Promoting Transparency and Dialogue about Dams and Development in Mozambique

REPORT

justiça ambiental

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Preface

The following document represents the proceedings of the meeting "Promoting Transparency and Dialogue about Dams and Development in Mozambique: learning from the events of the past regarding dams in Africa", organized by JA! Justiça Ambiental, from 19th to 21st of November, 2007 in Maputo, Mozambique.

First, we would like to explain the delay in publishing the meeting's proceedings. The meeting was conducted in two languages (English and Portuguese), so the English presentations had to be translated to Portuguese and vice-versa. Although we had contracted a professional agency of simultaneous translation to translate the conference and tape in audio all the interventions, we have verified that there were problems with the taping and we also had to resort to secretariat notes.

For the inconvenience, please accept our sincere apologies, caused by all difficulties along the process that goes from the meeting to the publication of the proceedings. Justiça Ambiental believes that besides all the difficulties, the outcome was positive and crucial for the knowledge sharing and experiences, to iniciate a forthright and transparent dialogue between all the concerned and interested parties.

With the participation of several countries' civil society and representatives of our government, with the experiences shared and discussed in this meeting about the thematic of dams and energy, we had hope that this meeting would have follow up and that we could witness the beginning of a more participative and transparent process in water issues and development in our country, maybe the beginning of a future process about the guidelines from the World Commission on Dams.

Decisions such as the construction of the proposed Mphanda Nkuwa dam, should only be approved after a transparent and participative process. Unfortunately, this is not happening in this project, the lack of transparency, the rudeness of our government and the constant " not want to hear" the civil society's concerns, once again have been patent in the answers and positions not only presented in the meeting but also in interviews conducted to our Ministry of energy.

It was with sacrifice, volunteer work, support from several organizations and little funds that we managed to finally have this meeting and it is sad that there is no follow up in the dialogue between the civil society and our government.

Our country is rich in natural resources, but only with transparency and participative decisions on the use of our resources, based in the precaution principle and a wider sight thinking about future generations, only then, Mozambique will be able to be a just and environmentally sustainable country.

JA will continue to monitor the process of Mphanda Nkuwa dam proposal project and promote the dialogue until all concerns are adressed.. Only then it will be possible to be certain that this project will benefit the people, and if this is not the case, we will continue to fight so that this dam is not built, with hope that our government will be just and impartial in its decisions.

In this moment there is a petition in the Internet about the future construction of the Mphanda Nkuwa dam that in less than three weeks has reached more than 1000 signatures, many from Mozambicans, proving that, in fact, the way that this project is being conducted it is not viable for Mozambique, is only viable for a small elite that once again will get rich at the people's expenses.

To finish, we want to thank Your Excellency Ministry for the Coordination of Environmental Mr.Luciano de Castro, for his opening speech at the meeting, to our donors because without them it would not be possible to have this meeting, Oxfam Novib, Oxfam-Intermon, Cooperação Francesa, Action Aid, and to the organizations that directly financed such as ARN "African RiverNetwork", together with the GGF "Global Greengrants Fund", IR "International Rivers" and Environmental Defense.

To our partners ARN, IR and Environmental Defense, we have to thank you for your constant support and partnership.

"A Luta Continua" – The fight Continues

Anabela Lemos
Director
Justiça Ambiental

Acronyms

AESNP	AES Nile Power
ARA	Administração Regional de Águas
ARN	African Rivers Network
BEL	Bujagali Energy Limited
DDP	Dams in Development Project
DEAT	Departamento de Assuntos Ambientais e Turismo
DME	Departamento de Energias Minerais
DWAF	Departamento dos Assuntos Hídricos
ESKOM	Electricity Supply Commission
GDP	Gross Domestic Product
HCB	Hidroeléctrica de Cahora Bassa
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for the Conservation of Nature and Natural Resources
JA	Justiça Ambiental
KYB	Komadugu Yobe Basin
MDG	Millennium Development Goals
NAPE	National Association of Professional Environmentalists
NEPA	National Electric Power Authority
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organizations
OSC	Organizações da Sociedade Civil
PHCN	The Power Holding Company of Nigeria
RBDA	River Basin Development Authority
SADC	Southern African Development Community
SAPP	The Southern Africa Power Pool
SWAPHEP	Society for Water and Public Health Protection
UDD	Uganda Dams Dialogue
UNEP	United Nations Environment Program
UNO	United Nations Organization
USA	United States of America
WB	World Bank
WCD	World Commission on Dams
WWF	World Wide Fund for Nature
ZRA	Zimbabwe River Authorities

1. Background

1.1. History of Large Dams

The access to water and electricity was identified as the main limiting factor for the socio-economic development of several countries. Many people do not have access to a clean water source and /or do not have electricity. The water demand for hydroelectric energy, irrigation, industry, drinking water and sanitation, maintenance of the ecosystem and for the development of tourism and recreation requires an integrated plan for the water's sustainable development. For thousands of years, Man has constructed dams for several purposes. Nowadays, dams have grown in scale and most times they flood great areas of land and may have serious and irreversible social and environmental impacts.

The World Commission on Dams (WCD) has revealed that large dams generally cost more than predicted and produce fewer benefits than those that the proponents claim they will produce. The WCD also revealed that an estimated 40-80 million people all over the world had to be resettled due to dams, most of whom ended up in worst conditions. Because of forced relocations, weak compensation for lost lands and homes, and non-compensated impacts in their means of subsistence, Africans affected by dams and their allies are trying to alert the public about the dams' social and environmental injustices, alternatives to those projects and future methods for a better planning of water resources and energy supply. We recognize that the ecology of our environment, the economy of our means of subsistence and our social structure are all linked to our human right to development and to our human right to participate in that development.

1.2. Mozambique's Plans for Dams

Mozambique has seen a big influx of investments since the end of the Civil War and the installation of democracy. One place especially targeted for investments is the Zambeze Valley, with plans for more dams, logging, industrial-scale agriculture, and coal mining, among others.. NEPAD[1] and the Mozambican Government have as a priority the construction of hydroelectric dams along the Zambezi River, with Mphanda Nkuwa Dam being one of their top priorities.

It is believed that the creation and availability of low-cost energy will promote the region's development, especially of industries that require great quantities of energy such as aluminium. At this time, the energy produced in Mozambique is almost totally for export to the Southern Africa Power Pool and for industries such as the aluminium smelter in Beira. The proposal for the construction of Mphanda Nkuwa is progressing rapidly, as the Chinese Government has already promised to fund it, raising concerns that international best-practice standards may not be followed, especially regarding public participation (proper public participation can ensure a whole host of other problems are avoided). The potential pace of industrialization might leave the region's population unprepared for the big changes that will take place on the Zambezi Valley.

At the same time, a significant scientific research project is underway to restore the Lower Zambeze through improvements to the flow of water coming from Cahora Bassa, which would be more similar to the natural flows. This effort will be undermined if the Mphanda Nkuwa dam is built.

The Zambeze Valley has already suffered many ecological changes (and their related social impacts) from the enormous Cahora Bassa Dam (HCB), a project that has already been recognized by the United Nations as one of the least-studied and most environmentally destructive dams in Africa. The loss of the annual floods, rich in sediments and nutrients, has caused a serious degradation of fishing (both commercial and for subsistence), agriculture, and cattle-raising activities. The discharge

1 New Partnership for Africa's Development

regime imposed by HCB has caused an annual loss of US$10-20 million in the prawn industry, which is the second most important source of income for the country; millions of people depend on it.

The impact of HCB and other great dams on the region are not widely understood by the public and, worse, by those within the circles of power where decisions about the next dam project in Mozambique will be made. South Africa has recently started to incorporate the WCD's lessons into national policy. These lessons would be valuable for a public discussion in Mozambique.

For this reason, Justiça Ambiental (JA) organized a three-day conference that involved delegates from Civil Society and NGOs from several African countries and internationally, who presented their experience and knowledge about this issue. This meeting had the following main objectives:

1. To promote a more informed national debate about the development of our water resources, in part through sharing experiences about the impacts and benefits of large dams in other African countries.
2. Address issues that might arise from ecosystems damaged by dams, as in developing countries the necessary basic conditions for conservation of species and habitat are normally scarce.
3. Debate the WCD's recommendations and evaluate the need and the mechanisms for a national dialogue about this issue.

2. Opening Session

2.1. Welcome Speech

(Luciano de Castro, Ministro para a Coordenação da Acção Ambiental de Moçambique[2], MICOA – Ministério para a Coordenação da Acção Ambiental[3])

"Illustrious Guests,
Illustrious Delegates,
Dear Participants,
Ladies and Gentlemen,

Illustrious participants of this conference, please accept my greetings and join me so that together we can glorify this sublime moment, in which long experienced professionals on the matter of water use and management, academics, professionals of the environmental field and representatives of different interest groups, we are here in these 3 days, sitting at the same table to debate the aspects related to use and management of water resources, specifically, the construction and exploitation of dams as it is stated in the working program for this conference.

We feel particularly honored because we were invited to be part of this event and so, I want, in the name of the Ministério para a Coordenação e Acção Ambiental and me personally, to salute and thank Justiça Ambiental, as the organizer of this conference.

We are sure that it will be salutary to hear the experiences of other countries, to listen to the anxiety and the expectations of the resident communities and of the civil society in general, revise the government policies about the matters in question, in order that each part gives its contribution on how we can improve our participation in the planning, projection and execution of the programs of development of our countries.

The exercise we are going to perform, will aim our active participation in the efforts of the governments to promote the well-being of the people, the nations and the countries.

Mozambique, as a poor country and that suffers with several nature's extreme events, such as cyclones, floods and draughts, needs synergies to better face the calamities and use the available resources for the well-being of the communities.

For this reason, the government defines the combat and the absolute poverty eradication in Mozambique as the mission whose compliance cannot be postponed. We must not leave this burden as a legacy for the children of our children, passing the suffering and the misery from generation to generation.

Ladies and Gentlemen

Mozambique is not an industrialized country and the natural resources constitute the development basis that we intend to reach.

The exploitation of the forest and fauna resources, fishing resources, mineral resources and the land and water use and management, may provide employment opportunities, development of activities for profit generation for the communities and make the families self-sufficient.

We know that our country is gifted with this wide source of resources and these resources have not yet been totally prospected or quantified, meaning that these deposits, dykes and stocks are not being exploited yet.

Nevertheless to this situation, we have full conscience that what Mother Nature gives us does not last forever. It is necessary to cultivate the land in a way that it will produce today and will continue to produce in the future to feed the following generations.

To regulate this process, the government has produced and approved recently the Estratégia Ambiental para o Desenvolvimento Sustentável de Moçambique[4], an instrument that aims to establish the basis for an acceptable and equilibrated commitment between the socio-economical progress and the environmental preservation.

2 Minister for the Coordination of Environmental Action of Mozambique
3 Ministry for the Coordination of Environmental Action of Mozambique
4 Mozambique's Envirionmental Strategy for the Sustainable Development

Ladies and Gentlemen,

The Estratégia Ambiental para o Desenvolvimento Sustentável de Moçambique defines in a clear way, the objectives to reach in each activity area, promoting harmonization between the economical and social development objectives with the environmental preservation, so that, the sustainable development effectively is an organized principle in the development programs, from the planning phase to the implementation.

In this perspective, the sustainable use of the water resources is seen as one of the boost factors of the country's development.

Our countries' populations are growing as time goes by and our economies will only be prosperous and strengthened with the appearance of new industries and other ways of productive activities. With these situations, the water necessities are also increasing.

Thus, the economical and social development en the entire SAC region, places environmental challenges that only the definition and implementation of correct strategies in all the region's countries, will allow the realization of the development programs in each country, without prejudicing the neighbors with who a certain resource is shared.

To finish, I would like to reiterate that our participation in this conference proves, once again, that in Mozambique conditions are created, for all interested parts and potential affected people by the construction of enterprises, to interact and to maintain a constructive dialogue, in the path to sustainable development.

With these words, I declare open this Conference on Dams and Development in Mozambique, and I am certain that the contribution that will outcome from each participant is an appropriate condiment for this event to be successful.

Thank you very much!"

2.2. Introduction

(Anabela Lemos, JA's Director! Justiça Ambiental)

JA's Director proceeded with the conference thanking the Minister's and all participant's presence. She stated that it was the first time in Mozambique that so many participants from various African countries were meeting to share experiences about dams and other issues related to dams' impacts and benefits. She then gave the following speech:

"In Africa, the water resources are still fragile, mainly due to the bad management of water, and not actually due to water shortage. However, there is a growing concern related to the stress caused by the large dams on our water resources, due to the population growth, climatic changes, unsustainable standards of consumption and uncontrolled use.

"Mozambique is now entering a phase of industrial growth that includes plans of new large dams on the Zambeze River. In order to reduce the risks, improve benefit sharing and promote the shared vision of development that takes into account the voices of the communities regarding these big infrastructure projects, it is important to analyse both the good and the bad experiences between the other countries. Only through an open dialogue with the stakeholders will it be possible to achieve the truly sustainable and efficient use of our water resources in order to obtain the socio-economic development.

"JA had the initiative to carry out this public workshop that will bring regional speakers with experience in dealing with the impacts of great dams in Southern Africa. The intention is to open a dialogue through the lessons learnt from the existing dams in the region and to discuss how Mozambique may avoid the 'global rule' in which a dam's real cost always exceed the predicted costs, economic performance is always below the predicted, and the social rupture and ecologic destruction aer always greater than predicted."

Anabela Lemos then wished the participants an open and transparent dialogue in order to reach the objectives of the conference.

2.3. Keynote: Dams, Rivers and Climate Change in Africa: Weighing the Risks

(Presentation by Lori Pottinger, Director, Africa Programs, International Rivers Network)

2.3.1 Summary

The IPCC[5] has 'very high confidence' that Southern Africa will 'suffer a decrease in water resources due to climate change'. Over-dependence on hydropower is already causing blackouts, affecting economies across the continent.

Adaptation strategies should focus on helping the world's poor, who are already the most vulnerable to natural disasters and the most vulnerable to climate-related disasters. Mozambique and Southern Africa in particular have much to lose with increasing temperatures and evaporation, and reduced flows of rivers. Reacting now with cost-effective, "no regrets" measures instead of costly large dams could prevent a crisis from becoming a catastrophe.

Adapting the Energy Supply:

- Take immediate action to reduce hydro-dependency
- Set standards, develop programs for efficiency
- Decentralized energy systems to reduce transmission losses, costs
- Take advantage of solar, solar thermal, biogas
- Bottom-up development plans, not trickle-down extractive growth based in energy-intensive industries.

Adapting for Flood Management:

- Floods are most destructive, most frequent, most costly natural disasters on earth – and getting worse.
- Number of people UN estimates will live in path of potentially damaging flood by 2050: 2 billion
- Increase over today's figures: 100%
- Number of "major floods" increasing worldwide
- Dam-and-embankment models failing in USA and elsewhere; an increase in costs of flood damage is result.

