA regulations have directly shaped initial sectoral responses to the environment, a more internalised yet collaborative approach is also emerging, especially in linking sector environmental units to ECZ. This is compatible with the spirit of the earlier NCS and NEAP. This stance has helped sectors to respond to other drivers of environmental management, and not only government – including market requirements, donor conditions, and internal drivers such as avoiding the costs of pollution.

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The three different types of liaison unit have each made considerable progress. Each case has its strengths and weaknesses. Some of the major gains worth noting include the promulgation of sectoral regulations in the mines sector to deepen environmental integration, the broad influence of the Environment and Social Affairs Unit in ZESCO that has moved from mere EIAs to charting the overall environmental policy and environmental management system of the organisation, and the transformation of EMU in the roads sector from a donor-funded project unit in the Roads Department to a permanent establishment in the Road Development Agency. Finally, the fact that ECZ has evolved collaborative relationships with each of them. These are some – but by no means all – of the key elements required for a sustained sectoral environmental management effort.

3.5 Environmental education – Zambia's 20+ years of investment⁹

Zambia has a long tradition of formal environmental education, with its roots in nature study. Informal and indigenous education in villages was, for many decades, wrapped up with practical and applied knowledge of the environment. From the 1970's, the Wildlife Clubs of Zambia were formative in asserting the importance of the environment as a national asset, in circumstances where many environmental traditions were beginning to be lost. Although they did not last many years, Wildlife Clubs were probably the first attempt to formalise a national conservation education programme in both Zambia and the region. Set up with support from the FAO Luangwa Valley Project and the Wildlife Conservation Society of Zambia,

9. This section is by Juliana Chileshe and Mwape Sichilongo.

the main strategy was to raise awareness about Zambia's wildlife resources through lectures and educational tours.¹⁰ The Wildlife Clubs built on two conservation school camps that had already been set up at Treetops in the Kafue National Park and Nyamaluma in the South Luangwa National Park.

It was in 1972, however – a year declared as a 'conservation year' in Zambia (and the year of the first United Nations Conference on the Human Environment in Stockholm) – that Zambia's environmental education movement was consolidated. In the landmark Chembe Declaration, the Wildlife Conservation Society of Zambia decided to find the resources and the partners to create a national conservation education programme. The Society sought the partnership of WWF and mining companies for sponsorship, and the Ministry of Education for scaling up – already seeing the opportunity for influencing the formal education infrastructure, and making use of a large network of teachers.

The 1985 National Conservation Strategy set out the need to establish a comprehensive national environmental education programme. In response to this, WWF International initiated the Zambia Environmental Education Programme, to incorporate environmental education in the school curriculum, working closely with the Curriculum Development Centre in training curriculum specialists and teachers as well as developing teaching materials. The Programme was far-sighted in promoting community environmental education, mobilising communities for the related (but institutionally separate) tasks of conservation and improving livelihoods. To build on these efforts, the 1994 NEAP provided funds for a programme on public information and environmental awareness under the Environmental Support Programme.

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In the last decade, environmental education has become firmly established in both the school curriculum and the informal and non-formal sectors. There is a heightened awareness of environmental issues among many people, all a result of over 30 years of investment and dedication. It is this kind of time-scale and consistency that must be resourced if we are to be successful in influencing behaviour. But consistency does not mean that environmental education has to stay still. Environmental degradation is still a major problem in Zambia. There is therefore a need for environmental education to respond to this crisis in such a way that its delivery is not *just* aimed at improving awareness.

Environmental education now needs to equip people with skills and alternatives to protect the environment while making a living from it. One of the major limitations of environmental education, despite the many years of investment, is its inadequate response to the combination of economic, social and environmental crises that make everyday life difficult today. Environmental education usually has limited impact on livelihoods especially on the poor and disadvantaged in the short term. While educational tours and well designed educational materials may

10. The Wildlife Conservation Society of Zambia, formed in 1953, was already committed to investing in education, to promote favourable attitudes towards wildlife and its surroundings among young people.

be appropriate for the school-going population, they may have little meaning for rural subsistence farmers. The cause of this may be poor links between policy analysts, policy-makers and environmental educators. The result is too little effort, too late – and out of date messages that do not target the contemporary causes of environmental problems, or their contemporary solutions, or the rights and resources of people to encourage them to act. In other words, talking about the environment and distributing materials can too easily become an end itself. There is a need to revisit key messages, applications and expected deliverables. Recent initiatives have addressed life-long skills, alternative livelihoods, conservation farming and CBNRM, pointing to the value of adapting environmental education to survival issues.

In itself, environmental education has been a fine example of environmental mainstreaming. While its roots may be in wildlife (and notably the so-called ‘charismatic mega fauna’), its identity over the past two decades has expanded. Many development projects and programmes provide for some environmental activities including awareness. While this is a good sign, these planned activities usually lack a coherent programme of implementation and their short-term interventions do not adequately address the full scope of critical issues. For example, some development and social welfare NGOs in Mumbwa District reported that they had planned activities in community participation in natural resource management – through tree planting, awareness workshops and resource monitoring – but did not have adequate time and skills to fully implement these activities. Tree planting and environmental management activities are not adequately linked to broader questions of resource rights, incentives for environmental management and equity. Thus, while local communities are encouraged to plant trees and adopt improved farming methods, natural vegetation remains under serious pressure from commercial charcoal-making.

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Environmental education *needs to be truly internalised in Zambia.* It has depended significantly on external resources and therefore has tenuous sustainability. Integrating it even more in ongoing programmes and strategies, and notably the national curriculum and farmer education as a cross cutting issue, is the principal way to ensure that the benefits of 30 years of investment in environmental education can continue to pay dividends for Zambia’s sustainable development.

3.6 Environment assessment in Zambia – from project-focused EIA to policy-shaping SEA and state of environment reporting¹¹

Zambia came relatively late to EIA. EIA is a project-level tool that assesses the impacts of a particular proposed development and addresses mitigation. It was first introduced in the USA in 1969. Almost all countries now have EIA systems in place. In practice, EIA is probably the best known environmental mainstreaming tool,

11. This section is by Barry Dalal-Clayton and Julius Daka.

and is often the only one backed by its own legislation and statutory institutions dedicated to coordinating its application.

Draft environmental legislation was proposed by NCS in 1985, which led to the Environmental Protection and Pollution Control Act (EPPCA) in 1990, under which regulations for EIA were formulated only in 1997. The 1994 National Environmental Action Plan provided an impetus, as one of its fundamental principles was the obligatory EIA of major development projects in all sectors (GRZ 1994). EIA regulations for Zambia tend to be compatible with international requirements: they are based on international standards, and were prepared by a renowned international EIA consultant.

EIA regulations set out requirements and procedures for developing and reviewing EIAs and environmental project briefs¹², council decisions, access to impact statements and information, and audits. They describe penalties, categories of projects that require an environmental project brief and EIA, and issues to be considered; they provide guidelines for developers; and they list ECZ service fees. ECZ has prepared guidelines for various sectors (for reviewing EIA and to help developers and consultants undertaking EIAs), e.g. for energy, fisheries, forestry, social impact assessment and tourism, and mining. Other authorities have also prepared sectoral EIA guidelines: the Zambia Wildlife Authority for protected areas, the National Heritage Conservation Commission for development near heritage sites, and the Ministry of Mines and Mineral Development for mining (3.4).

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EIA performance is improving, but there remain political, resource and follow-up problems. A review of EIA systems in Southern African Development Community countries in 2003 noted that EIA in Zambia remained in its infancy and EIAs were not followed up well (Chapman and Walmsely 2003). A more recent review of EIA experience in Zambia was commissioned by ECZ in 2008, involving interviews with key ECZ staff, developers, consultants, financing and supporting institutions (Ngwenyama 2008). Not surprisingly, the majority of full EIAs undertaken since 1997 have been in provinces along the line of rail (the most developed areas of the country): Copperbelt (39%), Lusaka (27%), Southern (19%) and Central (9%). The majority (34%) have been in the mining sector, followed by real estate (18%), energy (10%) and heavy industry (9%), agriculture (7%) and water (7%).

The 2008 review identified progress. It concluded that the EPPCA and EIA have led to positive environmental management practices across all sectors, although there continue to be incidents of water and air pollution, illegal dumping and disposal of waste. Other improvements include higher operating standards and more stringent mitigation requirements, and increased community awareness of environmental rights and demand for higher environmental quality. EIA is now generally well established and becoming part of the standard operating system for business and

11. *Environmental Project Brief*: a report prepared by the developer including preliminary predictions of a project's potential impacts on the environment, as well as recommended mitigation measures to minimise negative impacts as appropriate. It represents the first stage of the EIA process, and is submitted to ECZ for review.

developers. Information on EIA and environmental project brief processes is readily available, electronically as well as through ECZ national and regional offices.