Soft-Path Solutions for Floods

Existing dams in Africa often poorly maintained, worsening flood impacts. Dam releases affected thousands in Ethiopia, Ghana in 2007; thousands more in Nigeria in recent years. Kariba is a big safety concern. Conflict of interest in 'multipurpose dams': flood control, water storage, producing electricity at odds

- Improve disaster-preparedness, flood warning systems
- Community-based flood warning systems and training (India, Sri Lanka)
- Raise buildings
- Dam safety evaluations
- Move development out of floodplain (often cheaper than rebuilding after floods)

China's Role in Africa's Development: Which Model is the Better Fit?

China is involved in the Mphanda Nkuwa project, and in large dams around the continent. Yet China's own rivers and dams are in poor shape, in part due to its many large dams and poor environmental protections. The nation is reaching its limits of being able to engineer their way out of water, energy and flood crises. There is a better way that China could bring to Mozambique and Africa generally, as China's own path to sustainable energy development has made big strides:

- More than 19 GW of small-hydropower, first in world
- 180 millions of clean stoves (cost: $10-12 unsubsidized)
- Natural biogas program has helped build 17 million biogas digesters, eventually hopes to cover one-quarter of rural households.
- China's biogas program has helped reduce deforestation, manage animal and human waste, provides clean power.
- China is also a leader in solar thermal, solar PV, and has a booming domestic wind-turbine market.

What Cost Mphanda Nkuwa?

- Is a US$2 billions dam the best investment for Mozambique's development needs?
- What are the "external" costs of this project (environmental, social, impact on adapting to climate change, chance for corruption, opportunity costs for other development needs), and who is bearing them?
- Can the Zambezi and its people survive more large dams?

5 Intergovernmental Panel on Climate Change

2.3.2 Discussion

Hope Ogbeide (Nigeria) asked who can be contacted in China to expose the difficulties they have about the functioning of the dams they are building around Africa. Lori answered that it is difficult to engage with China about these issues and that for now, it is the responsibility of the government which accepted the development assistance, to demand for strong standards equivalent to those now being used more and more in China. China has not been offering the best solutions although it has stronger standards produced by the development of alternative energies. The best thing that civil society can do is to engage with their governments and make sure that the standards come from within.

Ali Askouri (Sudan) said that from his experience in Africa, solar energy is not appreciated and he asked about the type of campaigns that could be made in order to raise awareness on this issue.

Lori answered that Africa has a number of experts in solar energy, but that it is a complex path to increasing solar power in any given country. She said that the solar PV is most important in rural populations that do not have access to electricity but may be able to afford solar panels. In Kenya, the solar industry is thriving and many people have solar. There have been exciting developments in solar technologies from universities in South Africa (specifically mentioned "nano-solar"), but there was not capacity to take some of these developments to market. It is necessary to garner a commitment from the responsible parties in government to embrace solar energy so that this can be used in industries and in residences.

Robert Kugondza (Uganda) questioned the reason for China wanting to target, in the whole world, the energy development to the construction of dams that are environmentally unfavourable if in China the energy development is turned to alternative energies. He suggested that this may be a strategy to suffocate the energy development in the world. Lori said that China is exploiting Africa for its natural resources getting things in return when it builds these projects. China uses the African resources to build in Africa. She affirmed that there are also good things coming out of the partnerships with China, as long as they are not exploitative. The Chinese dam industry is reaching a limited number in terms of places to build dams within China, and the solution is to export their labour force and their knowledge elsewhere.

Boniface Mutale (Zimababwe) expressed concerns about the fact that some US experts tried after severe flooding a few years ago to inspect the Kariba dam, but were not given permission to access the dam. As the lack of inspection of the dam may be dangerous, he asked if there is anything that civil society can do to force the Zimbabwean government to allow the assessment of that dam. Lori noted that the dam's safety has long been in question, said that Zimbabwe does not have the money for the necessary maintenance and doubts that Zambia can pick up the rest of the burden. If something happens to Kariba the entire region would suffer, so civil society and all the governments in the Southern Africa region should raise this issue in order to create international pressure.

3. Costs and Benefits of Mphanda Nkuwa: National and Regional Perspective

3.1. Identifying problems with Mphanda Nkuwa

(Presentation by Daniel Ribeiro, Justiça Ambiental)

Daniel Ribeiro
Program Officer - Justica Ambiental

3.1.1 Summary

Why so many concerns around dams?

Mphanda Nkuwa is one of the biggest energy projects that Mozambique is planning. By reviewing the historical record on large dams from, for example, the World Bank, the African Development Bank and the World Commission on Dams, it will be observed that there are great dangers in building dams. For example, normally:

- The average delay of the construction is 2 years more than planned
- The estimated average of costs above those predicted is 57% (in the case of Mphanda Nkuwa, therefore, the cost may be US$3 million instead of the estimated US$2 million)

Economical Aspects

The main plan for Mphanda is to produce hydroelectric energy to supply neighbouring countries and to stimulate the great energy-consuming industries in Mozambique (for example the aluminium industry) and South Africa. A study from Brazil showed that for the amount of energy it consumes, the aluminium industry brings fewer jobs than other industries. The best plan is for the country to have small and medium industries and to diversify the types of industry. A study from the Mozambican economist, Castel Branco, showed that if we analyse only Mozal, the effect on the Mozambican economy is negative (despite some positive aspects it brings). It is necessary to analyse this case so that the same development model is not used to justify Mphanda Nkuwa as a way to encourage more energy-intensive industries.

ESKOM[6] dominates almost the entire energy supply forSouthern Africa. Due to its near-monopoly as a major utility, Eskom was until recently buying power from Cahora Bassa Dam (HCB) for a bit more that 2 cents per KW per hour, while Mozambique was buying for 15,7. There are other projects that intend to supply energy for the same market, including the massive Grand Inga, with a capacity of more than 40,000 MW. If all proposed projects are built and supply energy to the same network, we will need to study what will happen to the excess electricity, to regional energy prices, and to the economic effectiveness of Mphanda Nkuwa.

There are risks in the Mphanda Nkuwa plan based on HCB's current management scheme, because it was already proved that the way HCB manages flows from the dam has caused great social and environmental problems. Mphanda Nkuwa would worsen these problems.

Socio-environmental Aspects

Experts with experience in dams in other parts of Africa are already presenting problems. It is necessary to use this information for a public debate as part of the process in understanding the probable risks from this project.

One of the dangers is the seismic risk. The African Great Lakes region is separating at a velocity

6 Electricity Supply Commission

of millimetre per year, provoking earthquakes and seismic activities. The greatest earthquake in Africa, until now, was registered 200Km from Mphanda Nkuwa. Experts have already affirmed that the estimate of the fault is less than its real capacity. The available archives are based in only 42 years, which in geologic terms is insignificant. Because Mphanda Nkuwa is going to be 25-50m from the fault, it would be dangerous to base its design on insufficient seismic information. There is not a record of this fault ever being active, but there are faults that are only active once in every 100 or even 1000 years.

The majority of dams are creating safety problems mainly due to the lack of maintenance. Poorly calculated seismic activity increases the cost of maintenance. Sometimes the costs of maintenance are too high and the project loses viability. Safety maintenance requires large amounts of money.

3.1.2 Discussion

Luís Fernandes stated that it was not clear if it is environmentally viable to build the Mphanda Nkuwa Dam in JA's point of view. Daniel Ribeiro answered that according to the experts' available information it is not viable. Daniel added that the dam's impacts on river sediments was not considered in the studies performed to date, although it is known that holding back more sediments behind dams could cause serious environmental damages downstream on the Zambezi. Another problem is the lack of information on some key topics (such as seismic), and of an in-depth study on the project's overall impacts. Daniel warned about the differences between a hydroelectric dam and a dam for flood control. A hydroelectric needs to hold as much water in its reservoir to produce electricity, which runs contrary to the management of a dam built for flood control. A dam may support both functions, but it requires great care in operation—care that is typically wanting in case after case around the world. Daniel mentioned that there is also danger from the climate changes because the Zambeze Basin will have more floods and more draughts, and this is not accounted for in the studies although they mention the global warming.

3.2. Southern Africa's Power Pool (SAPP), Development Models: Trickle-down vs. Trickle-up

(Presentation by Terri Hathaway, International Rivers Network, USA)

Terri Hathaway
International Rivers Network, USA

3.2.1 Summary

SADC[7] states thatprivate sector development is going to alleviate poverty in the region. This philosophy is based on the idea that if we increase economic growth with new industry, the GDP (Gross Domestic Product) will also increase and there is going to be a trickle-down effect, because the economy will create new jobs.

However, often there is little or no trickle-down. The trickle-down processes take decades and generations-- that is if it works properly.

Currently, 25% of the SADC's population is urban, in areas where they probably can already connect to the power grid or close to it, and 75% of the population is rural and have no access to energy.

Project Momentum

The process for planning energy projects in the SADC region normally follows the order below:

1. National government prioritizes their projects and submit priority project list to SAPP (Southern African Power Pool).

7 Southern African Development Community

2. A planning working group is formed and identifies regional priority projects (such as Mphanda Nkuwa).
3. Regional "Priority Projects" are fast-tracked, sometimes in a way that is difficult to ensure that risks are assessed and that there is careful decision making.
4. Finally, public and civil society are informed of projects, close to when the construction phase begins, thus giving them limited ability to participate in environmental impact assessments processes and comment and consultations. Most residents in the Southern African region are unable to give their opinions in this system of regional planning.

The African Development Bank is talking about giving borrowing power to regional economic communities in order to implement regional energy projects. In the future we may be seeing projects like Mphanda Nkuwa being built and financed through the regional economic communities.

The case of Mphanda Nkuwa was first given to NEPAD. After that, within the SADC region, it was intended to have a centralized grid in order to bring industrial development to the region. From there SAPP and ESKOM both understood that there are great benefits for them and what they do in developing Mphanda Nkuwa. Finally, in 2006, there was an agreement between the Mozambican government and the Chinese Exim Bank for a potential funding for the project. It was just then that the project became public. Decades of work have already gone into this and it becomes very difficult to create space for discussion and new decision making, where the public and potential consumers and those with the social-environmental and economic concerns can influence the decisions of the project.

Another potential vision is the pro-poor energy planning with the following key points:

1. Reaching the poorer, the all majority and urban poor

Many energy experts state that the key problem in Africa is not so much supply, it is distribution of energy. Getting the rural majority African onto the grid is a very expensive process and it is going to take generations to do that. Distribution is the most expensive part because there are communities who are very dispersed. Thus, what the World Bank, SAPP and others often do is to use high transmission lines which are much cheaper to a large supply of energy from, for example, Congo to South Africa, where they have an economy to absorb it, but these projects to not lead to distribution networks to villages and rural towns. Electrification is not the only modern energy service that people need, and we must think about the end users, for instance rural people and communities who are cooking with biomass and the other types of modern energy services that they have access to. Those need to be involved in this energy plan.

2. Energy and Millennium Development Goals (MDGs)

There are 8 MDGs. Not one can be met without increasing access to modern energy services for the poor. The World Bank and others are very focused on increasing the country's GDP.

3. Creating local jobs

There's a huge opportunity for African governments and others to build up local employment by putting in place policies to create a local clean-energy sector. According to African Business Magazine, only 5-10% of Africa's youth population will find jobs in the formal sector. A local energy sector could support new green jobs in a renewable energy sector.

4. A sustainable energy future

In many cases, smaller scale and more decentralized projects would be better at reaching the people in need of energy. For example: solar, wind, geothermal and small hydro. It is necessary to have projects which mitigate climate changes. Projects like Mphanda Nkuwa are going to increase hydro dependency.

There are 167 million rural people in Southern Africa, and it is assumed that most of them do not have access to electricity. In a 2004 report by new Economics Foundation in England it was stated that, assuming about 5 people per household and a cost of about US$100 per person to install solar PV, to give access to electricity for everybody in the South of Africa would cost around US$16.7 billion. This is a small amount when compared to the Grand Inga project which cost around US$50 billion.

There are barriers that need to be faced and it is necessary to:

1. Proactive and long-term government visions, strategies and policies to create an enabling environment for rural and renewable energy.
2. Provide adequate budget allocations for necessary projects.
3. Short term subsidies for rural electrification or renewable modern energy services in rural areas.

Most of these people are unable to afford even the cheapest solar PV system, but with income generating activities, long term subsidies will not be needed.

4. Financing mechanisms for the end users to have access to energy services.
5. Development banks should also redirect their budgets more towards renewable energies and rural energy provision. There can still be seen an imbalance between the amounts of money being put towards large projects and to what is being provided for rural electrification.
6. Technical support and long-term renewable energy training programs.

How to find balance between central grids to support cities and economic growth, and the need to alleviate poverty and specifically energy poverty?

- Emphasize both grid and off grid planning, don't develop just one.
- Participatory and transparent planning that includes potential end users and communities who are going to be affected.
- Integrated resource and river basin planning so that all the risks and benefits are being taken into account.
- Change the focus of banks that are providing the funding and often influencing the strategies of these projects.

Conclusion:

- Putting most of the emphasis on expanding the regional grid will not significantly affect the majority of Africans suffering severe energy poverty.
- Energy services for most vulnerable Africans must be prioritized and integrated into energy planning
- Energy planning must be transparent and accessible to consumers/end users and public interest groups.

3.2.2 Discussion

Sérgio Elísio asked Terri asked about uses for solar panels, besides lighting and water heating, because industries and others that need more and cheaper energy which is indispensable for a sustainable life. Terri answered that solar is just one example to show that it is needed to think about alternative energies, instead of waiting for the trickle-down effect. Terri read a passage from a report[8] about the price of the energy technologies in terms of poverty and climate changes. This passage said that in the next 10 years the renewable energies could be developed in a lot of countries and a thorough calculation of the costs would be difficult to do. Making a superficial calculation, it is estimated that to supply energy to a village of around 50 houses would cost US$25,000 and assuming that a house has an average of 5 persons, so, for the 500 million people without electricity in this region, the total estimated cost could be of US$50 billion. Based on this and on the fact that 17.6 million Mozambicans do not have access to electricity, the cost would be US$1.76 billion which is less than the cost of Mphanda Nkuwa. However, this does not mean that the solar PV is the only solution, just that it is necessary to look at alternatives.

Another participant asked Terri why so few investors seem willing to invest in alternative energy projects for the African continent. Terri answered with a quote from a research report about African energy on the Policy Network that said that "the capital requirements for renewable energies are generally lower than those of conventional and centralized investments. This allows African countries to begin a phased renewable energy programme that would not draw investment funds away from other projects" such as basic nutrition, health, education shelter needs and others. It is necessary that the government offers a favourable environment for investing in alternative energies. There is a lot of talk about carbon trading, which is a very controversial topic; however, the goal of it was to support renewable energies and other projects. The World Bank and others should ensure that these projects are successful and ensure that the technical capacity in each country is built.

8 Non-published of Ashden Award, Renewable Energy Application Form, Solar Energy to Meet Basic Needs in the Himalayas: the Barefoot Approach.

3.3. Communities' Perspective about Dams on the Zambeze

(Presentation by Chivio Cheiro, "Vozes do Zambeze", Mozambique)

3.3.1 Summary

The project "Vozes do Zambeze"[9] aims to protect and defend the communities along the Zambeze River. The project started in Mphanda Nkuwa, Changara District. A survey of the problems and a dissemination of information about construction of dams and its respective consequences and risks were made. The concerns raised by the communities regarding the construction of the Mphanda Nkuwa dam were the following:

- Opening the dams: communities do not receive information about increases in flow in a timely manner, which impinges on many activities along the river.
- Lack of Information: communities request information about the construction of the dam and about impacts it is going to have.
- Resettlement: Communities from Chirodzi-Sanangué, Luzinga and Chacoccoma are going to be affected by the Mphanda Nkuwa project. The Chirodzi-Sanangué communities have more people and will be evacuated for a still unknown place. Before the construction of the dam, the communities request an estimate of everything they are going to lose and to be allowed to verify the quality of the place where they are going to be relocated.
- Benefits: local youths must benefit from the project as compensation. They request that the process should learn from the mistakes of Cahora Bassa, in which the communities did not have compensation or resettlement.

3.3.2 Discussion

Pablo Jorda requested an explanation about the work that it is being done with the communities and how the government is listening and taking into account the needs of the communities. Chivio answered that they have been working with the communities to listen to their concerns and to raise the problems related to the construction of the dam. These concerns will then be presented to the government who will in turn discuss with the institutions that are going to build the dams to find solutions for the problems presented by the communities.

9 "Vozes do Zambeze" – Voices of the Zambeze

3.4. Management of the Zambeze Basin's Water Resources

(Presentation by Manuel Malaze, "ARA-Zambeze", Mozambique)

3.4.1 Summary

Legal and Institutional Framing

In 1991, the Water Law was approved and it establishes the principle of the decentralized management of the water resources through the Administrações Regionais de Águas[10] (ARAs). These ARAs are entitled by the Ministério das Obras Públicas e Habitação[11] through the Direcção Nacional de Águas[12]. ARA-Zambeze was effectively established in Tete in late 2002 and its activities started in 2003.

ARA-Zambeze's Role and Attributions

- Preparation and implementation of the hydrologic occupation plan: stations of hydrological observation of the basin to gather information on the development or evolution of the hydrological situation;
- Administration and control of the water's public domain;
- Record of use and water management;
- Licensing and concession of the use and management of water;
- Collection of taxes of use and management of water;
- Project, build and exploit hydrological infrastructure;
- Reconcile conflicts resulting from the use and management of water;
- Apply sanctions and remove uses and managements not authorized
- Close water pollution sources;
- Propose definition of protected areas;
- Management of water resources database, including the consumers and the water quality.

It is ARA-Zambeze's role to protect and make the development and integrated and participative management of the Zambeze Basin's water resources. ARA-Zambeze O ARA-Zambeze hears the public opinion about the development of the Zambeze Basin's water resources and about the way ARA manages those water resources.

10 Administrações Regionais de Águas (ARAs) – Regional Water Administrations
11 Ministério das Obras Públicas e Habitação – Ministry for Public Works and Habitation
12 Direcção Nacional de Águas – National Water's Directorate

Integrated management of the water resources

Hydrologic forecast and monitoring

Rainy Season 2006/2007

The forecast for the central region for the rainy season indicated that there would be normal rain with a tendency for above the normal. On the 1st of January it rained heavily along the whole basin. This continued until the 15th of January and it happened again in February. Due to the heavy rains the hydrometric level started rising and around the 9th of January, Caia and Mutarara levels were crossing the alert level 5. During that season there were 2 months with hydrometric levels above the alert level causing floods on the Lower Zambeze on that period. During the floods of 2006/2007, the main problem was the contribution of the Luangwa River. These floods were inferior to the registered in 2001/2002.

Rainy Season 2007/2008

The forecasts for this season indicated rain with a tendency for above the normal for January, February and March. Regionally, Mozambique shares the Zambeze Basin with other 7 countries, which also indicated rain above the normal. As the Zambeze Basin is having lots of above the normal rains, all that rainwater will be converted into drainage that will go to Mozambique. All the rivers including the main river will have a lot of water.

Monitoring

Monitor Stations

In 2002, there were only 30 stations, but at the moment there is a grid of 111 stations which makes it capable of improving the monitoring work. There was development and there is already equipment that allows, in real time, to know what is happening on the Zambeze Basin. It has around 100 readers which cover the 111 stations. One reader is, sometimes, responsible for two stations and one would be reading rainfall, another hydrometric and sometimes would be reading evaporation.

Communication Network

There is a communication system used to contact other administrations and administrative posts along the entire Zambeze Basin. It has 9 radios of own landline network, 17 of supporting landline network, 5 of mobile network (cars and boats) and land lines telephones and cell phones.

Flow of Information

ARA-Zambeze gathers data through readers, institutional collaboration and the Internet, it does the analysis and processing of this data and afterwards it gives the results to the administrative authorities, communities, press and users.

3.4.2 Discussion

João Lukombo stated that it was not clear if there is exchange of information between Mozambique and other countries which are crossed by the Zambeze Basin. Next, he asked if there are intentions to build dams along the Zambeze to help controll the floods. He said that in Angola, the Gove Dam was built for the supply of electricity and to prevent floods. Manuel Malaze answered that there is exchange of information with the neighbouring countries and that they are trying to make it more effective. He stated that there were meetings scheduled with hydrologists from the Zambeze Basin with the objective of reinforcing the exchange of information. There have been meetings since 2006 and Angola did not participate even though it was invited.

Anabela de Lemos affirmed that in December they took some pictures of the Zambeze Basin and the dam was full, above safe levels. They contacted HCB (Cahora Bassa) and requested information about this issue and about the unsafe water levels, but they did not receive an answer. Manuel answered that in December the reservoir was below the guide curve, and only in January and February it was above it. He also stated that he cannot answer for the communication problems between Cahora Bassa and JA.

Daniel Ribeiro said he found data about the guide level through ARA-Zambeze and other people that were linked to this issue. However, there was a contradiction between the data. In December, Cahora Bassa started releasing water to achieve the guide curve because they above the safe level. On the 6th of January, Cahora Bassa had to reduce the discharge because it was 22cm above the guide level, contradicting the information provided by ARA-Zambeze that probably is the one with the correct information. Besides being an issue between Cahora Bassa and JA, the data are of public domain and so he asked which is the best way to have concrete information and on time about the water levels of Cahora Bassa. Manuel answered that the information must be gathered through ARA-Zambeze.

4. Environmental Impacts of the Zambeze Dams' Projects

4.1. Zambeze Delta's Project, Linking Futures

(Presentation by José Chiburre, WWF, Mozambique)

José Chiburre
WWF, Mozambique

4.1.1 Summary

Zambeze Delta's Potentialities

- 4 hunting concessions;
- Marromeu Reserve: known as the biggest buffalo's reserve in Africa;
- Companhia Açucareira de Sena (Sena's sugarcane company)
- Several Forest concessions: potential for both community's and business' development;
- Fishing and Agriculture;
- Navigation in small scale for profit making;
- Sofala's Bench: known as one of the best to catch shrimp.

Problems in the Delta

- Invasion of plants in the effluent rivers;
- Navigation difficulties: it affects the sugar transport system by the Companhia de Sena which takes the sugar from the factory to the sea and from the sea to Beira. When the Zambeze River's caudal is low navigation is difficult.

What is Causing the Problems

Among others, the following are causing the problems in the delta:

1. Zambeze River's flow regulation through dams that reserve water to produce energy. From 1939 to 1959 there were high water flows and from 1979 to 1999, after Cahora Bassa's construction, there were low levels of flow. Analysing the dam's annual discharges during tthe period from 1939 to 1959, it can be noticed that during the first 3 months there were lots of floods and high flows that would reduce when approaching the dry season. After building Cahora Bassa, there is a more stable flow than previously.
2. Climate Changes: difficult to measure the impacts of the climate changes. But it is necessary to recognize that it might have an influence.

Objectives of the Project

Improve the management of the river waters in order to minimize the loss without reducing the benefits, this means continue producing electric power without reducing the water on the Delta.

Objective I

Influence the water flow of the river in order to achieve a flow that more closely mimics the natural flow. The drying of the wetlands has been having the following effects:

- Increase of conflict cases between man and animal: Before, areas animals could drink and graze in the floodplain of the Zambeze River's bed,. Now, these areas are dry and the animals have to go to the Zambeze River. On the way the animals have to pass by communities.
- Reduction of Sediments: when the waters flow they take useful sediments that support agriculture and many other lifeforms in the Delta.
- Reduction of fish on Sofala's Bench: A study showed a direct correlation between the water flow and the shrimp catch: the greater the flow, the greater the catch. Mozambique loses around US$30.000.000,00/year in lost shrimp catch from the changes in flow due to the dam.
- Increase of the cost of irrigation on the Compan-

hia de Sena due to the fact that the groundwater is getting lower.

- Greater negative impact on the floods: On the undammed river there were floods approximately every 5 years, but now people have settled in areas close to the river made dry by the dam, and when floods come the impact is worse because of settlement in the floodplain.

Objective II

- Improve living conditions of the communities affected by the dam, by capacitating them in management, markets, advocacy and others;
- Create partnerships between the private sector and the communities in order for these to benefit from the activities of the private sector;
- Exploitation of the area's existing potentialities;
- Mitigate the conflict between man and animal.

4.2. Social Impacts of the Cahora Bassa Dam (HCB)

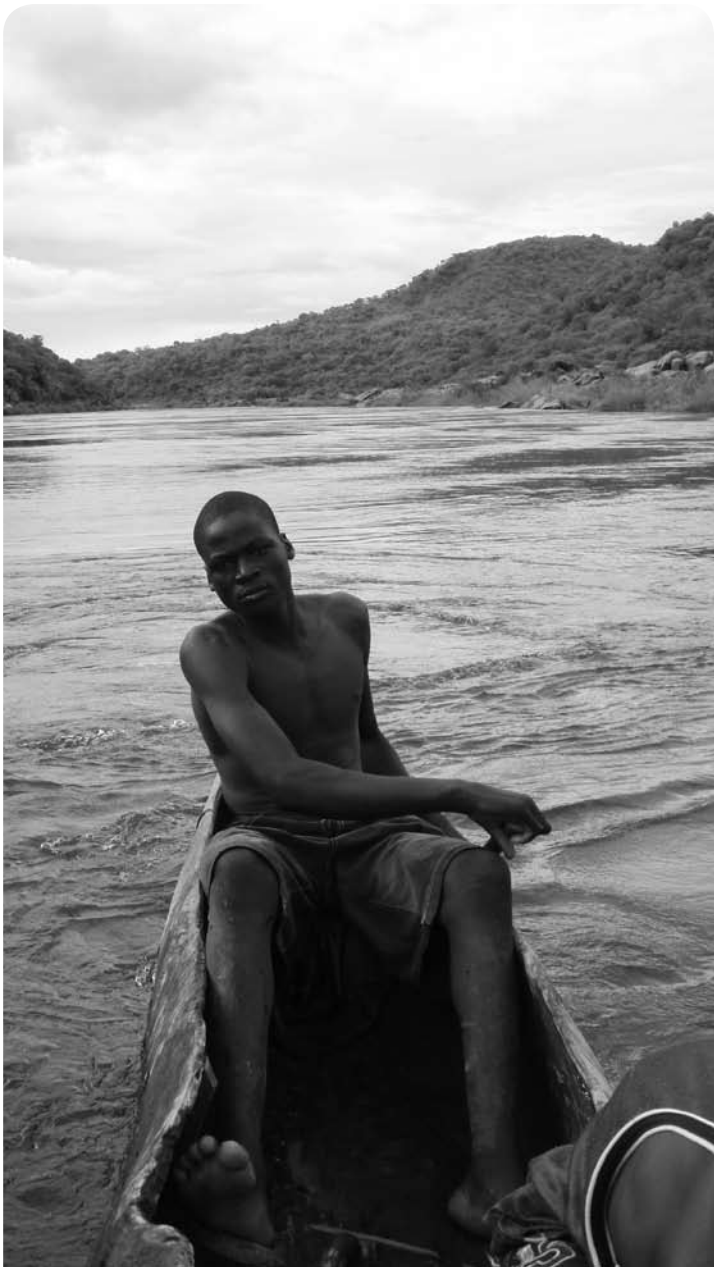
(Presentation by Eduardo Nhabanga, Justiça Ambiental, Mozambique)

4.2.1 Summary

Around 42,000 people were resettled by the HCB, a number twice above what was planned for, which resulted in an increase in poverty and diseases.

For several years there was no energy produced by the dam due to sabotage of the lines, but even today, most Mozambicans do not benefit from the electricity produced by HCB.

The changing of the HCB's flooding pattern affects around 700,000 people that depend on the river and live on the Zambeze's Basin and has impacts on the grazing areas, agriculture yield, fishing and hunting industries, water quality, river and delta transports.



Lower Zambeze has problems of grazing as this is directly affected by the flooding patterns of the Zambeze. The availability of quality grazing during the dry season is critical, depending on the floods during the rainy season. The quantity of livestock has increased due to the return of the regular annual flooding.

Agriculture

There are negative impacts on subsistence and commercial agriculture. The passage of sediments rich in nutrients is blocked upstream by the dam, causing a decrease in soil fertility, causing erosion of the sand benches, and saline invasion, which allowsinvasion of exotic species.

Fishing

The wetlands and the mangrove forests are used as spawning and nursery areas for several freshwater and marine species. Since HCB was built there has been a verified significant reduction on the quantity of fish captured on the Lower Zambeze. The annual amount that would result on an improved flood pattern could be measured in millions of US dollars.

The shrimp industry has suffered severe impacts due to the changes on the river flow. According to António Inguane, restoring the natural flow to the downstream areas would, over 2 years of improved water management, lead to an increase of up to 20% of the shrimp productivity, causing an increase on the gross sales of US$1,000,000 to US$30,000,000 per year.

The Floods Continue

The floods of 1978, the first flood after HCB was built, caused 45 deaths and 100,000 displaced people and a loss of around US$62,000,000. These floods destroyed the belief that the dam would finally control the floods.