The review also found a number of continuing problems in the EIA system. The quality of EIA reports remains low. Baseline information and data on key processes and potential impacts is poor or often missing. EIA has become routinely – but not always judiciously – applied: often a checklist of required topics is treated as being sufficient. There is a lack of genuine political will to address environmental issues with problems concerning the process of ECZ Council decisions and appeals – weak transparency about what happens between the submission of an EIA and a decision on a development application. There is no clear timeline for making decisions, which increases costs to developers. The speed of reaching a decision on an EIA or environmental project brief seems to be governed mainly by the magnitude of the investment and/or the spatial extent of project. The costs of undertaking an EIA and preparing an environmental project brief are seen as prohibitive by the proposer. ECZ suffers from inadequate resourcing to fulfill its mandate, requiring proposers to pay fees. It has insufficient staff to adequately pursue compliance monitoring, auditing and enforcement.

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Experiments with SEA have shown how to integrate environment and development at policy level. SEA is different to EIA. Where EIA is a project-level tool, SEA is undertaken upstream to address policies, plans and programmes, and to work through a broad range of alternatives for them. It aims to set objectives and prevent problems in advance of development (rather than mitigate impacts afterwards), and considers the cumulative effects of multiple activities. In this way it can streamline and guide subsequent EIAs of individual development activities in the same policy area e.g. covering generic impacts of new mines or biofuel crops, eliminating unnecessary work and reducing costs.

There is no specific provision for SEA in the regulations although EPPCA states that *'the [Environment] Council shall identify projects or types of projects, plans and **policies** [our emphasis] for which environmental impact assessments are necessary and undertake or request others to undertake such assessments for consideration by the Council.'*¹² Under the law, this provision can only be effected by establishing regulatory guidelines to implement it. The absence of these means that SEA is not yet formally enforced as an approach to assessing policies and the mode of operation is still little understood. But there is some experience to build on.

Several other SEA-like processes have been conducted in the tourism sector. An early experiment in undertaking an SEA in Zambia was linked to an application for the Victoria Falls to be designated a UN World Heritage Site (Box 7). Other examples include management plans for Lower Zambezi National Park, Kafue National Park, South and North Luangwa National Parks. These park management plans:

12. EPPCA Section 6, sub-section j.

- aimed to ensure efficiency in the management of wildlife resources and development and management of tourism enterprises;
- included environmental assessments combining aspects of land use planning and project-specific environmental assessments;
- identified various land-use zones as a basis for park planning; and
- set out goals (visions) with time frames.

A more recent initiative that approximates to an SEA is the Copperbelt Environmental Assessment. It was prepared for ZCCM-IH in February 2002 as part of an assessment of CEP. The overall objective of CEP is to address the historical environmental and social liabilities arising from past copper mining operations in Zambia and to strengthen the environmental regulatory framework. CEP was signaled under World Bank guidelines as requiring a full environmental assessment to be completed and disclosed. The assessment identified potential impacts but did not quantify them (e.g. the footprint of a tailing dam failure and the downstream impacts on numbers of people and property are not determined). It anticipates that the detailed impacts will be addressed during the preparation of individual or consolidated environmental management plans.

Box 7. SEA of Victoria Falls

The Victoria Falls area was designated a UN World Heritage Site in 1989. In response to this, and to deal with the cumulative impacts of expanding tourism in the area, an SEA was commissioned by the Governments of Zambia and Zimbabwe. Financed by The Canadian International Development Agency (CIDA), technical assistance was provided by IUCN's Regional Office for Southern Africa (IUCN-ROSA). The SEA provided information to develop a master plan for the Victoria Falls area, and to prepare an outline management plan with policies, management measures, zoning, monitoring and institutional arrangements.

The study team involved 20 experts from both countries. A comprehensive public consultation programme was organised, involving opinion surveys, workshops, open houses and media publicity. 150 stakeholders were involved in reviewing and commenting on the draft SEA and its recommendations.

The SEA focused on a 30 km radius of the Falls and looked at a ten year time horizon. Using a scenario approach, the SEA attempted to forecast the environmental impacts (particularly cumulative impacts) from four different levels of growth in tourism (low growth to super growth). For each scenario, the methodology involved estimating adverse and beneficial impacts, calculating carrying capacities and limits to use, developing problem trees to show linkages between issues and concerns, charting cumulative effects, and estimating the potential loss in tourism revenue. The SEA suggested that the sustainable limits to tourism lie between the low and medium growth scenarios, i.e. 500,000 – 800,000 tourists per year. (IUCN-ROSA 1996)

More recently, donors have funded SEAs in Zambia to ensure their planning complies with agreements to use SEA under the OECD Paris Declaration on Aid Effectiveness, and therefore build country safeguard systems rather than simply exercising donors' own safeguards. For example, in 2008, the Danish International Development Agency funded an SEA in relation to road development in Western Province, whilst the European Union has commissioned SEAs for its sectoral support to agriculture and sugar (for biofuel) as well as roads.

The private sector is also starting to use SEA as a mainstreaming and planning approach. In 2007, Biomax Zambia Ltd commissioned an SEA-like assessment for oil palm development (for both biodiesel and edible oil) – see Box 8.

Box 8. SEA for oil palm development, Nchelenge District, Luapula Province

SEA in this case aimed to integrate investment objectives with sound environmental management to ensure compatibility, regulatory compliance and project sustainability, and thus support strategic investment decisions and satisfy potential financing partners. The process involved four steps: scoping, fieldwork, analysis and reporting. The main analytical tools used were land classification, multi-purpose planning overlay assessment, and elementary cost/benefit analysis. Data was limited and was drawn from government and other archive sources, plus a reconnaissance field survey (for water, soils, and ecology). Due to time constraints there was limited stakeholder participation.

The SEA confirmed synergies between the oil palm initiative and several objectives of the FNDP – wealth creation/poverty reduction, promoting employment, irrigated agriculture, decentralisation, and biofuels development. It identified interest in the initiative proceeding at the district and community level. The principal impacts and possible mitigation options were identified, which informed the business plan. The SEA also provided a preliminary evaluation of socio-economic and cultural issues. This information was used to frame downstream socio-economic and EIA studies and the design of an environmental management plan. These future studies will need to address various short- and long-term issues, including the cumulative environmental impacts of more growers and plantations – especially effluents.

This SEA helped to optimise the location of oil palm development, the selection of agronomic processes, the strategy to address externalities, and the integration of infrastructure – as well as identifying socio-economic implications for the province. (Pope 2008)

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In conclusion, formal EIA procedures have been in place for only a decade. The system is still maturing and continues to face some institutional, quality and attitudinal problems which ECZ itself recognises. For example, in its Strategic and Business Plan 2007-11, ECZ politely describes the challenges facing EIA and SEA: ‘Politicians are at times wary of lengthy environmental regulatory procedures... and environmental protection is viewed as a ‘threat’ to development... and EIA fees are also perceived as too high.’ The opportunity needs to be grasped to present environmental regulatory procedures more positively. In contrast to EIAs, SEAs undertaken around the world have helped to identify ways of realising *positive* environmental potentials to promote economic growth and to reduce poverty. Although there have been a few past experiments with SEA in Zambia, it is only very recently that this upstream approach has been recognised as a critical tool (including by MFNP) to support more effective policy-making, planning and investment. It is now very timely to invest in awareness raising about the role, value and methods of SEA and in capacity building.

Box 9. State of environment reporting as a tool for planning sustainable development at national and district levels

Achieving sustainable development in Zambia requires access to data and information so that those involved in decision making can reach the level of knowledge and understanding needed for successful programme planning and service delivery. State of environment reporting (SOE) is one possible and effective tool for producing such data and information.

Beginnings: For this reason, the country adopted an SOE reporting process, which has evolved over time to become Integrated Environmental Assessment (IEA) and reporting. The process helps to produce and communicate policy-relevant information on key interactions between the natural environment and society. The interactions between society and the environment are categorised as: the pressures people put on the environment; the resulting state or condition of the environment; and the response of society to environmental conditions. The following five basic questions are answered in the process:

- What is happening to the environment and why (state and pressure)?
- What is the consequence for the environment and humanity (impact)?
- What is being done about it and how effective is it (response)?
- What could be alternative futures of environmentally sustainable – or unsustainable – development (scenarios)?
- What alternative action could be taken (options for action)?