Conclusion

The upstream dams have been having longterm impacts on the downstream communities and local economies. These impacts can be mitigated with if HCB starts using "environmental flows" to restore some of the water to downstream areas. The solutions to these problems should be prioritized.

4.2.2 Discussion

No question was asked.

4.3. The Experiences of the Zambeze Delta

(Presentation by Patrocínio da Silva, Coordinator of GPZ/UGP Marromeu, Mozambique)

4.3.1 Summary

The Zambeze Delta is an important floodplain of around 1.2 million hectares, it has a great potential of human resources, great biodiversity and conservation areas.

Dam's Consequences and Effects

Dams interrupt the natural course of a river's waters. The several dams built along the Zambeze Basin have interrupted the natural course of the waters by more than 70%. The immediate effect is felt on the lower areas and on the areas closer to the Indian Ocean (Lower Zambeze and Zambeze Delta). The consequences are the following:

- The Ferry boat of Companhia de Sena, that transports 300 containers of sugar (900Kg) on a 100Km path between Marromeu and Chinde, gets stranded on the benches of the Zambeze River during its trips;
- Reduction of the economical activities of an area rich in resources, but with extreme absolute poverty levels;
- Reduction of quality of life for people in the area;
- Reduction of agricultural productivity;
- Reduction of other profit-making activities of the population;
- Reduction of wild fauna: For example, in 1982 there were 45,000 buffaloes in the Reserva de Búfalos de Marromeu[13], but a 2007 count revealed just 7,000 buffaloes.

The Marromeu area is a wetland of international importance, however it is getting drier. On the last fires on the Reserva de Búfalos, during the first week of November, there were hundreds of buffaloes in burned areas, without any green grass areas. Thus, the buffaloes have approached the Indian Ocean to eat the last vegetation near the coast of the Reserva de Búfalos.

The flora is also suffering. There is die-off in the mangroves due to saline invasion, pH changes and meteorological changes on the Zambeze Basin and in particular in the Delta.

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Problems to be studied, quantified and measured

1. Mangrove mortality
2. Shrimp mortality: there is a great shrimp mortality because they grow on the mangroves' roots and if they don't have the hydrostatic force of the waters of the river to return to the sea, they die.
3. Decrease in groundwater levels: it seems it has decreased from 7 to 14 meters.
4. Increasing saline invasion: there is saline invasion in 18 thousand hectares of sugar cane, which affects the productivity of the Companhia de Sena.
5. The natural, rich grazing areas in Marromeu are suffering changes. The Hyparrhenias and other grazing preferred by the buffaloes has been reduced in size and density.
6. Some animal species are decreasing in number. It can be noticed in the distribution of the hunting quotas for the safaris' enterprises. The population of lions has been reduced in Marromeu and the populations of pala-palas, gondongas and shangos have increased significantly due to the lack of lions. Other species have entered the vulnerable category due to the lack of water and quality grazing and to the increase of illegal hunting.
7. Invasive plant species: Acacia xanthophloea, that did not exist previously on the Zambeze Delta nor on the sub-basins of some tributary rivers, is now abundant.
8. Fires are becoming more frequent: these devastate hundreds of kilometres of forests and grazing, as the land is not wet anymore, the fires are now a natural calamity that annually destroys renewable resources on the Zambeze Delta.

5. Social Impacts on the Zambeze Dams Projects

5.1. Basilwizi Work in the Zambezi Valley, Zimbabwe – "Repairing broken lives"

(Presentation by Boniface S. Mutale, Director, Basilwizi, Zimbabwe)

5.1.1 Summary

Background de Basilwizi

Between 1957 and 1964 the Tonga and the Korekore (T&K) populations of the Zambezi River Valley in Zimbabwe and Zambia were forcibly resettled due to the Kariba Dam and the resultant reservoir. They went to arid, low-rainfall areas, incapable of sustaining farming activities. Areas used for traditional river based livelihoods and hunting were restricted by the government's designation of wildlife sanctuaries. The Kariba dam is now important to the Zimbabwean economy through its hydroelectric power, fishing and tourism related industries, but this has left the indigenous T&K people poor. They still struggle with:

- Perennial food shortages and malnutrition;
- Acute shortage of safe drinking water and energy. Dam-affected people walk about 10km in search of water and firewood for energy;
- Lack of access to irrigation water and other infrastructures;
- Poor water and sanitation facilities;
- Shortage of skills and professionals in all sectors, mainly in health and education;
- Long distances to access basic services, which is not consistent with targets set in the Millennium Development Goals (MDGs).

These problems led to the formation of Basilwizi, which is an entirely local initiative, formed by the affected people as a tool to demand accountability from the authorities on the distribution and utilization of local resources and improve living conditions in the Zambezi valley.

Objectives of the Basilwizi:

- To empower the communities and be able to advocate for developmental changes and their inclusion in decision-making processes on issues that affect their development.
- To assist the communities to improve their socio-economic well being, through the establishment of people-centred development projects.
- To facilitate the putting in place of legislation, policies, procedures and practices that enhance access, utilization and control of the natural resources by the affected poor communities.

Basilwizi activities:

- Capacity building activities, which focus on community skills
- Advocacy and lobbying
- Organizing conferences
- Exchange visits by affected community representatives
- Networking with likeminded organizations.
- Research and documentation, and information dissemination.

Achievements

Awareness Raising on the plight of the Tonga people, at various levels of government and with other stakeholders.

Unification of the Tonga People: Basilwizi brought together the affected people to reflect on their common problems. It managed to enable them to speak with one stronger voice.

District Lobby groups: established and trained District lobby groups and focal persons at the grassroots level that plan and implement advocacy actions.

Lobby for change of the education policy: Through the lobby and advocacy efforts government now recognizes Tonga and other marginalized languages and has agreed to teach them up to Grade 7. Government commitment is however yet to be seen.

Government and corporate response

Government is working on an irrigation scheme that is expected to accommodate about 100 farmers in Binga district as part of measures to restore the communities' livelihoods. This is however stalled due to lack of funding. ZRA is also planning an irrigation scheme as well as other projects in the affected communities. Some business people have agreed to discuss with local communities to find ways of how they could contribute to improve their living conditions.

Negative developments

The government of Zimbabwe is working on a dam that will displace about 5000 people in the Zambezi valley. It is painful because it will affect many of the same people that were displaced by the Kariba dam and that the government is not consulting with the affected communities about resettlement plans. The people fear that government will not give them enough time to prepare for the relocation. No land has yet been made available for these people.

Challenges

- Negative government perception towards NGOs
- Unfavourable political and economic conditions resulting in shortages of critical program inputs, e.g. fuel.
- Poor road network and other infrastructure.

5.1.2 Discussion

Tarcísio Yacor affirmed that Boniface Mutale did not present alternatives for the populations' subsistence and did not talk about technical trainings, experience exchanges, sensitization, specifically in terms of community's survival. Boniface answered that as an organization first it has to ensure that the populations have the capacity to advocate their rights.

5.2. Displaced Communities in Sinazongwe, Gwembe Valley, Zambia

(Presentation by Nyambe Luhila, Project's Official, Kaluli Development Foundation, Zambia)

Nyambe Luhila
Project Officer - Kaluli Development Foundadtion, Zambia

5.2.1 Summary

The construction of the Kariba Dam directly affected a total of 55,000 people, mainly Tonga and Goba peoples, and the consequent flooding of the agriculturally better part of the Gwembe Valley (Zambeze Valley) resulted in an overcrowding of the remaining areas. The people settled around the limited arable land at the lake shore, in hills and in river valleys and gave rise to population pressure, severe water shortage for domestic use and livestock and soil erosion. This required proposals to resettle a great number of people outside the valley in order to restore the balance between population, soil and water.

Through its Sustainable Agriculture Project, Kaluli Development Foundation (KDF) has been working to improve and ensure the livelihood and household food security status of the rural communities in Sinazongwe District through implementation of appropriate low external input crop/livestock production and environmental conservation technologies.

The main focus was on soil and water conservation with soil fertility improvement and conservation education in schools and communities. The Water Supply and Sanitation project on the other hand, was acting in favour of rural communities through construction of weirs for livestock and small holder irrigation. Water for livestock and human beings has been the major focus since most settlements are far away from the lake.

What has been achieved in these projects has been as a result of community participation in the project activities. While governments may take responsibility to compensate affected communities at a higher level, the approach at grassroots for NGOs is mutual co-operation with the people. When compensation is used as an approach at grassroots, communities don't feel responsible for the activities and thereby long term usage and care for infrastructure may be affected. Traditional Leaders are key in driving the communities towards advocacy on their rights and at the same time instrumental in ensuring community participation in community projects. The greatest achievement a government can attain, among others, is to provide an enabling environment for Civil Society involvement in addressing issues affecting displaced communities as a result of large dams.

5.2.2 Discussion

Sérgio Elísio affirmed to be involved in the development of Mphanda Nkuwa and that his project is yet in an incipient phase regarding these issues. He stated that there was a study that involved all parts, technical, economical, environmental and social. The environmental study has stopped and this is the reason why there is no action plan for the resettlement. The government's intention is to develop the Mphanda Nkuwa project in partnership with the Private and Public sector and thus in this incipient phase it was not possible to develop an action plan for the resettlement as it would mean to hypothecate the project from the beginning. There is an Environmental Law that predicts this resettlement of the population issue, and in it are all the rights that the population has. For the licensing of the project's development, the communities will be invited to suggest a place for them to be resettled. Sérgio affirmed also that the communities' rights will be preserved according to the law.

6. Social Implications of Africa Dams' Projects

6.1. Inheritance of Big Dams in Africa

(Presentation by Liane Greeff, South Africa)

6.1.1 Summary

60% of the world's major rivers have been dammed and this has caused an enormous decline of the world's aquatic biodiversity and radical changes in rivers' flow patterns.

Regarding the Zambeze, one of the issues around Mphanda Nkuwa dam is changes in the flooding patterns and the impact this will have on communities. Other relevant consequences include:

- Fish migration blocked which may lead to hunger;
- Alterations on water characteristics and habitat.

All these changes have social impacts for river-based communities.

Big Dams and Human Needs: Africa's Record

In Africa, even after several years since the construction of several dams, there are still suffering and still impoverished affected populations. 4% of Ghana's landmass flooded by Akosombo, yet 70% still have no access to electricity. The Nile and Volta Rivers' estuaries are being devastated by large dams affecting the fish in the oceans, because a lot of these estuaries are where ocean fish spawn and lay eggs.

Zambia and Zimbabwe have two times the water storage capacity per person than Australia, however dams' poverty impacts have been minimal and many remain without water.

Southern African Hearings for Communities Affected by Large Dams

According to the World Commission of Dams (WCD), large dams have brought benefits, but at great cost--too often the social and environmental costs have been unacceptable and avoidable. It is important to look at alternatives before going ahead with a dam. In Southern Africa there were hearings where communities from dams throughout the region gave their stories as part of the WCD process; they also made a declaration which they called the "Declaration of Broken Promises":

- "We lost our livelihoods and cannot regain them": their lands were not replaced, their houses were demolished, they lost control of the natural resources, their wild life disappeared, their cultural values and roots were destroyed and the lives of some members of their communities and family members were violently taken from them.
- "Large dams have caused a decrease in our standard of living, a decrease in our level of health, cost for resources that we previously used freely are now expensive."
- "In Southern Africa there has been a huge increase in HIV/AIDS from large dams and urban migrations and in conflicts in our communities where there once was none."

Learn from African experiences, especially Maguga Dam

It is necessary to learn from other African experiences. The only example where people have actually been better off after resettlement is that of Maguga Dam which chose to go through their own learning experience and tried to learn from the mistakes that others made. The community is capacitated to negotiate their own resettlement and they were able to use money and built their own houses to their own specifications. The water followed them in irrigations canals. They got great schools, great clinics and there is a lot of agricultural support. There is an independent dispute resolution process, to which the communities are able to go to if they feel that the promises were broken.

Recommendations

These recommendations have resulted from the Affected Communities Southern African meeting in 2006:

1. Decision making are of extreme importance. The communities support the WCD and call for national dialogues.
2. Dams must be seen as means to development and alternative development options should be given equal opportunity.
3. Affected communities must be allowed to participate as equal partners in the process.
4. A transparent process must be established to facilitate negotiated agreements on key aspects of projects, including compensation, resettlement and benefit sharing.

5. Ensure effective participation of communities in the decision-making and implementation process through:
   - Empowering communities
   - Increasing involvement of NGOs and media
   - Facilitating development of community committees
   - Strengthening existing locally based structures
   - Providing capacity building and training programmes
   - Making all project documents available.
   - Providing funds for participation.
6. In order to ensure that projects are implemented properly and promises are not broken, Government, project authorities and other project developers must take responsibility and enter into binding and enforceable contracts for compensation and resettlement programmes. These contracts must be properly negotiated and agreed upon with affected communities and there should be legal expertise available for the communities and they should be independent from governments.
7. Resettlement and compensation issues must be resolved to the satisfaction of communities before construction begins. Milestones of progress must be established and sanctions imposed if not met.
8. As long as they continue to stand, dams must be monitored, including dam safety and impacts on community health and sanitation.
9. Communities request that international law which protects the basic human rights must be followed when building dams in Africa.
10. Lastly, the issue of environmental sustainability is very important. We should ensure that people who derive their livelihood from the Earth should be given a chance to live with dignity.

"It is our duty to leave future generations a safe earth, which sustains their lives as it can sustain all of us."

6.1.2 Discussion

Patrocínio da Silva noted that world and African experiences should be discussed and thought about in order to avoid committing the same mistakes. Government and their partners must avoid committing these mistakes or they will create permanent conflicts that will affect the lives of the communities, and the government's image. He also criticized Sílvio Elísio for stating that government will not talk with the communities that will be affected by the dam before finishing the negotiations between the private and the public sector. He also affirmed that Liane's presentation should be taken into account because she already has some African experience in this matter.

Anabela de Lemos stated that the process is not transparent. Decisions are being made and the process is going forward but the communities do not know where they are going to be resettled. She added that when concerns have been raised those raising issues are "attacked" and information is not provided.

Sérgio Elísio said that his intervention was misunderstood. He said that there was always the concern by the government to involve the communities from the beginning of the project. Public hearings were made and it was explained to the population what is going to happen. He clarified that although Nyambe Luhila had recommended that for Mphanda Nkuwa the ideal would be to negotiate now about the compensation, a resettlement plan was not yet developed. This is because the government is still searching for partners to develop the project, but the government will have the obligation to follow the Environmental Law.

Liane Greeff said that in the Law it is stated that people should be the same or better off than they were before the resettlement, however, that rarely happens. In fact, everybody does want the affected people to be better off than they were before, but it is not at all easy to achieve this objective. There are a lot of things that can be done now. The more open the process and the more early the dialogues with the communities, the easier to find solutions it will be.