In view of the multi-sectoral nature of the environment, the assessment and reporting process requires bringing together information and insight that usually lie scattered across a variety of disciplines and organisations. The process is participatory, builds consensus, and engenders a sense of ownership among all stakeholders at various levels. The cooperation and collaboration of stakeholder ministries, parastatal organisations, private sector, NGOs, academia, sub-regional and international partners is, therefore, important to ensure a credible and transparent programme. ECZ provides leadership in prescribing the SOE reporting mechanism, environmental data collection, management and analysis. ECZ began playing this role soon after the institution was created – driven by the need to develop a data bank for the nation. Since that time, ECZ has developed an information management unit with GIS and remote sensing capabilities.

Methodology: Over the years, the ECZ has developed a generic methodology for SOE reporting that can be used at national, district as well as ecosystem and other levels of reporting. The methodology involves:

- Identification and composition of technical working groups;
- Identification of environmental issues and themes;
- Development of indicators and identification of information sources;
- Data collection and analysis;
- Development of scenarios and determination of policy options;
- Preparation of the report; and
- Dissemination of report.

ECZ has used the methodology for the national SOE report that is currently under production, as well as helping three districts namely Chipata, Livingstone and Solwezi and Lusaka City to produce their own SOE reports.

Engaging councils: To ensure ownership of the SOE process by district authorities, ECZ gave this responsibility to the district councils and provided guidance to the councils for producing district SOE reports. The process also helped ECZ to engage district councils in matters of environmental management and provided an avenue for collection of district information in meaningful detail. ECZ has also produced guidelines and manuals that can be used for training of other councils to prepare their own SOE reports.

Benefits: The national SOE report provides in-depth, up-to-date research on the state of the environment of the country. The report is useful for research, education, and creation of awareness on environment.

Through the process, district councils have been able to identify and prioritise environmental issues that they were required to address in line with their key economic activities. Through scenario development and policy analysis, the process provides an avenue to prescribe appropriate policies for achieving sustainable development.

SOE reports can be used as a planning tool. For example, MLGH used the Solwezi district report as a basis for developing an IDP for the district. There is growing interest among cooperating (donor) partners to use the process as an entry for identifying and supporting development projects in districts. In addition, district level SOEs can be used as pools of information for producing SEAs and vice versa.

We conclude this section with five stories from a sectoral perspective: wildlife, forestry, mining, chemicals and water:

3.7 Wildlife – major programmes in the Luangwa Valley producing real benefits for wildlife and people¹⁴

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*LIRD*P was one of southern Africa's pioneering community-based wildlife management initiatives. Now called the South Luangwa Area Management Unit (SLAMU), LIRD was one of the main outcomes of the seminal Lupande Development Workshop held at Nyamaluma in the Luangwa Valley in 1983. Workshop participants included stakeholders from Government, NGOs, donors and traditional authorities. They agreed a strong case for community participation in wildlife management as a deliberate strategy for resource management.

Funded mainly by the Norwegian Agency for Development Cooperation (NORAD), LIRD was arguably the first operational, and remains the longest running (now 23 years), official, donor-funded community wildlife management project in the world. Along with the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) in Zimbabwe, LIRD has been a pioneering initiative that has laid the ground and provided a stimulus for many subsequent community wildlife management projects elsewhere in Africa. The project, of necessity, has been experimental in nature and has evolved significantly over the past two decades through several phases (see Box 10).

LIRD articulated a participatory ecosystem approach that was ahead of its time, and advocated an integrated multi-sector economic model. In its initial stages, LIRD focused on the South Luangwa National Park and adjacent Lupande Game Management Area. Two particular issues emerged which excited much policy debate. The first was the official admission that the high level of commercial

14. This section is by Mwape Sichilongo and Barry Dalal-Clayton.

poaching during the late 1970s to the mid 1980s (which had severely depleted the elephant population in the Luangwa Valley and led to the local extinction of Black Rhinos) could not be addressed without local community support. The second issue was that such community involvement in resource management would need to deliver tangible incentives to local communities for it to succeed.

The philosophies of both LIRD, as well as the Administrative Management Design for Game Management (ADMADE),¹⁵ were premised on the beneficial involvement of local communities as key stakeholders. Based on the experiences of LIRD and ADMADE, the Wildlife Act (1998) created ZAWA as a semi-autonomous institution. This Act and new National Parks and Wildlife Policy (also 1998) formally recognised communities in wildlife areas as co-managers and made provisions for co-management.

Box 10. Summary of LIRD phases

- *Phase 1 (1986 – 1987)*: establishment of LIRD organisational structure and definition of activities, inputs and work programs.
- *Phase 2 (1987 – 1992)*: investment and development – five year agreement between NORAD and Zambian government, to implement all necessary programs and to attempt to attain sustainability. Annual budget: c. US\$2.5 million.
- *Bridging phase (1993-94)*
- *Phase 3 (1995-98)*: restructuring and focus on wildlife management as a core function, with reduction in NORAD's annual contribution to about US\$1 million annually.
- *Phase 4 (1999 – 2000)*: LIRD became the South Luangwa Area Management Unit (SLAMU) in preparation for the proposed transformation of the Department of National Parks and Wildlife Service to the Zambia Wildlife Authority (ZAWA). The following changes were introduced during this phase:
 - Formation of a commercial section;
 - Streamlining the organisation and reducing staff to increase efficiency;
 - Decentralising management; and
 - Investing in equipment and infrastructure (e.g. roads) to stimulate tourism.
- *Phase 5 (2006-2009)*: The final phase of direct Norwegian support. 52% of the budget is dedicated to infrastructure development, intended to continue to improve sustainability through tourism development. Total budget for this phase is c. US\$15 million. (Dalal-Clayton and Child, 2003)

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A key question is how far these 23 years of work have secured the integrity of Luangwa's ecosystems and contributed to national and local economies and wellbeing. It is easy to point out the specific problems that this initiative has faced such as the failure of land use planning, the challenges of engaging communities and other stakeholders, the ineffectiveness of mechanisms for distributing benefits,

15. A further outcome of the Lupande Development Workshop was the separate establishment of the ADMADE programme. This was implemented in other Game Management Areas by the National Parks and Wildlife Service (NPWS).

the inefficiencies of approaches by the early phases of LIRDP 'to do everything under the sun' as well as the institutional implications of government and political restructuring.

The Zambia-Norway government-to-government cooperation has assured long-term financing, which provided an enabling and stable management context for resource protection and tourism development. It has created a good relationship between the protected area authorities, stakeholders and the population in the surrounding area. Poaching has dramatically reduced, such that most animal populations are now either stable or increasing. Tourism facilities and incomes have improved – in 2007 reaching almost US\$2 million and making the South Luangwa National Park self-sustaining in terms of recurrent costs. Phase 5 of the cooperation has concentrated on infrastructure investment while the park has more or less met its own running costs. All of this needs to be judged (positively) in the context of the elusive financial sustainability of tourism development and infrastructure in protected areas in developing countries.

Local communities have benefited from jobs and business opportunities that have emerged from the improved resource management and tourism investment. The community share of income is administered through Community Resource Boards (CRB) that have been created under wildlife legislation to provide a platform for community participation in wildlife management. These CRBs are responsible for recruiting village scouts to patrol their areas, monitor wildlife and hunting as well as mobilising local support for conservation. The income accruing to communities is used to employ the village scouts, support community development projects and run the community institutions. However, in common with most community structures for resource management, CRBs have organisational problems in terms of financial accountability and transparency, equitable distribution of benefits and representing community interests. Nevertheless, they are important local partners that participate in sustainable use and management of natural resources in their localities. There has also been direct sharing of income from trophy hunting with local communities, which is now reflected in the enabling legal and policy framework for wildlife management in Zambia. This model is now being adopted in the management of other natural resources, notably forestry and fisheries.

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There is much debate about the effectiveness of community participation in natural resource management and the impact of benefits at household level. It is clear that the availability of benefits and involvement of communities in decision-making has improved relations between the different stakeholders and certainly contributed to the creation of an enabling environment for improved resource management. Where communities have been adequately recognised and empowered through the right mixture of responsibilities and incentives, the results have been positive for conservation as well as livelihoods.

However, this success has resulted in the local human population increasing significantly, as people migrate in from other areas, attracted by successful tourism.

This explosion in the local human population – and the associated increasing human-wildlife conflict – has been officially recognised as a threat to the ecological integrity of the area and underlines the importance of good land use planning (currently lacking in the area).

In conclusion, the principal LIRD/ISLAMU (and ADM/ADRE or generic CBNRM) case for environmental mainstreaming is that wildlife management, once seen as an end in itself, can evolve into an integrated approach that harmonises local needs with conservation objectives. For many remote rural areas, CBNRM can now be challenged with the task of contributing to the mainstream development objectives of reducing poverty and promoting sustainable livelihoods while reducing environmental threats. The principles of CBNRM are proven enough to be adopted and supported in mainstream national and local development plans and investments, but require further refinement to better save the needs and aspirations of specific local communities.