José Chiburre stated that it seems to exist a search for funding without knowing which compensation models will be used. He said that the funders should know first what the mechanisms for resettlement and beneficiation will be and if they are investing in a fair cause. The budget for funding should include the resettlement costs.

Hope Ogbeide reproved the fact that the government and the private sector are criticizing the work of opponents of the development processes, because this opposition intends to establish an agreement between the affected communities and the civil society's organizations, the government and all the other integrant parts. It is necessary a joint participation and people cannot continue monopolizing the resources for the benefit of only a few. Regarding the decision makings, the communities have a very limited participation; this process model has not worked and has created problems. A better solution

must be found through the involvement of communities in the beginning of the projects and through hearing their needs.

Ali Askouri affirmed that it is necessary to have an agreement about the meaning of participation, because the government hand picks the representative of the affected communities, and most cases these representatives are in some way linked to government and so they do not care much about reflecting or defending the interests of the affected community. In several African countries, the government knows that they are always the stronger and that no one is going to get the Government to honour what they signed up to. And lastly he suggested trying to use the term "beneficiary communities" and not "affected communities".

Liane Greeff stated that the conference that Thabang mentioned earlier the Southern and East Africa Conference on Dams, has established really that benefit sharing is one of the ways of getting justice for affected communities if there are a project of beneficiaries. However, in most of the dams, the affected communities are not beneficiaries, but the WCD stated that the affected communities should be the first in line to get benefits from any project. When a resettlement is not properly done, like the case of Kariba Dam, it will haunt whatever Government is not doing properly, thus, it is to the benefit of everybody that the resettlement is done correctly.

Sena Alouka concluded that everyone agreed that the participation is an aspect that must be included in the initial phases of the Mphanda Nkuwa case. It is important that the communities are involved in all phases of the project.

6.2. Dam Affected Communities (Nigeria), Dam Impacts on Hadejia Nguru Wetlands

(Presentation by Muslim Idris, Hikyb-wdi, Nigeria)

Muslim Idris, Hikyb-wdi, Nigeria

6.2.1 Summary

The Komadugu Yobe Basin (KYB) is a semi-arid to arid sub-catchment of the larger Lake Chad Basin. It is the source of internationally shared waters whose management in Nigeria has an important bearing on diplomatic relationships between Nigeria and four other countries that share this basin. The basin holds a great potential for tourism, small and medium scale industries, ecosystem management and habitat conservation. The KYB also contains the Hadejia-Nguru Wetlands, place of enormous economic and ecological importance. The Wetlands support the livelihoods of 10 million people.

The construction of the upstream dams (Tiga and Challawa Dams) on the Hadejia River greatly altered the river's natural flow pattern and has brought changes to the environment and the livelihood of the communities throughout the course of the river. The alteration of the flow pattern has resulted in siltation particularly around the Hadejia- Nguru Wetlands areas. Invasive Typha grass, which has flourished in the regulated river flow, has choked natural channels, flooding the major road linking the six states. Poor management of the dams also often results in excessive flooding of farmlands, schools, villages leading to loss of lives and properties.

Industrial wastes are also discharged into the river constituting serious environmental hazards and causing massive death of fishes and other aquatic life. It also constitutes health hazards to human and livestock population that use the river resources. All these facts increased the poverty level of the 10 million people whose livelihoods rely on the river and it also leads to growing conflicts especially between the farmers and the cattle raisers. Water management problems of the KYB include:

- Scarcity of water,
- Fragmented inequitable and uncoordinated management
- Increasing population and vulnerable groups,
- Invasion of aquatic weeds, notably Typha domingenis,
- Degraded environment,
- Unutilized development potential,
- Inadequate operation and maintenance of existing water infrastructures,
- Operational problems in management of the dams,
- Competitive unilateral development and operation of RBDA[14]s,
- Extremely large and small floods,
- Lack of or poor coordination,
- Lack of or poor integrated management strategy, Institutional weakness,
- Socio-Political Or Root Causes,
- Poor Data And Substantial Knowledge Gap,
- Weak Legal and policy frameworks,
- Generally inadequate stakeholder preparedness for effective participation,
- Insufficient consultation and political will,
- absence of grassroots advocacy groups and low citizen participation at all levels,
- Increase in Population growth on the diminished water resources and Migration

Recently, due to the lack of power supply in the City of Kano State, the government wanted to utilize the two dams (Tiga and Challawa Gorge) for electricity generation. However this idea had been dropped due to the low economic value and political pressure from stakeholders. The combine two dams can only produce 18 megawatts because of their technical deficiencies. The two dams were initially design to also produce electricity apart from the water supply for irrigation and domestic consumptions. The new concept now is to utilize the 18 megawatts and add the diesel option to achieve the target. A feasibility study is currently underway.

Lessons learnt in the basin are:

- Improved institutional and sectoral linkages,
- Increasing local economic value,
- Reducing or eliminating security risks (such as armed robbery and inflow of immigrants from neighbouring countries),
- Solid data collection and information management,
- Improved environmental protection,
- Addressing institutional weaknesses,
- Providing goodwill and transparency in all future developments in the basin.

The formation of several institutions helped in the unification and understanding of the basin's problems in a coordinated and sustainable way thereby addressing the communities' problems. These could not have been achieved without the cooperation, assistance and good will of donor partners who carried out sensitization programs. The effort of this institutional setup forced the government both at the local, state and federal levels to provide funds worth 1.7 billion of Naira to address some key issues as well as bought Typha cutting machines and awarding contracts for the construction of dykes along the river Hadejia for effective water management which will all address the conflicting issues.

14 River Basin Development Authority

7. From Sudan to Mozambique: China's Role

7.1. Case study Merowe Dam

(Presentation by Ali Askouri, Sudan)

Ali Askouri
Sudan

7.1.1 Summary

The idea of the Merowe dam project started in 1946. The Project started in June 2003 and will create a reservoir of 174 km. The project is located in northern Sudan on the Fourth Cataracts of the Nile. There is another Dam proposed for the 5th cataract.

The exact total cost is not know, however it will be between US$2 billion to 2.5 billion. The main contractor of the project is the CCMDJV, a joint venture between two Chinese engineering companies. There are also European companies involved.

Affected communities

In early 2007 it was estimated that more than 75.000 people have been affected by this Dam. However, some estimate that it goes beyond 100.000 people. The government still does not accept this, because they want to reduce the compensation costs so the project becomes feasible. There are three groups affected by the project, these are:

Hamdab: where the Dam site is. This was the first project name, but they changed it to Merowe Dam. Merowe is a place that belongs to a quite influential group in the politics. This group represents about 8% of the affected communities. It was forcibly displaced to a desert area, Al Multaga.

Amri: about 25% of the affected communities. Half of this group has been moved to desert, another half still remains in its old village. The Dam authorities are going to start filling up the reservoir but have no alternative, nor houses or lands, for these remaining people.

Manasir: about 67% of the affected communities. The Dam authorities decided to move them to 2 resettlements areas, Al Makabrab and Al Fiddah also in the desert. This group hasn't moved yet, and Al Makabrab is not ready yet. Only about 165 families moved to Al Makabrab over the last weeks.

Violations of International Standards

The only available independent environmental impact assessment study in this project was carried out by Lahmeyer International in 2002, which is a conflict of interests because it is the Dam Consultants itself. In this study, Lahmeyer accepted that there was no resettlement study, just six months before the start of construction. The 1992 independent health impact study identified 20 major negative health impacts, but in Lahmeyer's study, there was no mention about this. No precautionary health measures have been adopted, and the effects of the Dams of the downstream population have been ignored.

Small farmers living downstream will face difficulties in irrigating their plots due to lowering of the level of the Nile and will be affected by the reduction in annual siltation. 2 experts who visited the resettlement sites determined that the project violates the World Bank guidelines.

Human Rights Violations

September 30th: people of the Hamdab group and children of Korgheli Village were ruthlessly attacked by the Police. Altayeb Mohammed Altayeb (President of the union of the affected people) and Abdel Mutalab Tai Allha (Union deputy President) were both detained in Kober prison.

December 1st: the police attacked the people of Korgheli Village, who refused to move to the desert, so the construction could start. The police closed down the primary school and the health centre to force them to move out from their own village.

December 2004: the Dam Security Unit arrested 4 members of the Manasir Committee. There was 1 committee for the 3 communities and in order to weak the affected communities, they decided to split them up. These committees were picked by the

Dam Authorities and these are the people who the Dam Authorities often deals with.

November 2005: the Chinese contractors occupied water well in the Bayouda desert, preventing the Manasir nomads from accessing the water. They said they needed water for building material and for their own domestic uses. In the desert the water is very short and there is not enough water for building, drinking and house use.

April 22nd, 2006: the armed dam militia attacked the Amri people killing 3 and injuring more than 40 people.

2006: the Dam Authorities closed the spill ways, so a lot of families were flooded and people had to escape during night to nearby hills and mountains. They wanted to force these families to go to the desert where few houses were built. The authorities refused access to media and aid from getting into the area. However, it was possible to get journalists to go into the houses where the Authorities moved the people; there was an average of 5 families living in a 2 bedrooms house. An estimated 800 families have no houses and live in open air. Some families are building their own houses.

Lessons Learnt

- Dams' projects are top-down development approaches that suits China but not most of the countries. The Dam Projects in Africa are all supported by China and all follow a top down development approach. China encourages its African partners to deny any participation of the affected communities in the decision making process.
- Chinese contractors do not respect African local laws and the traditional laws of property ownership.
- The Chinese Contractors ignore the human rights. While all the violation was happening to communities the Chinese contractors and workers tried to deny that.
- Well organized grassroots resistances coupled with a worldwide media campaign are effective means for the dam affected communities to use.
- Chinese supported projects lack transparency. Up to now the project has been in inexistence for five years. There has not been any report.
- From the experience in Sudan, China is in Africa to plunder resources regardless of the suffering of the African People.
- Chinese contractors offer little (if any) employment opportunities for local communities. In this project there were 5.000 Chinese working in it and one driver job for the affected community. The Chinese will not even buy things from the local market.
- Dam Affected Communities need to be united and well organized and must look for support and resources from within their own countries and from international NGOs, because, once things go out the government will listen.
- Chinese policy makers have no knowledge of Africa and the nature of African societies. That's why they support the top-down.

7.1.2 Discussion

One of the participants asked what is the government's role regarding the problems of human rights violations and negative environmental impacts brought by the project. Ali Askouri answered that the government's role in Sudan seems to be very negative and destructive; it does not respect the human rights. The militias that attacked the population were governmental. When they tried to know who in fact had conducted the attacks, the attorney general said he was going to set up an investigation committee and would publish the report after 10 days. However, there is no response yet. The one demand the communities make is for them to have available water, because the desert is very hot and the Nile is the only source of water.

Another participant commented that in Spain, there was news that Sudan could be the 1st China's modern colony. Ali answered that he believes that can be true and that China will colonize other African countries.

Terri Hathaway questioned about Merow Dam's function, because Ethiopia has a campaign to build several large hydropower dams to export energy to the neighbouring countries. Terri asked how the energy will be used and if Susan has the capacity to absorb all that energy. Ali answered that he has already heard about a link between Sudan and Ethiopia, but he thinks that the project will not go ahead because not many government officials benefit from that. It would be better if Merowe Dam could be built in Ethiopia, because the dam increases evaporation, because it is too hot in that part of Sudan. 8% of Sudan's share of Nile water would be evaporated from the reservoir of this dam. And this is an aspect that must be taken into account because there is a huge fresh water problem in these areas. Ali Askouri also stated that he heard people taking about an intention of exporting the power produced by Merowe Dam to Egypt, and then to the Middle East, but he

doubts that that will be done. He also heard that the project life span is about 40 years because of siltation.

A participant showed he was worried about the fact that there seems to be lack of coordination among nations along the Nile River. Ali answered that could not comment on that and that Lori Pottinger was more indicated to do that, but he thinks there are historical problems and conspiracy theories among these countries. He stated that it is hard to get them to trust each other given the fact that Egypt wants to hold to historical Nile agreements while other countries want to reach a new agreement. The Nile water is not enough. A new water management system needs to be introduced.

7.2. Role of China in Mphanda Nkuwa and forests in Mozambique

(Presentation by Daniel Ribeiro, Justiça Ambiental, Mozambique)

7.2.1 Summary

China is becoming a big influence in Africa, mainly because dams are the required resources for China's growth. People underestimate the pressure of this growth, if China has a 1% decrease in the growth of GDP, they will lose 150 million jobs, the equivalent to the work force of USA. The larger percentage of the resources in which this growth depends on comes from Africa. Therefore, there's an interest in increasing the projects and influence in Africa. There are positives and negatives in this relationship:

Positives:

- China has very good interest rates compared to other foreign donors. This is an advantage for African countries which interest rates are usually a big problem.
- Their engineers and their construction companies have much lower salaries than the western.

When more people want the same resources it raises the value of the resources.

Negatives:

- China's social and environmental standards;
- China's political strategy, "no interference" strategy which means that they will not interfere in the country's politics which gives freedom for the countries to decide their own direction, but the negative side is it is feeding the oppressive systems.
- A lot of the labour of these projects is from China because China has a major unemployment problem and it solves it creating jobs outside of China. So the countries are not developing capacity and skills in their own communities, and when China leaves the countries they do not know how to maintain or run properly the projects.

It is important to look into what it is considered a good standard and whoever does not meet this standard has to be confronted. Each investor has advantages and negatives.

Experiences of Mozambique with China

In a meeting in Beijing where local NGO's from Africa and from other countries discussed their experience with China and the majority were bad experiences.

One of Mozambique's neighbours has had major problems with China. When China was looking for a dam site, they insisted with the environmental components as part of the assessment and China criticised and advised to give economic priority to their decision. This pressure shows the kind of pressure to expect when it comes to investment, and the social and environmental impacts end up becoming a burden because China's interest is in economic growth and resources. Therefore it is important to put the community's interests in the table or else they won't be respected. Even in China, there was a case about the production of rechargeable batteries that was having high levels of cancer and deaths due to poisoning.

The experience of Mozambique with China is mainly in the small private sector of wood and fisheries. Mozambique has a very large coast and has big difficulties controlling this. In October 2005, one of the Chinese ships docked in Mozambique harbours and they had over 4 tons of shark fins. When this was presented to China, the response is generally "it's not our responsibility to monitor your waters".

JA's project of forestry got the Ministries of Agriculture, of Work, of Migration and of Health together and all went to each of the wood companies in Pemba to see what the conditions of the workers were. The majority had illegal workers, some were from China. A lot of these companies have constantly got fines in how they operate. It has been heard in the news about the over 500 containers of illegal wood found in Nacala, and earlier 2007 over a 100 containers in Pemba.

China wants raw logs even though Mozambique's law, for certain species, is against it. The raw logs don't pay taxes to get into the country and have a very efficient processing of the woods. China is not interested in processing in Mozambique because the average Mozambican loss is around 50% and Mozambique pays taxes on processed wood.

Mozambique can use the "no interference" to its advantage. It depends on what it is consider as standards and what are the interests. Communities need to have a strong view and the government has to support this view. There have been cases in which China has respected other countries' interests and standards.

If China's conditions and standards are accepted, then the communities will suffer consequences. China's firms take the resources and the communities are left with the problems. It is important to make sure that the countries benefit from the low interest rates, low construction costs, expertise they have and the "no interference" in a positive way, but also it is important to be careful with the environmental standards and social issues.

7.2.2 Discussion

One of the participants commented that Daniel Ribeiro said that countries need to be careful with the Chinese corporation. He also commented that on the specific case of Angola and Mozambique, China was one of the allies on the freedom movement. Mozambique also needs to pay attention to South Africa. The participant said that Ali Askouri mentioned the new type of colonization and suggested that the new colonization problem is due to the leaders' behaviour that make this situation easier, because the foreigners, besides their good intentions, they will take advantage of the easiness and will exploit the country.

8. More Comprehensive Perspectives

8.1. "The Resource's Curse" and Large Dams in Africa

(Presentation by Korinna Horta, Ambiental Defence, USA)

Korinna Horta
Environmental Defense, EUA

8.1.1 Summary

The phenomenon of the "resource curse" is visible in many countries in the global south that are richly endowed with natural resources. This wealth is too often closely associated with environmental degradation, human rights violations, corruption and sometimes armed conflict. It creates extreme inequalities where small elite uses all the rent income from exports for its own benefit while the population is left to struggle to survive on its own. The tragic result is that countries relying on natural resources exports are the ones where development indicators are most often among the lowest. In Nigeria, for example, the environmental degradation in the Niger Delta has resulted in suffering for the population and in increasing waves of violence. Another example is the Democratic Republic of Congo in which 4 million people have died as a consequence of armed conflict, much of it related to illegal exploitation of natural resources.

The Lesotho Highlands water project moved the Orange River's water from its natural flow to South Africa's Gauteng Province. In 1986 the Apartheid regime and the Lesotho government signed an agreement about the project. The first phase of the project cost around US$3.5 billion and included the construction of two large dams, Katse and Mohale. Mohale flooded the more fertile lands of Lesotho. More than 20,000 people were affected by the Katse Dam; they lost their farm- and grazing-lands, and other resources. The means of compensation were badly managed. The World Bank established a fund for community development that was such a failure it had to be closed; it was not financing projects to benefit the affected communities, but instead was prone to corruption. The Apartheid regime was subject to international sanctions, but the World Bank co-funded the project anyway, declaring that it would serve to reduce Lesotho's poverty. The idea was that the water sale's incomes for South Africa would be invested in development programs. The World Bank's participation meant that it was agreed the affected population should at least keep their current standard of living. But even this promise ended up not being kept.

In 1996, Lesotho's own state entity, Lesotho Highlands Water Authority, recognized in their documents that the project's impacts on the populations were greater than what had been predicted and that the problems were serious and were leading to a disintegration of the social stratum in the affected areas.

The HIV/AIDS did not exist in Lesotho's mountains before the dams' construction. But the population became vulnerable with millions of migrant workers arriving in the region.

The oil project Chad/Cameroon was also funded by the World Bank. It is the biggest investment onshore in Africa. The oil is explored by a partnership led by Exxon Móbil. Because the region is politically unstable, the partnership demanded the participation of the World Bank as an insurance against the politic risks. An international campaign led by civil society's organization in Chad, managed to delay the project's construction for 2 years. In response, the World Bank took actions with the intention to guarantee that the oil money would be used for the reduction of poverty. These actions were insufficient given the lack of respect for the democratic rights. In 2007, the specialists in monitoring declared that they wanted to make an evaluation of the utilization of the oil profits, but they did not managed to do it because the ministries did not have available data of the investments on the social sector.

The World Bank and the IMF (International Monetary Fund) recognize now that the allowances are being used for military aims and to combat a rebellion in the country in the border region with Darfur (Sudan). Chad lives an intern struggle for the control of the oil profits. In September, 2007, the United Nations decided to send peacekeepers for this region. The thirst for oil creates conflicts that afterwards people try to solve sending troops. Chad's situation has become worse since the country became exporter of oil. Chad's social indicators have suffered a decrease during the last years.

In Cameroon, the populations that live along the oil pipeline have also seen a degradation of their conditions. Among the most affected, there is the pigmy population that still depends on hunting and forest-products harvests. A development fund for this population was established to compensate for the loss of forest. But, the funds were badly managed and the amounts were too low. The fund predicted to finance all the programs of education, health and agricultural development.

It is known that the last years of civil war in Angola were financed by diamonds and oil. Today, billions of dollars enter the Angolan State safe. The 35% per year Angolan economy growth is the most accelerated of the world. But social improvements are very slow in coming, for example, the infant mortality and the millions of deaths in Luanda because of cholera even though the country is sufficiently rich for the entire population to drink mineral water.

Mozambique has the tools to avoid the resource curse. The country is internationally recognized as a success story. It has high international support. But as planned now, its economic growth depends mainly on a few mega-projects. According to the World Bank, in Mozambique the natural resources are essential for the growth and for the reduction of poverty and the legal and administrative frameworks for exploiting these resources are designed to protect the poor, but in practice the actual outcome is the opposite. The World Bank adds that there is a knowledge gap concerning the links between poverty and communities' access and use of natural resources and very few studies have attempted to understand communities' perspectives. Another report says that the World Bank's efforts to improve governance and empowerment have achieved little so far, but success on this front needs patience and persistence. Change is unlikely to come quickly as the beneficiaries of the present system might try to prevent reforms to it. With the good will of people in and outside the government, Mozambique can yet become a true success story in which the development takes into account the priorities of the populations.

8.1.2 Discussion

One of the participants asked how Libya, Egypt and Tunisia have been managing the oil resources. The response from Korinna was that that area does not have so much attention. However, Guinea's Gulf is an alternative area that the Americans have and control through Nigeria, Sudan, Cameroon, among others. It can be said that it is a great influence area where they are mainly bad resource managers. There are potential oil producing countries such as Benin, Togo and Mozambique. Mozambique has the advantage of being a reference of good leadership when compared with Angola. The participant then asked if Korinna believes that Mozambique could be the exception to the rule. Korinna answered that this is a difficult issue and that she could not answer that question, she could only say that she was hoping it could be.

Sena Alouka said that many countries accept to say that they have petrol and asked which should the approach be and what can be done in these petrol countries. Korinna answered that it is necessary to strengthen civil society's organizations concern that have been dealing with oil explorations. It is not the goal of NGOs or even of the communities in the areas to stop the project, but these must demand the right conditions so that the environment is protected and the revenues are equitably distributed. The problem is how to achieve those conditions. In cases when things reach critical points, the important is to establish contacts between local, national and international NGOs and call the attention of several institutions such as the World Bank and the African Development Bank.

8.2. The Role of Community Participation in Development Projects: The Case of Bujagali Dam Project

(Presentation by Betty Obbo, National Association of Professional Environmentalists, Uganda)

Betty Obbo
National Association of Professional Environmentalists, Uganda

8.2.1 Summary

The Bujagali project has appeared on the Ugandan scene two times. In the first round, the project was terminated due to irregularities and illegalities in the project evaluation process. The project was managed by AES Nile Power (AESNP). Now, the second time, the project is being fast-tracked towards implementation under a different management, locally registered as Bujagali Energy Limited (BEL). Already the project has secured financial support from a number of international financial institutions.

NAPE (National Association of Professional Environmentalists) worked with the dam-affected communities to amplify their plight on social, economic and environmental problems related to the project and to empower them to demand for a fair resettlement package before the dam project is started. NAPE also worked with other civil society organizations and the dam-affected people lodge a claim with the Inspection Panel of the World Bank. The Panel carried out an investigation and released a report that found out that indeed, there were irregularities with the project and many export credit agencies withdrew from the project. On revival of the project and with a claim from the dam-affected people to the Inspection Panel of the World Bank for the second time and the African Development Bank, the two banks are now caring out a joint investigation on the project.

NAPE is now spearheading the national dialogue process in Uganda, the Uganda Dams Dialogue (UDD). The UDD has completed its 2nd phase after caring out a scoping study and producing a report. NAPE also spearheaded the campaign to save Mabira Forest from destruction.

Outcomes of NAPE's Intervention

- Government and the developer now listen to the concerns of the affected community and have started address their issues
- Government is now promoting alternative energy sources
- Government abandoned the plan to give away Mabira forest

Lessons Learnt

- Dialogue is the way forward and should be promoted if realistic decisions have to be made regarding development of dam projects
- Dialogues is a "give and take" process therefore, stakeholders must invest in it equally

Conclusions

- All developments projects must should be people's development.
- Stakeholder participation is the key to the success of any development project.

8.2.2 Discussion

Tarciso Yacor asked Betty Obbo about the size of NAPE as they have managed to have participation from the World Bank and the African Development Bank. Betty answered that NAPE is a membership organization with about 80 members and 14 full time staff. Tarciso then asked how NAPE managed to have the compensations for the families. To this Betty answered that there are over 150 people settled in different areas. Kugondza Robert, also from NAPE, added that NAPE works with other organizations, and a lot of these are focused in environment and/or development. These organizations were sensitized by NAPE and are part of the campaign. In the case of the Bujagali Dam, it is necessary to talk about several issues, some of which local people may not be able to understand. Present the case to the World Bank or the African Development Bank

does not depend on how big the organization is, but how realistic and challenging are the issues.

Sena Alouka asked Betty if there are cases of communities being affected by Ugandan dams and Betty answered that when the dams were built there were no Environmental Impact Assessments done and now studies of the impacts of those dams are being done and the dams are being addressed in the dams dialogue to make sure that the government does not do the same mistakes in the next development. Kugondza added that the Owens Falls Dam was the first dam that was built, but also due to the increasing in the power demand there was an extension of that dam. This extension was done without an environmental impact assessment, and this has given strength for the advocacy against the Bujagali Dam, because the extended dam should produce 200MW, but now it produces only 40MW, so the money was not efficiently used.

8.3. Integrated management of water resources: what challenges are involved?

(Presentation by Ebenizário Chonguiça, IUCN, Mozambique)

Ebenizário Chonguiça
IUCN, Mozambique

8.3.1 Summary

Management Concept

It is all the manipulation mechanisms of certain processes to reach an ideal objective or target. When talking about water resources it can be only on the hydrologist perspective or on the perspective of a sociologist, economist or institution. To define the ideal management objective, it must be considered the following basic elements:

- Define objectives
- Constrains to reach a certain objective
- Technical Constrains

Next, it is necessary to equate it in the context of a hydrological basin, in other words, to organize, to analyse and to integrate the objectives, constrains and techniques in order to the planning processes, decision making and implementation are the most efficient and effective as possible.

Adaptive Management

It is important to consider the adaptive nature of the management program. The concept of adaptive management creates spaces for making correc-

tions and adjustments while the management plan is being implemented.

The management must see the basin as a functional water resources planning and management unity that has a physical definition. For wider objectives it can be defined as a social basin.

Potential of the water resources in Mozambique

Mozambique has 13 main basins, 9 of which are international. The country has an average of 216 km3/year of annual drainage volumes, 116 km3 of which are formed out of the national territory and 100 km3 are formed internally. The Zambeze River has contributed with about 50% of the annual drainages.

The water availability per capita in Mozambique, focusing only in the resources formed nationally, is around 5500 m3/habitant/year, and this can be a significant availability when comparing to other countries. However, there must be an existing capacity for utilization. Africa is rich in natural resources, but it is very poor because it does not have the capacity to convert natural capital in goods and useful services for the society.

Management of Hydrological Basins

It must also be taken into account:

- Concept of multiple uses: Production of more than one product or service from one single resource. This is a key concept in basins' management and widely accepted but of difficult implementation.
- Magnitude of management efforts invested in each of the practices.

Multiple Uses

- Applied to one area: management of several products of natural resources or combination of products in a certain area.
  - Relations between the products/combinations: it is necessary to see which is the adequate situation for the society, knowing that it is not possible to satisfy everyone:
    - Complementary: improvement of one results in improvement of the other.
    - Supplementary: improvement of one does not affect the other.
    - Competitive: improvement of one damages the other.
- Applied to a resource: use of the resource for several purposes.

Multiple Uses on the Hydrological Basins Context

- Determination of the lands' aptitude levels for several types of use
- Analysis of costs and benefits associated to alternative uses
- Recognition of externalities and impacts off-site associated with alternative uses

For an economical evaluation of alternative multiple uses it is necessary to:

- Select the best option to follow
- Economical evaluation combined with satisfaction of the objectives of the multiple uses normally defined by social groups that pay and benefit from the plan's implementation.

Externalities

Effects of the decision making by a part on the gains and losses of other parts.

- Technical Externality: affects third parts through changes on the functions of the production/system efficiencies
- Financial Externality: affects third parts through the market/receipts' distribution

Externalities' Analysis

In the ideal perspective of the planning and management of the resources it is necessary the existence of a formulation perspective of several options of sceneries and it is necessary to see which of these improves the statu quo, analyzing costs and benefits.

The meetings and public hearings form the model used to define consensus, to create transparency, integration and inclusion. However, some people say that it is not more than an illusion of inclusion.

There are available technical and scientific tools to analyze the aptitude of the basin to be managed that are based in simple principles. They help these to manage the use of the resource. These help to manage the resource's use.

Political and Institutional Aspects

To formulate a policy of water resources management it is necessary to have:

- Resource sharing with the sectors
- Norms and regulations
- Institutional arrangements
- Roles and responsibilities of the several intervenient
- Water regional administrations
- Basins' committees
- Users

8.3.2 Discussion

Tarciso Yacor stated that in Mozambique, in 2006 there was a 7.5 in the Richter scale earthquake in Tete city and he asked Ebenizário Chonguiça if he, as a hydrologist, would go ahead with the project planned for the Zambeze area taking into account the seismic risk. Ebenizário answered that the response should be based in technical and detailed analysis and that it depends on the project's nature that is intended to be built and, also, that it is necessary to see what type of technical scenarios can be placed in the field to minimize the seismic effects. Ebenizário also stated that there are more seismic areas than Mozambique, e.g. Japan and California, in which, with the technical information about the area projects can be implemented adjusting them to the risk. He then concluded saying that this is an issues about risks management that it is always a probabilistic matter, and the important is to reduce the probability of an incident to occur.