3.8 Forestry – new thinking on rural forest businesses in support of sustainable forest management¹⁶

Addressing Zambia's under-valued forest resources: Two principal difficulties constrain poor people's sustainable use of natural resources in Zambia, as in many other developing countries: the under-valuation of resources; and inadequate legal access to resources by those living in close proximity to them.

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The undervaluation problem short-circuits most natural resource value chains, moving most of the principal benefits up the chain to processors and manufacturers and (very frequently) to foreign importers. This has a triple impact: firstly, it minimises the retention and addition of value at the local level; secondly, it diminishes the intrinsic value accorded to natural resources by local communities; and thirdly it gradually erodes the customary norms that make for good resource stewardship.

The legal access difficulty results from two issues: very limited official delegation of management responsibilities for natural resources to district and community institutions; and inadequate support to establishing and helping business entities in rural areas to participate in sustainable natural resource development.

Constraints to equitable and sustainable use of forest resources: In 2004 all these difficulties confronted the development of a business plan for a proposed semi-autonomous Forestry Commission for Zambia – a new institution that was being designed by a European Development Fund-supported project. A significant improvement in forestry sector value addition was required to make this proposed institution financially viable. It was apparent that the only way to achieve this was to domesticate, diversify and strengthen the forest products value chain.

16. This section is by Adam Pope.

Increasing the value of timber and non-timber forest products is in part a function of information flows. Historically, rural populations have had very weak access to demand information, such as to current market prices for forest products. This problem is now beginning to be reduced by the exponential growth in Information Communication Technologies (ICTs), particularly through cell phone coverage and associated services. But a fundamental market problem still remains.

The forestry sector is poorly regulated in Zambia, as in many other developing countries, and establishing realistic current market prices for standard products is inherently problematic. In a sector where there are often few standards or specifications, it is complex, even for the same timber species, to compare prices for wood that might be in round logs, cants or various qualities of rough-planked timber. Finding workable mechanisms for establishing and stabilising market prices (particularly in rural areas) is crucial.

Possible solutions and points of leverage: It became apparent that to improve this situation needs at least five essential inputs:

- Some generally accepted specifications and standards for commonly traded forest products;
- Some form of legal entity for community-based forest businesses;
- A functional regulation system capable of controlling informal and illegal movements of forest products;
- A realistic, sustainable resource inventory and management plan; and
- An honest broker capable of encouraging the realisation of market prices in rural areas.

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The concept established by the project was based on developing these five pre-requisites, recognising that these could also build on some areas of leverage.

As forest products become scarcer, or market conditions create scarcity, the value-determining power of the primary supplier strengthens. Other factors being equal, this should reinforce the establishment of producer entities – provided government is committed to its policy of decentralised management of natural resources.¹⁷

A possible model for developing Zambia's forest resources: The model for sustainable forest product management and utilisation developed by the project was structured around the creation of legal contracts between the Forestry Department and business entities: limited companies, societies, cooperatives, trusts and the like. By virtue of their registration, these entities can hire and fire staff, sue and be sued, and are required to maintain books of accounts. The concept is targeted at five objectives:

17. This is not a foregone conclusion, and in fact government agencies in most developing countries resist the decentralisation of regulatory controls.



Photo: John Fynn

Canted Rosewood (*Guibourtia*) in Western Province

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- Raising the notional value of forest resources;
- Increasing sustained, rural forest-product-based incomes;
- Strengthening and deepening the forest products value chain;
- Using participatory benefits to encouraging greater compliance with the forest regulations; and
- Creating measurable steps towards sustainable forest management.

The Forestry Department and the rural forest enterprise would share responsibilities in the following manner.

The Forestry Department would retain the responsibility for, *inter alia*:

- Developing a form of contract for the management and utilisation of an area of forest (this responsibility may be shared with a District Council);
- Having a level of comfort that the business entity, its office holders and employees are legitimate and viable and the Forestry Department could do business with them;
- Having a similar level of comfort that the forest area planned for development had sufficient resources to sustain their development (involving a formal resource assessment and management plan);

- Allocating targets and quotas for the management of the forest area and for the periodic extraction of forest products;
- Agreeing a time frame for the contract and any attendant contractual requirements;
- Ensuring that the entity's business plan was sensible, viable and sustainable
- Developing and signing the contract with the entity and its shareholders or members through a transparent negotiation process;
- Thereafter, monitoring the implementation of the contract, business/management plan and quotas to ensure compliance;
- Supporting the sale of forest products from the entity by way of contractually required periodic auctions or sale agreements with interested third parties;
- Capturing any regulatory fees due from the forest products at the point of sale (thus ensuring the collection of these fees); and
- Ensuring that the buying parties are also legitimate, are licensed, and comply with regulations for the purchase, transport, and/or on-sale of forest products.

The rural forest enterprise would be responsible for:

- Developing its own membership/shareholding and governance mechanisms (with a binding requirement that a majority of employees and an agreed number of office holders would be from the local area);
- Supporting and confirming the resource assessment;
- Negotiating with the Forestry Department the targets and quotas established for the forest area to be managed;
- Developing forest management and business plans based on the available resources/agreed quotas and best practice;
- Negotiating, signing and implementing the contract;
- Maintaining a contract reporting relationship with the Forestry Department; and
- Satisfying itself to the level possible that its buyers were legitimate (examination of processing licenses, tax certificates, etc.).

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What could go wrong? The principal weakness in this model is that it requires improvements in the institutional status quo on several fronts in order to be viable – and presently the Forestry Department is neither a strong, nor a notably progressive institution. For example, it is only very slowly permitting participatory (joint) forest management (in pilot areas), although the principle has been in the Forest Policy, since the late 1990s. Although the approach on which the model is based requires no special legislation (as it is a simple contract between two legal entities), achieving sensible progress in decentralised forest management contracts of this type will be a major challenge to the Department.

Another difficulty is the generally low level of regulatory compliance; so ensuring adherence to the regulations that are a prerequisite to strengthening the value chain may be an unrealistic expectation. Because of the short-term benefits to pit sawyers, transporters and processors/exports from the largely *laissez faire* status

quo, a well designed information campaign and significant effort on the ground will be needed to broker the transition to the new approach.

Financing new enterprises, especially rural and community-based businesses, is still acknowledged as one of the biggest constraints to economic development and diversification in Zambia (World Bank / IFC 2007). The position is slowly improving, due to increasing interest from both the banking and micro-finance sectors, but it will remain a constraint for some time. Fortunately, rural forest enterprises based at the community level can contribute a high level of non-financial equity to businesses of this kind. But even this approach is not easy – ensuring sustained cooperation and benefit sharing in small rural enterprises is not without its problems and will require a high level of technical support and oversight.

A possible variant of this model involves joint ventures and outgrower methodologies (see Mayers and Vermeulen 2002). This implicitly requires a high level of honest brokerage to ensure that the best interests of both the (urban) business and the rural enterprise are optimised and maintained.

Conclusions: environmental integration in forestry: The forest project that developed this model was very mindful of the many pitfalls to success – poor administrative and regulatory systems, limited rural capacities, and vested interests being a few of the more obvious ones. However the project believes that continuing to squander one of Zambia's regionally important natural resource advantages – its forests – would be grossly irresponsible. Therefore, higher-risk Government strategies and initiatives may be warranted to reverse the current position, if only on the basis of significant foregone opportunities arising from a do nothing approach. The operational establishment of a Zambia Forestry Commission is still awaited, but building a forest products value chain from its rural origins could be commenced immediately.

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Enhancing the forestry sector responds directly to many Government objectives, among them important focal areas of the Fifth National Development Plan: decentralisation, improved rural livelihoods, economic diversification and climate change mitigation through controlling deforestation. As in many environmental issues the missing ingredient is commitment to making the change – a challenge to develop clearer arguments, to improve information dissemination and to lobby more effectively on behalf of integrated approaches to environment and development.

3.9 Mining – working with health, education and business actors to tackle the hazardous legacy of defunct Kabwe lead mines¹⁸

Whilst environmental mainstreaming is often about basing future development on the potentials and limits of environmental assets, it is also about handling environmental hazards. For Zambia, mining and mineral processing presents not only environmental pollution hazards from current production, but also a huge legacy of cumulative air and water pollution, waste and land dereliction from the many years over which Zambia has been an internationally significant mining country.

Kabwe Mine was Southern Africa's largest producer of lead and zinc for almost a century prior to its closure in June 1994, leaving a critical legacy of environmental impacts. The most disturbing is the human ill-health arising from environmental lead contamination. The Kabwe Scoping and Design Study (KSDS) aims to address this. It is an integral component of CEP, a multilaterally funded program initiated in 2001 by the Government assisted by the World Bank and Nordic Development Fund. The umbrella CEP addresses the environmental liabilities retained by ZCCM-IH following Kabwe mine's closure and privatization of Zambia's state owned mining interests in 2000.