Ali Askouri commented that he understood that making a decision about a dam project is not purely on feasibility, economic and benefit terms, but also there are political factors. Ali stated that around the world it is hard to find affected communities that took part in making the decision about the construction of the dam and he also affirmed that the role of the affected communities is still an issue people talk about in conference rooms of several institutions, but in reality it does not happen and governments continue to make decisions for their own benefit and not in the benefit of the communities. Ebenizário said that the governments say they are people's representatives because they were elected democratically and because of that the problem starts with the representatives' election process, the transparency degree of the elections and the way how the society is organized to have a voice. It has not been discovered yet an effective way of empowering the most fragile society segments that correspond to the access to information, knowledge, technologies and to creating functional communitarian organizations that will make the communities audible. In the African countries there is a greater and greater marginalization of the fragile society segments. Ebenizário affirms that is still yet to be discovered how to create a real empowerment of the communities and how to ensure the government's representatives are actually community representatives.

9. Strategies for the Future – What have we Learnt?

9.1. The New Water Culture, an Alternative Vision

(Presentation by Santiago Martin Barajas, Ecologists in Action, Spain)

Santiago Martin Barajas
Ecologist in Action, Spain

9.1.1 Summary

Spain is the country with more dams per habitant and per surfaces in the world. Currently, there are more than 1,000 large dams built in Spain. During the entire 20th Century, the Spanish hydraulic policy has gone ahead with the construction of a lot of dams. This policy has the objective of transforming the available water resources in other uses.

Consequences of building a lot of dams:

- Destruction of more than 1,000 great valleys and all their ecological values.
- Severe alterations on the rivers' regime that may negatively affect the environment and the economy. Example: in a Mediterranean country, when dam was constructed some sediments from the Nile River stopped flowing to the sea. This changed the life cycle of the sardine that became almost extinct and left millions of families in several countries without means of subsistence.
- In Spain, there are 8,000 nucleuses of populations and more than 500 populations submerged by the dams' waters. This resulted in a big social problem and fertile lands were lost, which in turn had negative economical consequences.

In Spain, there are a lot of dams' cases that were not used for irrigation, drinking and not even for producing activities.

One of the main problems they have with the hydropower production is the fact that these release water to produce power during the hours in which there is more consume of energy (at 8 AM) and the close the spill ways at the end of the afternoon with almost no available water for the populations to drink and for the farming activities.

In Spain, the water management has changed a lot since the Water Law was approved in 1985. This law declares that the water is public. An article states that the water's priority utility is to be available for the population to have drinkable water, and then comes the agricultural production and only then the hydropower production. Recently, a norm was released that states that the environmental use, meaning to ensure that the river and the basin have the necessary water for the fishes and plants to live around them, is above all the utilities, except the water for drinking.

Mobilization

In the 90's, there was a big social movement in the country related to the water. The government intended to build 272 new dams and 14 large water pipelines from some basins to others. A big part of the Spanish civil society was against this decision. There were two types of actions:

- Institutional Way: active participation of the civil society in consultative organs of the Ministry of the Environment, such as the Water National Council, which president is the Minister of the Environment. It is in this Council that first are discussed all the laws and norms related to water. From this there are Water Councils of each hydrographical basin. It was discussed themes linked to the water management.
- Social Mobilization Way: through pacifically manifestations in the roads against the construction of dams and of big ducts. Reports, studies,

conferences about the theme, judicial activities in justice courtrooms to paralyze projects that are considered to be negative and sensitization campaigns are made.

Results of the Ecologist Activities

- Changes in the public opinion
- The government has abandoned the idea of constructing a lot of large dams that would flood populations and of constructing all the pipelines that would link basins.
- Organizations and ecologist movements have included new articles in the Spanish Water Law and are already in place. One of these states that to construct a dam it is necessary to make environmental, social, economical and hydrological studies.
- Before the money was for constructing dams and pipelines and only a small amount would be to reduce losses in the distribution grid. Now the biggest economical investment of the government is for the reduction of water losses in the pipes and for the treatment and reutilization of waste water in the cities.

It is then concluded that a lot has developed in the water theme in Spain and it is thought that this is mainly due to the civil society, which has mobilized to face the government and to collaborate with them. The population's sensitization pressures the government.

Water is a natural resource. It is fundamental for life to sustainably manage this resource, meaning, it is important to ensure that this will always be available for the citizens' and nature's basic necessities.

9.1.2 Discussion

One of the participants asked Santiago Barajas if it is possible to dispense the use or the construction of dams in the world and what alternatives exist to substitute the dams, since these cause environmental and ecological changes. Santiago answered that water is a necessary natural resource and that it must be available for people to drink and irrigate the fields, but also it is used to produce power that is also necessary. Santiago affirmed that before arriving in Mozambique, he read that the country is an exporter of energy, however the percentage of population that has access to electrical power is very low in Mozambique. So, it can be concluded that the water is not entirely at the service of the populations' interest in contradiction to what would be correct. It is perfectly possible to have water to drink, irrigate and to produce energy without causing big floods and environmental and social damages. In Spain, there are a lot of small dams that have a maximum of 5 or 6 meters in height, that do not cause floods and produce energy that is consumed by the local community that lives in that area. So, that water is available for several uses, improving the quality of life. It is necessary to extend this model. It is a decentralized production of energy and there are greater benefits for the population, specially the rural one. Regarding the alternative energies, in Spain there is a development plan for wind power. 10% of the energy production in Spain is generated by wind turbines. This is a clean type of energy and does not affect the populations, just like the solar energy. Santiago said that this model of small centrals of energies would be the ideal for Mozambique to improve the quality of life of its big rural population.

9.2. Analyzing the World Commission on Dams in Africa and South Africa

(Presentation by Bryan Ashe, "Earth Life", South Africa)

Bryan Ashe
Earth Life, South Africa

9.2.1 Summary

World Commission on Dams

It started in the 90's, when there were a lot of conflicts between civil society and the World Bank and dam builders. During that time there was no interaction between the stakeholders. A World Bank review confirmed that a lot of things were wrong and this made people protest around the world. The 1st meeting of Dam Affected Communities was in Curitiba, Brazil, and later on under the IUCN in Gland, Switzerland. The meetings started the dialogue of the concept of a World Commission on Dams (WCD). The process unfolded throughout the Southern Africa. The first hearing and the preparation of the WCD was in 1999 in Cape Town, South Africa and a lot of the people that form the basis of the African Rivers Network (ARN) in Southern Africa were at that meeting.

In 2000, several documents came out and gave guidelines for how dams could be constructed, and also took a rights based approach. The WCD was chaired by Kader Asmal, former water minister and set by various people from the business. 2 of the commissioners were Medha Patkar from India and Joji Cariño from the Philippines, 2 dams activists of note.

The WCD looked at case studies from across the world. It reviewed them and took an analytical approach in a multiple stakeholder way. The outcome was a set of strategic priorities to take it forward. Some of the things that came out of the WCD were:

- Inform prior consent
- Benefit sharing for dam affected communities
- Sharing Rivers: The way to manage international rivers is by conversations, between civil society and all partners to discuss the managing process.

The most important from the released document in 2000 was Kader's message "It is the developing countries that can least afford to make the mistakes of the developed world".

In South Africa, there was a meeting of engineers with the WCD for a technical review of the process. They questioned the alliance, technical inputs and what the dam affected communities knew about dams. The WCD questioned the engineers about what they knew about the social issues and then they agreed to have the South African Initiative on the WCD, which started in 2001 with meetings and also had:

- Analytical approaches
- Annual Multi Stakeholder Forums
- Scoping Report
- Substantive Report
- Reparations sub-committee

At the beginning the meetings were quite tense, by the end people were starting to discuss the issues in a very organized way, and a lot of understanding was developed out of this process. People started to understand how dams worked, how the social and environmental issues worked and that people from diverse backgrounds can work together.

Outcomes of the South African Initiative process:

- The National Water Resources Strategy came out and it proposed 20 new dams, 2 ended up

being constructed.

- A recommendation for Social Audit and the department of water affairs (DWAF) has done the social audit.
- A Social Assessment Framework, still in the draft phase, that has a lot of the recommendations from the WCD built into it.

In 2003, the engineers came face to face with the communities that they displaced when they built a dam.

This is the message that Minister of Water Affairs Sonjica gave in 2005, now she is the minister of energy in South Africa: In the tradition of our political transformation the South African Initiative, including members of my Department, has worked tirelessly over the last 3 years to build consensus on how we should respond to the WCD Report and how here in SA we can improve our decision-making on dams - the ultimate purpose of the whole process.

In this process the power utilities ESKOM only joined the process near the end, the Department of Mineral Energies (DME) were nowhere to be found, Department of Environmental Affairs and Tourism (DEAT) was invited but absent and silent throughout the process. Thus not all the government departments participated in this initiative which is most unfortunate. To do this it is essential to bring the energy departments, especially in countries where there is hydro energy.

Actions outside South Africa

The recommendation was that all South African companies working abroad should also apply the WCD guidelines.

A process that supported the South African initiative was UNEP-DDP (United Nations Environment Program – Dams in Development Project), that started in November 2001 located in Nairobi, Kenya. This was established with the goal of promoting a dialogue on improving decision-making, planning and management of dams and their alternatives based on the WCD's core values and strategic priorities.

Within the SADC region there has been a Consultative Process which has the following objective: define SADC's future role and the policies for its involvement in dams and development in the region.

In South Africa, 2006, there was an African Ministerial Conference on Hydropower and Sustainable Development, where:

- NGO Declaration was presented to the ministers
- Dam Affected Communities made presentation
- There were no conflicts
- The Ministerial Declaration reflected the needs of dam affected communities
- Development of the UNEP draft Roadmap for Dams and Development.
- The declaration said that people should be consult with citizens in the interest of transparency.

Civil Society Organizations (CSO) have played an important role in terms of National Dialogue in Africa, also through multi stakeholder's processes. All are restricted by funding constraints.

The Final UNEP Dams and Development Forum has brought out the DDP Compendium of best practices, which counteracted what the WCD was saying because it had been influenced by the banks and all these people in selecting the cases studies. Some NGOs distanced themselves from that funding because they felt that it was poorly done and undermined the richness of the WCD.

9.2.2 Discussion

One of the participants, which was from one of the communities that will be affected by the construction of the Mphanda Nkuwa Dam, said that as an affected community it is regrettable to hear what happened to the affected people in Sudan. The participant suggested the adherence to the WCD recommendations because these intend to avoid problems as the ones in the HCB case. He agreed that HCB brought a lot of benefits for the state, but the communities near the river did not received benefits. The participant affirmed also that there are communities that disappeared or that are dispersed and they predict that the Mphanda Nkuwa Dam will bring additional problems. He showed his interest for the change of the communities' situation regarding the HCB, highlighting that the communities are not against the dams and they only wish that the communities also receive benefits. The participant showed to believe that who will have access to the promised benefits by the Mphanda Nkuwa promoters, will be only the people who will have means to pay for energy and firewood.

Sérgio Elísio stated that the Mphanda Nkuwa study was done when WCD published their recommendations. He affirmed that they followed only the WCD's recommendations that they agreed with. WCD was also funded by the World Bank who rejected the report and he said that the guide produced by WCD is not of obligatory implementation. In Mozambique there is an existent Environmental Law and so they only followed the aspects they agreed with WCD. The WCD report had to be submitted to UNEP for a follow up because the study

was based only in the most problematic dams in a wide universe. Regarding the intervention of one of the representatives of the Mphanda Nkuwa community, he affirmed that the project is a "run of the river dam" and will have a big production of energy with the new existent technologies it is possible it will reach 1,500MW. However, the dam will have a lagoon of only 100km2. During the study it was identified about 200 families, around 1,400 people in the Mphanda Nkuwa area. The participant also affirmed that at that time, they knew that when the project was developed opportunism would appear as people would try to benefit from any compensation. The project incorporates a resettlement perspective for the population, which costs were calculated during the study and will suffer an optimization at the time of the project's implementation. He said also that the NGOs that work in the field cannot create false expectations that the populations will benefit from the project. There is an Environmental Law that will be followed by the project. The resettlement village will be completely assisted in terms of drinkable water and energy supply, sanitation, construction of schools and hospitals, in other words, this will function as a town. The Mphanda Nkuwa area is arid and no agriculture is practiced there, only a bit of fishing. He affirmed that it is necessary to capacitate and educate the population in order for them to send their children to school. He also said that it is possible to think about finding an irritation system for the ones o practice agriculture and to teach people how to fish, but never give the fish, so that people do not live in a dependant way.

Another participant showed he was shocked to hear that the 100km2 area that will be used for the Mphanda Nkuwa's lagoon has nothing, if they are owned by a population that lives there. He also informed that 6 months after the resettlement of several communities of the Marromeu District, these would continue to live without water if the NGOs had not helped. The communities are still in the bush and most of them do not have land to cultivate.

Daniel Ribeiro replied to Sérgio Elísio's comment saying that WCD used a database from World Bank and African Development Bank and did not make only a choice of bad examples. The study says that it is necessary to analyse and contextualize the WCD with the country's reality. WCD included people from dams' construction, private sector, academics, NGOs and civil society. Daniel stated that in contrary to what Sérgio said, agriculture and fishing are basic activities of the Mphanda Nkuwa's community. Regarding the impacts on the communities, according to the law, communities should be resettled in places with equal or better conditions to the ones they had before. According to Daniel, when people are seen living below the poverty line and suffering, others have the responsibility and the possibility to improve these peoples' lives.

Bryan Ashe affirmed that this conference's debate followed the WCD's format, having a conversation between several parts of the project. Bryan highlighted that this is the WCD's objective, to develop an understanding in order to solve conflicts between the parts. The only way of having understanding is through conversations about the issues in question. Before any big project there must be a debate between the different parts so that an inadequate resettlement plan for the situation is not made. Swaziland has examples of good resettlements, the communities had the right to reject the place if they thought it was not appropriate. Regarding the energy, Bryan affirmed to have seen the HCB and that there can be seen power lines going above the local communities, but these communities do not have access to energy. In a lot of dams throughout the world, it was noticed the appearance of several problems that even today are haunting the government because there was no benefit sharing with the communities.

Hope Ogbeide addressed the Mphanda Nkuwa community saying that first they need to ensure that nobody will deceive them making them into believing in what they should not believe; they must demand that the government and the dam builders keep them properly informed about the situation: How much is the dam going to cost to the communities? How is it going to affect the communities? What will the compensation be? They must negotiate about the situation. According to Hope, the dam in Swaziland was well succeeded because the dam affected communities had the opportunity to negotiate and the community was happy about the resettlement. After the dam is already in place it is impossible to be sure about what will happen in the future, thus it is necessary that the communities have the necessary information for them to negotiate about what really is the best for them. The NGOs can support the communities in the process, taking them, for example, to talk to other affected communities. Hope addressed the dam builders saying that they cannot be offended by the fact that NGOs are supporting the communities and doing what the builders should be doing. A lot of times the engineers that should advise the government, hide information from the populations. It is the government's, the builders' and the engineers' duty to inform the communities about what they intend to do and to guarantee that the com-

munities' rights are protected. The communities, in turn, have the right to question about the issue and to criticize the resettlement place in case it does not satisfy them. If the government does not protect the communities' rights, the NGOs will be there to do it. Hope added that the conflicts that my come as a result of the projects can be avoided through talks between the integrant parts. He highlighted also that this is the objective of the NGOs and not to create false expectations. It is necessary to also talk about the populations that live downstream and upstream, because these will also be affected. Hope finalized saying that Mozambique is not alone in this fight and that it should learn with others.