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Three main objectives governed the KSDS, each addressed by a discrete phase:

- Phase 1: Determination of the extent and magnitude of contamination by lead and other mining-derived toxins in the Kabwe environment.
- Phase 2: Characterization of the sources and pathways of lead exposure through a Conceptual Site Model and risk assessment.
- Phase 3: Formulating a robust site rehabilitation and risk mitigation plan that complies with ZCCM-IH legal commitments regarding its environmental liabilities, and that effectively reduces human health risks.

It was important to identify the precise poverty-environment links in relation to both location and people's behaviour. Surveys were undertaken to define spatial trends of contamination by lead and other metals/metalloids in Kabwe's soils, mine waste deposits, surface water, ground water, domestic and market crops, and atmospheric particulates. Subsequent risk analysis revealed how significant the different environmental media were as sources of lead exposure for about 50,000 residents in and around Kabwe. Blood lead levels were monitored to identify levels of human exposure to lead across Kabwe, and ultimately to relate these to patterns of environmental lead contamination recorded in soils and other media.

A survey of knowledge, attitudes, beliefs and perceptions (KABP) was undertaken and the results applied to characterise each community against a range of potential influences on lead exposure. These include: house type, source of staple food, source and availability of water, incidence of pica/geophagia (eating

18. This section is by Joseph Makumba.



Photo: Joseph Makumba / CEP

A continuous supply of water is key for improving health and hygiene among residents in Kabwe townships

of soil by pregnant women), education level, and children’s play activities and routines. The people-focused approach continued with the formulation of a local project committee led by Kabwe residents to oversee implementation of the various activities under the project, and establishing four environmental information centres in heavily populated and contaminated areas for information dissemination to residents.

The subsequent Conceptual Site Model of human lead exposure demonstrated that the poorest people are the most vulnerable to lead poisoning. It developed an understanding of the relative importance of many environmental, social and lifestyle factors which control human lead exposure. Such understanding was considered a fundamental pre-requisite for a targeted and cost-effective risk mitigation strategy.

The generic Conceptual Site Model for Kabwe includes a number of source-pathway-receptor linkages which potentially influence blood lead levels across Kabwe, which are not fully characterised or defined by the multi-media datasets. Follow-up studies are being undertaken to address data gaps in: building materials, house dust, geophagia of soil, and soil lead bioaccessibility.



Photo: Joseph Makumba / CEP

Bare surroundings increase the risk of lead exposure among children – the Copperbelt Environment Project promotes grass planting of play areas and other surroundings

The main outcomes from the KSDS to date have included:

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- Land use map and zoning plans, prepared through participatory processes, for Kabwe Municipal Council;
- Bylaws developed by Kabwe Municipal Council to control settlements, selling of soil at markets, making bricks for house construction from contaminated materials, and using processing plant effluent for irrigating crops etc;
- School curriculum integrating lead education up to grade 12 being developed by the Ministry of Education; and
- Blood lead level monitoring and management being integrated into Ministry of Health routine operations.

Several constraints to more progress remain – notably the availability of affordable water to enable the washing of food to reduce lead contamination. Water is needed since much of the lead is carried on dust. In addition, the full understanding and cooperation of the Kabwe Municipal Council is needed in e.g. siting new housing; and changing the way that the Ministry of Health monitors health problems.

This case illustrates that environmental mainstreaming is not only about rehabilitating land and water as a far-off ideal, but is also handling a range of people's everyday needs. In this case, KSDS mainstreamed critical environmental hazard management in health, in education, and in commerce. At a local level the KSDS has been as much about people as about the environment. We suspect that its focus on specific real problems, in real places, facing real people, can be a better incentive for actual mainstreaming than a more general exhortation to include the environment in all aspects of development.

3.10 Chemicals – streamlining the chemicals trade in ways that also reduce the cost of doing business and ensure environmental sustainability¹⁹

Zambia has been criticised for high transaction costs limiting trade and investment, and for allowing the uncontrolled import of dangerous chemicals and waste; in addition, until recently, the role of ECZ in controlling the chemical trade has itself been identified as a barrier to trade (World Bank 2008). A high-profile cross-government activity with a prominent role for ECZ has helped to make real progress in both of these areas together – a good example of environmental mainstreaming.

The National Governance Baseline Survey of 2004 revealed that corruption was common in Zambia – between 30 and 40% of managers and users were offered (or asked for) bribes or other forms of petty corruption. The 2006 Corruption Perception Index of Transparency International, ranked Zambia at 111th out of 163 countries. Responding to such problems, several government institutions, led by MFNP, participated in Zambia's Threshold Country Plan (TCP), aiming to spur economic reform and mitigate the effects of administrative corruption. A high-profile, 24-month programme supported by USAID/Zambia, the TCP had two main components:

(1) 'ruling justly – tackling administrative corruption'; and (2) 'economic freedom – reducing barriers to trade and investment'. One activity under TCP component 2, 'increasing the efficiency of border management', has helped to tackle both trade barrier problems and the control of chemicals, with ECZ's essential involvement.

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ECZ enforces several regulations under EPPCA, in particular the Pesticides and Toxic Substances Regulations, the Ozone Depleting Substances Regulations, and the Hazardous Waste Management Regulations. These apply to entry to (and exit from) Zambia of all pesticides, toxic substances and hazardous wastes. Implementing these regulations is not easy when there are many other agencies involved in cross-border trade, e.g. fifteen at the Chirundu land border; and when few of these agencies understand the importance of environmental issues such as the need to control chemicals movement.

During 2007, several border agencies formed a Border Management Task Force, in which ECZ was actively represented. The Task Force agreed that 22 separate agency border processes would be peer reviewed, including the ECZ's process of clearing pesticides and toxic substances at Chirundu and issuing licenses. The review revealed that Customs and other border procedures are still untransparent and inefficient in their operations. This was attributed to bureaucratic trade procedures, lengthy inspection and certification processes, poor or non-existent border IT infrastructure, inadequate techniques, lack of skilled manpower, and opportunities for corruption. All of these increase the costs of doing business in Zambia, negate much of the benefit of international trade, and allow potentially environmentally-damaging imports.

19. This section is by Nosiku Munyinda.



Photo: WTO

Trucks marooned at a Zambian border point awaiting clearance from multiple agencies

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A National Working Group on Trade Facilitation was formed, aiming to tackle these barriers through technical assistance and capacity building. It prioritised several trade facilitation measures, top of which was border agency coordination and risk management. Chirundu Border Post is the first in Zambia to have one government building in which all border agencies are represented. This has seen the elimination of sequential inspections, as the design has one inspection bay which all the agencies can use at the same time, significantly reducing the time spent on physically inspecting the goods. Another advance is the increased usage of IT in the Asycuda Programme, currently anchored within the Zambia Revenue Authority. Requirements of major border agencies are entered onto the programme and selectivity embedded, reducing the need for personal discretion in the assessment of goods. More still needs to be done in operationalising these solutions to other border posts and ensuring that all agencies have computers and related IT infrastructure. In terms of Chemicals Management, the participation of the ECZ on this working group has meant that all agencies are made aware of chemical controls and, in this way, can be entrusted with the control of chemicals, even if the ECZ is absent at a specific border post. This form of border agency coordination is a role that the ECZ prides itself in. Further, the higher profile of ECZ in Chirundu has meant that stakeholders are more actively drawing to its attention other environmental matters such as improper waste management, water disposal etc which are outside chemical controls.

The National Working Group on Trade Facilitation also facilitates the provision of technical advice to the Zambian delegation at the World Trade Organization (WTO) in Geneva, improves the coordination of all border-related issues, and recently oversees the Common Market for Eastern and Southern Africa's Simplified Trade Regime. The ECZ has become a welcome and integral part of this working group, joining the Zambian delegation to the Doha Trade Facilitation Negotiations. This move offers potential for the environmental issues that are specific to Zambia to be mainstreamed into subsequent important trade agreements.

3.11 Water – the national development planning system making integrated water resource management and water efficiency a reality²⁰

All too frequently, advanced notions of holistic management of environmental resources are well understood by experts, and are reflected in their elaborate plans – but these plans are ignored because they are not understood by mainstream actors, or accommodated by mainstream institutions. Water experts in Zambia have reduced this risk by working with the central national development planning process. FNDP includes commitments to Integrated Water Resource Management and Water Efficiency Plans as the major way to meet increasing water demands.

Zambia has sufficient water resources, but declining supplies from high rainfall variability in southern parts of Zambia, and increased water demands due to economic growth have led to increasing water stress. Water delivers key economic benefits, being central to agriculture, mining, industrial and hydropower production. Water is also a key social benefit, being essential to the health and livelihoods of households. And water is critical to the functioning of intact ecosystems, requiring environmental flows of water for securing biodiversity and ecosystem service benefits. During the past ten years economic and administrative reforms have helped economic growth but have also increased competition for water. Together with an apparent trend of declining rainfall, this has led the Government to undertake broad water sector reforms.

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Two drivers for water reform – national development planning and international environmental agreements: FNDP 2006–2010 is concerned with ensuring that the benefits of a healthier economy reach the rural and urban poor. Realising the importance of water for both rural and urban development, it was natural to integrate water sector reforms into the National Development Plan (NDP) process. This started in 2004. In the same year, Zambia was separately developing National IWRM and Water Efficiency (WE) Plans following the 2002 agreement at the Johannesburg Summit on Sustainable Development that countries should prepare such plans by 2005. MEWD coordinated the IWRM/WE Plan²¹. Linking the IWRM plan into FNDP was seen as fundamental to poverty reduction and achieving the MDGs. In circumstances where IWRM plans often do not become fully implemented, as they tend to be prepared by water experts; it was also a way to ensure that plans become a reality.

Linking IWRM to FNDP – the process and actors: In formulating FNDP, the government used a participatory approach involving 17 Sector Advisory Groups. The Water Sector Advisory Group is a Government-led high-level forum helping to improve sector coordination as well as advising government on water sector performance and reform. It comprises representatives from key institutions and

20. This section is by Imasiku Nyambe.

21. Facilitated by the Zambia Water Partnership (ZWP), a Zambian chapter of Global Water Partnership (GWP) and GWP-Southern Africa (SA), Partnership for African Water Development (PAWD), and CIDA.

stakeholders in and outside the water sector. IWRM programmes were developed and integrated into FNDP through a dynamic, interactive and participatory process between water management authorities, many sector ministries/institutions²², other water-using stakeholders such as Zambia Sugar Company, Zambia Daily Mail, Chalimbana Catchment Conservation Organisation, and country-wide stakeholder consultations. In developing IWRM programmes, workshops were held in Chipata, Kasama, Mongu, Mansa, Lusaka and Ndola, to provide for country-wide stakeholder input.

The Water Sector Advisory Group process secured political support for IWRM. As a consequence, the Government decided that Zambia's IWRM/WE Plan should be the primary instrument to implement the water-related programmes of FNDP. The Government selected water as one of the seven priority sectors of FNDP, recognising its central role in poverty reduction, in supporting livelihoods especially through agriculture, and as the driver of Zambia's industries. The recognition of IWRM as an integrated approach to water resources management, and the need to build capacity in this area, also led the Government to establish an IWRM Centre at the University of Zambia in 2006.

Several lessons can be learned from the experience of linking IWRM to FNDP:

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- *A single project alone cannot mainstream the environment:* Important cross-cutting issues, such as water, can rarely be handled by a one-off process alone. Financial, awareness, institutional and other barriers invariably halt the progress of any such neat project approach. IWRM is beginning to be established because it has shifted from being presented as a good technical stand-alone project to being integrated into Government on-going initiatives such as the WRAP and FNDP process that seek systemic change.
- *The national development plan is key:* The more closely that cross-cutting issues can be linked to the main development plan, the more likely they can contribute to a wide range of positive outcomes. Linking IWRM to the national development plan has opened up the possibility for water to contribute more effectively to all the major development outcomes sought in Zambia.
- *Strong political and public support is needed for cross-cutting issues:* IWRM involves a wide range of stakeholders, who therefore need to be involved in IWRM processes and plans.
- *The media can inform all stakeholders of the importance of cross-cutting issues:* Sustained coverage by the media was necessary in order to create understanding of IWRM and the process. Having media sit on the IWRM Steering Team ensured direct dissemination, notably through the Zambia Daily Mail, to the Zambian community.

22. Ministry of Energy and Water Development / Department of Water Affairs, Water Development Board, Ministry of Finance and National Planning, Ministry of Agriculture and Cooperatives, Ministry of Transport and Communication (Meteorological Department), Ministry of Local Government and Housing / DISS, and Ministry of Tourism, Environment and Natural Resources.

Conclusion: Environment and development are only partly integrated – which threatens both

4.1 Summarising Zambia's progress in integrating environment and development

Zambia has a rich and varied experience of environmental mainstreaming. Only now have the lessons of that experience begun to be brought together – in the current paper.

The most convincing measure of environment-development integration would be an increase in positive outcomes on the ground. The fact is, however, that such outcomes are not routinely measured. We only have glimpses of progress – many of them noted in the foregoing sections – and for most of these we would want to know more if we were intent on bringing the twin endeavours of development and environmental management together to realise their synergies. A quick review, based in part on the four-part development framework of assets, risks, powers and time frames (suggested in Box 3), shows partial progress in all areas:

1. *Better awareness of environmental goods (assets) and bads (risks) – especially through environmental education:* This has improved significantly. It is clear that there is improved environmental awareness amongst the general public, due in large part to Zambia's long and rich history of environmental education, as well as some media activity. But there is not the detailed understanding required to be able to make the case – and to decide to accept the case – for investment in specific environmental assets in specific places, especially to economic planners. More routine information is needed, especially on poverty-environment links and economic information.
2. *Higher development values obtained from environmental assets – notably tourism revenue from harnessing biodiversity, hydro-electric power from harnessing water, and sound farming practices:* This has improved in some cases. 99% of electricity is provided through renewable (hydro-electric) sources. There has been recent progress in realising higher development values from biodiversity, notably through community management and tourism such as in the Luangwa Valley. In addition, there are examples of adding value to agricultural land through sound farming practices for poor farmers e.g. the Zambia Farmers' Union's Conservation Farming Unit, and to forest lands through certified honey production and pilot schemes paying for environmental services. But these examples have not yet been scaled up to affect mainstream sector policies, and we are still not sure of their impacts on the livelihoods of the poor. Furthermore, the full economics of biodiversity as a driver of local economies (such as in Luangwa) has not yet been explored.

3. *Reduced environmental risks of development activity, especially through beginning to clean up the mining industry:* This has also improved, but only patchily. There are signs that mining is cleaning up, in line with international practices. However, the production of wood energy continues to be destructive to the environment, and urban development continues to pollute aquifers with poor provision of sanitation.
4. *Empowerment of some environment-dependent groups, especially for CBNRM:* This has greatly improved on paper, but not yet fully on the ground. Much of the CBNRM movement in wildlife has helped to improve recognition of community rights, and to improve communities' access to markets. But many poor groups – and especially women and migrants – still find it difficult to access the clean water, sanitation, energy, land and forest resources upon which their livelihoods depend, and they remain uninfluential in relation to the authorities when it comes to expressing environmental deprivations and needs.
5. *Improvements over longer time frames are less clear:* Zambia does not have the data sets needed to see how the above have improved over time. There are time series data on deforestation that shows continued problems, and figures on access to clean water and sanitation that show only slow improvements, with poor people still suffering chronic environmental deprivations.

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Until such time as there is more reliable information at the outcome level, it is more valid to assess progress in environment-development integration by identifying improvements in policies, planning processes, institutions, and anticipating futures:

6. *Only partially integrated policy framework:* The set of environment policies and the new umbrella National Environment Policy have evolved entry points for development interests. The set of development policies and FNDP now include apparent entry points for environment as both a sector and a cross-cutting matter. However, apart from the 1985 National Conservation Strategy (which is not being actively pursued by mainstream authorities) there is no coherent policy that seeks to fully link environment and development – although there may now be scope in the next five-year plan based on good FNDP experience.
7. *Significant experience of mainstreaming planning tools and safeguards:* If there is no coherent environmental mainstreaming policy in Zambia, there is instead long experience of one of the mainstreaming tools, the EIA system. This has helped to avoid negative impacts in dozens of individual cases. However, EIAs are still not established as essential components of decision-making – many political decisions treating them at best as advisory, to mitigate decisions already made. There have been several pilot SEAs, and SEA is just beginning to be established as a useful means to make key policy decisions.

8. *Innovation in integrated institutions handling the links between environment and development:* Zambia has been innovative here, including:
- Community wildlife management regimes – Zambia is a leading player in Africa (3.7);
 - Environmental liaison units in some sectors e.g. mines, roads, electricity (3.9);
 - A new Urban and Regional Planning Act that seeks decentralised coordination of many environmental and developmental policies and plans (3.3); and
 - Integrated Water Resources Management as a way to link organisations involved throughout the water cycle (3.11).

However, such innovation does not yet extend to the Zambian public administration system as a whole – or indeed to Zambian society. Although MFNP is now expressing interest in environmental policy, there is no mainstream recognised forum for environment-development links (or sustainable development) – although one of these had been put in place at the time of NCS. Thus those who might be interested in environmental mainstreaming find it difficult to connect up – whether they are from environment or development backgrounds.

9. *Not yet a long-term view – but the potential to build on existing sources of resilience to create a system, that anticipates futures:* At national level, Zambia's long-term political stability, peace and effective democracy are huge assets that can confer resilience to shocks such as climatic and economic extremes. At local level, Zambian farmers have long benefited from coping strategies for handling climate variability. But formal institutions do not have the systems or incentives for anticipating future environmental change and its many impacts on development – and vice versa. Environment institutions are neither thinking enough about planning for future scenarios, nor working in partnership with development institutions. The changing emphases of external donors seem to be relatively influential, yet the donors' own policies are not informed by a long-term view of the interdependence of environment and development.

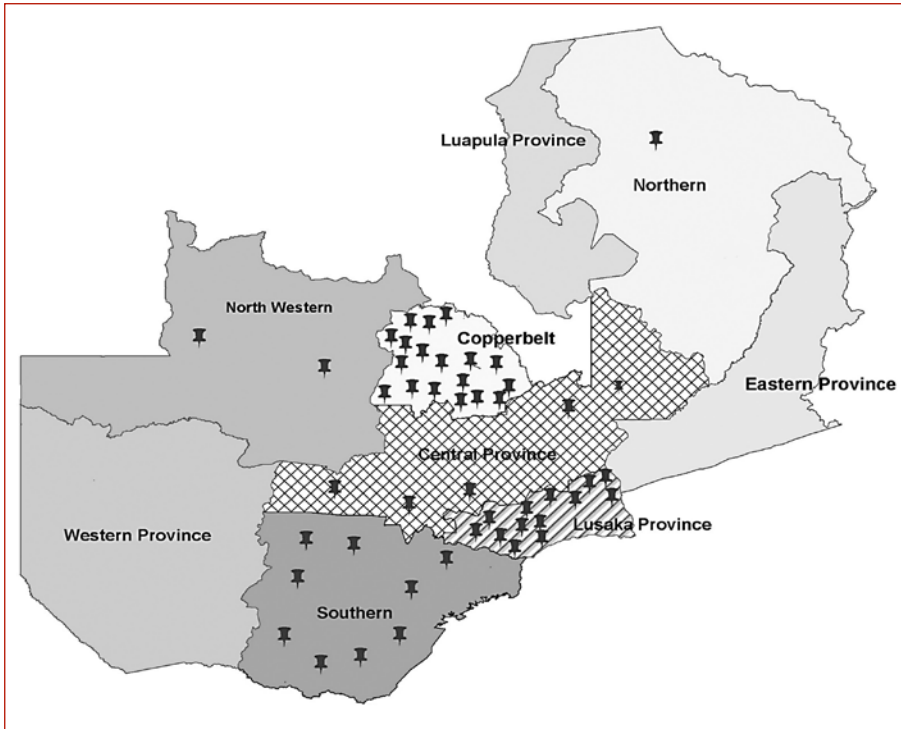
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4.2 Lessons learned from Zambia's environmental mainstreaming to date

The ways in which this progress has been achieved lead us to suggest seven key lessons from Zambian practice to date in environmental mainstreaming – on which we can build in future:

1. *To truly integrate environment and development objectives is a long-term process of institutional change that proceeds on many tracks.* These tracks include education and awareness, piloting, public administration reform, political debate, and both civic and private entrepreneurship – as well as the improved planning processes that donors and government often concentrate on. There is no single fast track that would enable mainstreaming e.g. through a single project. However, a project could help by facilitating the various tracks that are working or that prove promising, improving communications and learning.

2. *In a developing country context, it is productive to work with the key mainstream institutions and processes.* Considerable value has been realised through environmental liaison and coordination units in key sectors, and sector environment guidelines. But the signs are that most progress will be achieved when the principal focus needs is on the mainstream central economic, financial and physical planning processes such as NDP, the government budget, urban and regional plans, and associated national and decentralised plans.
3. *Considerable progress is made when a multi-stakeholder approach to environment-development issues is taken.* For example, in Zambia NCS, LIRD and effective mine clean-up processes have been careful to involve various sectors and disciplines. In this way, the different supply and demand perspectives on environment can be combined. Economics is a key discipline that needs including.
4. *Early and proactive mainstreaming activities can assist a positive, can-do approach by spotting environmental opportunities for development.* In contrast, if mainstreaming is too late, it tends to focus on environmental problems or EIA as a hurdle, which does not enable the developer to achieve win-win solutions.
5. *A focus on specific real opportunities and problems, in real places, facing real people,* can be a better incentive for actual mainstreaming than a general exhortation to include the environment in all aspects of development. Hence the value of locality-based work such as LIRD to rehearse what policy changes are necessary.
6. *Build on existing sources of resilience for adapting to change.* Practical environmental mainstreaming involves bringing together fields of knowledge that formal knowledge systems have often kept separate, or highlighting traditional integrated knowledge. For example, communities' coping strategies for handling climate variability are a sound basis for adapting to climate change.
7. *Environmental mainstreaming is, in large part, a communications and education endeavour.* Whilst one-way environmental advocacy may form a part of this, it is important to use multiple channels of communication to enable environment and development stakeholders to learn from one another and to form common visions, definitions and objectives. Information and communication technology solutions can help to bring stakeholders together – in addition to the more traditional (if expensive and time-consuming) committees.



EIAs conducted to date (Ngwenyama 2008)

4.3 Future challenges requiring improved environmental mainstreaming

Despite progress, environmental issues are not integrated adequately or systematically into Zambia’s development policy, budget, and institutions. We conclude there is no systematic approach to environment-development links. This limits the efficiency and effectiveness of individual efforts in environmental safeguards, environmental investment and environmental management. Moreover it denies many potentials for environmental assets to be used constructively for sustainable development. It is not surprising, therefore, that ECZ identifies one of its major challenges to be that ‘environmental issues are not well mainstreamed into the national development process’ (ECZ 2007).

Looking to the future, the imperative to improve environmental integration only becomes more urgent: There are many increasing pressures of economic growth, demographics, climate change, associated resource scarcity, and changes in the global economy that will strain environment-development links – but also give rise to potentials. For example:

- *Zambia's economic growth has been high, and growth will continue in spite of difficult times in the global economy.* Growth has averaged 4.9% GDP over the last seven years. Without systemic consideration of environmental issues (beyond individual projects that may demand an EIA) this is bound to increase cumulative stress on environmental assets. *With* systemic consideration, however, it may also enable investment in environmental services and renewable natural resource products and fuels that drive new forms of sustainable development.
- *With future climate change, Zambia's growth will be increasingly vulnerable,* especially in environmentally sensitive sectors such as agriculture and tourism. This will have significant impacts on livelihoods. But climate change may also put Zambia in a position to benefit from trading with countries that are perhaps more vulnerable to climate change, for example trading carbon storage services. The economics of climate vulnerability, mitigation and adaptation in Zambia should be explored.
- *Climate change also presents the vexing question of where Zambia is to make cuts in carbon emissions:* This might best be in land use and forestry emissions in the near future; and, in the longer term, by ensuring that energy needs can be met in ways that do not lock the country into a high-carbon future, developing socially- and environmentally-friendly renewable energy options. Patterns of urban design may play a role, reducing the need for transport and air conditioning. *Zambian commercial farmers have experience in zero tillage that reduces emissions.*
- *Population growth and changing mobility (migration) will also increase pressures on the environment.* Water and fuelwood shortages are likely to increase, especially in towns, and food shortages will affect the poorest groups, but have potentials for them as producers. But urbanisation – if planned well – offers opportunities to reduce the total ecological footprint of each citizen, through economies of scale and investment in new technology.
- *New pressures on land and natural resources will emerge due to structural changes in the global energy markets – notably from biofuels but also from mineral oil exploration and production:* Whilst this could create food and water shortages, it also presents the potential to develop a new, renewable business if established in the right places and with appropriate production technologies.

These big issues require debate and innovation within and beyond the formal planning process. As we explore in the next section, a little more investment in Zambia's future-searching capacity could expand the above illustrative list of challenges that need to be faced in both environment and development.

Recommendations: Systematic environmental integration into development institutions and processes

Zambia could be producing higher levels of income and welfare from its ecological reserve of soils, water and biodiversity, including through exporting environmental goods and services. Such sustainable wealth creation is only possible if environmental assets are planned, allocated, managed and governed better – in other words, if environment is integrated throughout the development process. Thus, if Zambia is to meet the aspirations of Vision 2030, more effort is needed to integrate environment and development. In section 4.1, we reviewed how Zambia has made progress – albeit fragmented – in bringing environment into the development process. We can build on this, and on the lessons of effective mainstreaming described in section 4.2. In section 4.3, we noted that there are new challenges requiring stronger efforts. Together, this suggests the need for several shifts in emphasis in environmental mainstreaming, summarised in Table 3.

| Table 3. New emphases needed in environmental mainstreaming | |
|--|---|
| From current mainstreaming efforts... | ...towards a more systemic approach |
| <i>Negative</i> reasons ('do no harm' environmental safeguards) | <i>Positive</i> reasons (make sustainable use of environmental assets for wealth creation) |
| <i>Reactive and ad hoc</i> approach to current environmental conditions | <i>Anticipatory and planned</i> approach, designing solutions for future conditions (urbanisation, climate change, renewable energy needs, etc) |
| Adding environment words into plans, focused on <i>problems</i> | Changing <i>budgets and investments</i> focused on environment-development outcomes |
| Raising <i>general awareness</i> about environment | Making <i>specific (economic and scientific) cases</i> for investment; capacity on specific issues |
| Occasional <i>state of environment</i> reporting | Routine <i>linked ecosystem and human wellbeing</i> assessments and monitoring |
| <i>Pilot</i> activities aimed at multiple environment-development win-wins | <i>Scaling up</i> through shared vision, changing the policy and investment conditions to suit |
| <i>Centralised</i> government approaches to environmental mainstreaming | <i>Decentralised</i> activities too, e.g. in provinces, local organisations and civil society |
| <i>Pushed</i> by environment groups (whether government or non-government) | <i>Pulled</i> by development groups' demands to understand and act on environment, and by environment-development partnerships |
| <i>Marginal or fragmented</i> environmental mainstreaming activities | <i>A clear, recognised system</i> for environmental mainstreaming integral to Zambia's planning, budget and monitoring processes |

We believe that efforts at environmental integration need to be focused squarely on the central national development planning and budget processes and other major mainstream development processes, as well as decentralised and sector inputs to them. It should also engage with the business/investment plans of the private sector, to realise positive potentials. That positive approach should make use of training, seminars, information-sharing and enabling policies, and not only the EIA process. And it needs to energise the civic entrepreneurship work of civil society organisations – often the real drivers of change on environmental matters, helping to generate and spread sustainable options for livelihoods and small businesses amongst a majority of the population.

To do this requires a shared vision for environment in development; simple guidelines and templates for sectors to work with; partnerships to exercise synergies; and efficient information and communications technology to share information at many levels. To get there requires capacity support, invigorating the change agents of ECZ, MTENR, MFNP and NGOs. We expand on these needs below.

We would like to highlight a dozen initial recommendations that Zambian stakeholders may wish to further develop – particularly, but not only, in the context of the next National Development Plan:

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1. *Develop a shared, positive vision* for integrating environment and development objectives, with the participation of stakeholders, and aligned closely with Vision 2030. This would offer a long-term perspective of an economy and society thriving through sustainable management of environmental assets.
2. *Improve clarity on institutional mandates* for regulating, managing, assessing and reporting on the environment; and for integrating environment and development to achieve specified outcomes e.g. MDG7 and more.
3. *Strengthen information systems to link environment and development* – ultimately including a comprehensive assessment of ecosystems and their developmental services, and a core set of environment-development indicators based on desired outcomes. These would be linked into regular development planning and monitoring, making information freely available to communities and enterprises.
4. *Ensure analytical capacity* to understand the links between environmental conditions and development, including specific environmental contributions to GDP, livelihoods and businesses. This would focus on the economics of environment as drivers of national, local and sector economies, and of specific investments.
5. *Ensure NDP/budget processes include* public environmental expenditure reviews; environmental assets and hazards as cross-cutting issues in sector plans and reports; and approaches to setting priorities among environmental issues.

6. *Mirror 5. above in decentralised processes, too* – notably provincial and district plans, but also the powers and resources of communities to enable them to manage natural resources for public environmental benefit as well as private gain – and to engage in decision-making on the environment.
7. *Develop information and communication technology solutions* to integrate environment and development information and to support efficient and inclusive dialogue e.g. linking state of environment reporting with development databases, and developing online dialogues.
8. *Build capacity of environment bodies* – notably ECZ and MTENR, but also environmental NGO capacity – especially to prepare information that will enable improved collaboration with mainstream financial/development institutions; and to ensure routine and timely application of EIA for developments and SEA for policy.
9. *Build capacity of mainstream development institutions* – notably MFNP and local government, but also the Ministry of Education for all-important environmental education tasks, and key decision-makers such as the Tender Board which may have significant environmental impacts. Such institutions especially need the capacity for environment-development assessment, safeguard and fiscal measures, staff development, and horizon scanning. This may include environment liaison units.
10. *Develop simple environment-and-development guidelines or standards for each sector* to help them think through positive options e.g. ways to give value to solid waste to encourage reuse and recycling.²³ These would supplement the existing (and more negative) environmental safeguard guidelines.
11. *Develop the above through a focus on key topical issues that will affect Zambia's future economy, livelihoods and land-holding patterns.* Biofuels, petroleum exploration, and adaptation to climate change are three such issues, and may have more traction initially than a comprehensive environment-development strategy.
12. *Subsequent investment in best-bet linked development-environment goals, where a mix of public and private benefits can be assured, e.g.:* improving water supply and sanitation; supporting community-based natural resource management of forests and protected areas; and cleaning up land and water bodies affected by mining pollution.

Each of these recommendations begs the question 'how?' Some of the answers lie in environmental mainstreaming approaches that work currently (sections 3 and 4). Others will require much more deliberation and assessment than we have been able to undertake in the current brief exercise.

23. For example, most of the solid waste produced by Lusaka's institutions is recyclable, including 50% paper and card (Lusaka City Council and ECZ 2008).

Key opportunities to firm up these recommendations and pursue them include:

- Reviewing the Fifth National Development Plan;
- Developing the Sixth National Development Plan;
- Implementing the imminent MTENR capacity development project;
- Establishing links with the UNDP-UNEP Poverty Environment Initiative, which supports ministries of finance and planning in many countries;
- Lesson-sharing with other countries that have reviewed their approaches to environmental mainstreaming, through e.g. IIED's network and the Poverty Environment Initiative;
- Regular reviews of Zambia's progress towards the MDGs;
- Zambia's international contribution to discussions shaping the UN post-MDG initiative and aid effectiveness (Accra Agenda for Action); and
- Major developments that present both opportunities and threats to Zambia's economy and land use e.g. biofuels development, carbon financing, and foreign direct investment.

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The environmental mainstreaming success stories that abound throughout Zambia are still isolated. They have not yet been implemented at a significant scale. This is commonly attributed to a lack of political will. But each story also attests to the fact that many stakeholders do want to see the environment contributing to – and being conserved through – Zambia's development. We believe there are opportunities to affirm and strengthen political will if the findings of our small group are taken up in multi-stakeholder and multi-sector deliberations and activities elsewhere in Zambia. We hope that this paper will be a useful contribution – encouraging the creation of wealth through integrating environmental opportunities and needs into Zambia's development.

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Natural Resource Issues

If poverty is to be reduced and livelihoods improved, significant shifts in policies, institutions and markets will be required to encourage sustainable natural resource management. How to go about this is a major challenge facing governments and civil society groups. Much guidance is available for farming, forestry and fisheries, but in reality livelihoods depend upon many forms of natural capital and are not amenable to sectoral interventions. This series of reports aims to present material on key cross-cutting themes of significance to many natural resource sectors, including water, soil, biodiversity, carbon and climate.

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Creating and protecting Zambia's wealth: Experience and next steps in environmental mainstreaming

How much does Zambia benefit from its rich forests, wildlife, soils and water – and what more could it do to ensure the protection and wise use of these environmental assets? Where environment and poverty problems are becoming increasingly severe, such questions need to be answered urgently. To begin this, the Environmental Council of Zambia and the Ministry of Finance and National Planning, facilitated by the International Institute for Environment and Development (IIED), decided to bring together a dozen highly experienced Zambian professionals who work in environment and development in government, business, civil society and academia.

The authors offer a positive, lessons-learned approach – identifying what has worked in key sectors and through institutional innovations. They conclude that Zambia could produce higher levels of income and welfare if its environmental assets are planned, allocated, managed and governed better. Their recommendations herald a new era of integrated environment-development planning that is not just 'pushed' by environment interests, but is now also 'demand-pulled' by development and finance authorities.

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