Terri showed to be satisfied with the debate and said that it is also necessary to talk about the effects that Mozal has on Mozambique. The aluminium industry absorbs 2 to 3 times the quantity of power that is absorbed by entire Mozambique. An export program such as Mphanda Nkuwa will continue with that development model. 1% of the Mozambican rural population has access to electric power. Half way through the period of time for the millennium development goals, Mozambique should invest in people centred development. If the government could perform a study about the best way to resettle the people, it would raise the communities' and the civil society's trust in the project and it would help to find potential investors for the project. If the government is unable to do this, the best thing for the communities' is to get organized and guarantee that they have a list of what they will need to be resettled in a way that they will not be prejudiced.

9.3. Relating the flood impacts with the Nigerian Dams

(Presentation by Hope Ogbeide, Society for Water and Public Health Protection, Nigeria)

9.3.1 Summary

Experience is the best teacher when one learns from the experiences of others and based on the lessons learned from there, one is able to do better.

Many places of the world have destroyed their environment, but Africa has nature still intact, at least to some extent. The resources belong to all Africans and should be kept to the following generations.

In Nigeria, over 350 communities are flooded every year, mainly because of dams. Floods are some of the most common and most destructive natural disasters, and are getting more frequent because of climate change. Not all floods are entirely natural, some are worsened by or even caused by Dams failing or being mismanaged.

Kainji Hydropower Dam

The dam construction displaced 41,654 people from 239 villages and towns. These were resettled into 141 new communities.

In October 1998, a flood submerged over 500 houses, several farmlands and other properties worth billions of Naira. This disaster affected more than 15 communities and about 40,000 people were displaced and more than 50 died.

Kainji Dam management authority attributed the flood disaster to structural defect saying that the dam itself had shifted a bit as a result of aging. A government source blamed the dam failure on neglect. Community respondents said that apart from the structural defect of the dam, the flood disaster occurred because there was a dry season and farmers were asking for water, but the water could not be released. So, the reservoir became full and the NEPA[15] (now PHCN[16]) opened the spill ways to reduce water in the reservoir after a heavy rainfall. They also blamed the sudden disaster on the obsolete warning equipment at the dam site.

One of the things that were promised to the community was electricity. But until this conference they haven't got it yet. This community was successful in taking the case to court, which ordered that the community should get electricity.

15 National Electric Power Authority
16 The Power Holding Company of Nigeria

Gusau Dam Flood Disaster

This Dam has a linking bridge from Gusau town to other neighbouring towns. As a result of the flood the bridge was destroyed and all the water pipes were broken. There was lack of water supply and the environment was filled with feces.

The flood washed away over 500 houses. The houses were ruined and covered with water. Government support to the victims included food, mats and temporary health clinic.

Affected people blamed the Government for negligence, saying that the disaster could have been avoided if the government had heeded earlier warnings of an impending flood disaster by experts. Based on the reports of the dam, the experts said that they were expecting more rain and that unless they released water, the dam could break, but the engineering company did not listen. The communities were angry because it felt that the engineering company was being protected by the government and that corruption had taken place. There was no sustainable disaster management plan and no plan for resettlement and compensation of affected communities.

SWAPHEP[17]:

- Community Workshops – to present their own cases
- Public Education: media activities and public lectures
- World Commission on Dams Dialogues: begins with Civil Society organizations. Consultative Forum organized and a Nigerian Dams and Development Forum established.

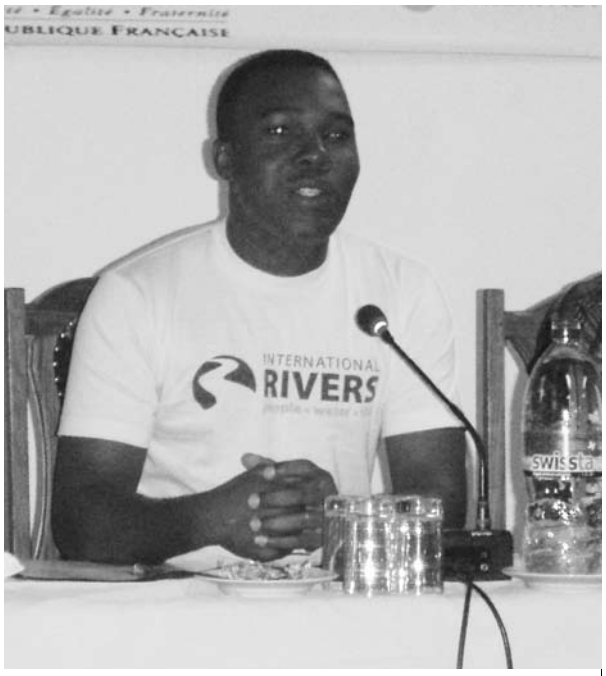
Lessons learned:

- Information is the key: communities and organizations need to be equipped with information. In Nigeria it is very difficult to have information about general development issues, especially about dams. Studies made by SWAPHEP were made to bring out information.
- Networking: support from various organizations. Government agencies and officers will respect the ones that have support from every part of the country. It is important to ensure links to all the networks.
- Legitimacy: get the power from affected communities. The communities are the ones that are affected and need to recognize and be behind the one interested in helping.
- Community drivers: communities should tell the story, while others facilitate the process.
- Partnerships: with government and civil society organizations. It is important to have the support from people from the government who sympathize with the cause.
- The eagle's eye strategy: planting trust persons in key places.
- Power of multitude: international support. The countries need to be together as a team. So the government will take the cause seriously.

17 Society for Water and Public Health Protection

9.4. National Dialogue with Togo Dam's Multi-stakeholders

(Presentation by Sena Alouka, Young Volunteers for Environment, Togo)



Sena Alouka
Young Volunteers for Environment, Togo

9.4.1 Summary

Examples of disasters caused by negligence:

- **December 13th, 1984:** 8,000 died in the industrial disaster in Bhopal City
- **1912:** Titanic sunk
- **April 26th, 1986:** Chernobyl nuclear incident

People say youth are the leaders of tomorrow, so wait for tomorrow, however some young people have started to take charge of problems today

In Togo it was created the organization Young Volunteers for Environment:

- It has expanded throughout Togo
- It has a TV program called "Eco-development" which involved a game of water education imitating the sounds of nature
- Social Justice:
  - There are people who work in areas where there is mining exploitation (phosphate)
  - Children cannot smile because the phosphate in the groundwater has eaten all their teeth
- There has been the same president for 37 years
  - Those who complained about the dam originally were sent to prison.
- The colonial dam agreement was sealed in a bottle and sunk into the concrete so no one knows what was in the agreement
- The first time in 30 years that an NGO was able to say NO
  - Organization organized communities and set up a national dialogue on the WCD recommendations
- Lessons learned:
  - Youth are very important to include in the process because they have lots of energy and are excited about the future.

10. Work Groups' Results

The group work consisted of discussions and suggestions of recommendations in order to improve the planning process of the Mphanda Nkuwa Project in the context of the seven strategic recommendations of the World Commission on Dams that follow:

1. Gaining Public Acceptance
2. Comprehensive Options Assessment
3. Using Existing Dams
4. Preservating Sustaining Rivers and Livelihoods
5. Recognising Entitlements and Sharing Benefits
6. Ensuring Compliance
7. Sharing Rivers for Peace, Development and Security

Summary of the results:

1. Gaining Public Acceptance

- Information about projects should be comprehensive, clear and transparent from the initial phase of the project. The information should include impacts, benefits and disadvantages;
- It is necessary to sensitize the Mozambican population to the effects of large dams, using the media, including community radio.
- It is necessary to create a consultation body to address questions relating to the use and management of water, where there should be present representatives of government, civil society, communities and the private sector. All water projects should pass through this permanent consultation body.
- NGOs should help and empower affected communities to enable informed participation of these communities in the processes of consultation and so that they gain the capacity to claim their rights.
- NGOs should work with the government to increase their flexibility, hear affected communities and gain the capacity to modify their position after consultations.
- There should be events that permit the exchange of experiences between the Mphanda Nkuwa communities and the community in Swaziland that had success in their resettlement process.
- In the case of inevitable resettlement, the communities have the right to conditions in the new resettlement areas (including houses, livelihoods, fish, agricultural fields, etc.) that are better than their current situation, rather than what the Law defines as equal or better.

2. Comprehensive options assessment

- Large dam projects should be subject to environmental, economic, social, and strategic impact assessments, and the results should be publicly available.
- The Mozambican Government should change the objective of energy production, in other words, it should reduce the priority of producing energy primarily for large investments and exports and change to producing for the Mozambican population, of which nearly 89% still do not have access to electricity.
- The production of energy should be oriented towards local consumption, and should be decentralized.
- As alternatives for large dams, the option of constructing micro-hydro dams should be analyzed for water storage and energy production for rural communities.
- There should be given more importance to development and use of alternative and renewable energies, with smaller environmental and social impacts (Wind, solar, etc.).

3. Using Existing Dams

- In Mozambique, the legislation defines that the main objective of operation of dams must be to satisfy the human necessities and the maintenance of the ecosystem.
- Dams are useful, but contradictory in their objectives;
- Existing dams should be used for actual objectives and for the mitigation of droughts and floods and for ecosystem maintenance (apply ecological flows);
- It is necessary that existing conflicts resulting from dams that already exist are addressed and resolved, not only between affected communities, but also interested parties in management.
- There should be benefit sharing for all affected communities.
- Facing the phenomenon of climate change, which aggravates droughts and floods, it is necessary to implement educational activities on how communities can adapt to the impacts of

climate change. Education should be permanent to demonstrate how people can react quickly to any event.

- As it is difficult for communities to adapt to these changes without having some support and capacity, it is necessary that they understand the phenomenon of climate change and its potential impacts.
- It is of salience that it is possible in the extent of climate changes to use dams for storage of water, and to manage artificial floods for prolonged periods of drought aimed at maintaining ecological systems.

4. Preservating Sustaining Rivers and Livelihoods

- Water is life and the preservation of rivers is the maintenance of water, which is the maintenance of life
- Preservation and integrated management of hydrologic resources should be done in a participative and integrated manner, including all stakeholders and considering ecosystems.
- Mozambique should take advantage of the experiences of other countries in Africa and not only so they do not commit the same mistakes that these countries did in the quest for development, but also so that this development will be through sustainable use of hydrologic resources and natural resources in general.
- In any river there are various interests that should be accommodated: resident communities, local industry and other affected and interested parties, given that the management of these interests should be done in a manner integrating all interests.

5. Recognising Entitlements and Sharing Benefits

- This must be done not only through legal means but also involving the communities;
- Need to legislate communities;
- Need to have a record of the communities;
- Need to build an autonomous permanent unity responsible for the demographic studies.
- Census of the communities' members;
- The resettlement plan must be more complete, must also involve the hostess communities to avoid possible conflicts,
- Regarding resettlement, the law states that affected communities should always have access to the same or better conditions than before; we are of the opinion that this should be revised to ensure that communities always have the right to BETTER (and not the same) conditions than before;
- Need to support vulnerable communities because they lack adequate support;
- Endow communities with identity cards so as to avoid intruders, if these cards serve to endow communities with rights, donations, or other;
- Reference was made to: the existing legal framework in the country is sufficient to secure the recognition of potentially affected community's acquired rights;
- It was stressed that it is important to correctly apply the existing laws and that the Government has a significant role in this process related to the recognition of rights;
- It was underlined that the Regulation of Environmental Impact Assessment stipulates that the Government is responsible to inform affected communities, listen to their concerns, reach consensus, and satisfy the affected community's most basic needs;
- Reference was made to the fact that it is the responsibility of the Government to recognise the need to involve affected communities from the onset of any project;
- It was stressed that it is necessary to rectify now all the mistakes made and improve the Mphanda Nkuwa Dam Project, because the Project has and will be different from the others;

6. Ensuring Compliance

- Create a national committee on dams involving civil society and NGOs. This committee should create sub-committees for each dam project, and the committee should be responsible for punishments in case of non-compliance;
- It was stressed that Mozambique has good environmental legislation and institutions working towards sustainable development, which can work towards the enforcement of law and regulations;
- Civil society and affected communities have to be involved and invited for public consultations as underlined in the Regulation on Environmental Impacts;
- It is important to instigate the creation and functioning of the World Commission on Dams and the committees on each dam, involving representatives of civil society, affected communities and universities;

- The dialogue mechanisms used between Government, civil society and affected communities can be many; but the most important one is the Government's political will to respect the identity, dignity, self-esteem, demographic and anthropological characteristics, culture, and communities' livelihoods, and prevent violent practices which may cause trauma or panic in the communities, and induce the appearance of complaints/murmurs, which are only harmful to Government and investors;
- In the specific case of the Mphanda Nkuwa Dam Project, it was suggested that the Government should create an autonomous Technical Unit, involving government technicians and specialists, civil society and communities, to study and investigate demographic, cultural, economic and social characteristics of the affected communities, promoting dialogue, consensus and transparency about the new resettlement areas;
- It was suggested that communities should be legalised/organised, and enabled to attain juridical personality, support the development of a general assembly in each community, and the free choice of its leaders, who should have identity cards and bank accounts in order to receive donations and funds;
- It was also stressed that it is important to develop a community and family cadastre, and to produce identity cards to each community member with a photo, identical to the one in the election card, which can prevent intruders and abuses from outsiders;
- It was suggested that communities which live far from the Project area and that will receive the affected community in their land or in the vicinity of their land, should also be informed to inter-act in a healthy way;
- It was suggested that compensations to be discussed and agreed by affected communities should include:
  - An Economic Component – Such as micro projects to benefit affected people such as small irrigation projects, mills, etc.
  - A Social Component – School units, sanitation units and other social equipment
  - A Financial Component: monetary values.
- It was stressed that the Resettlement Plan is a very important instrument which should be well developed, including all details proposed by specialists and technicians of the Technical Unit, and should reflect the agreements reached with the affected communities;
- The opinion that the conditions on the newly created resettlement areas should be better and not equal to the previous conditions where the affected community lived, was unanimous;

Note: All these commentaries were discussed during the meeting, nothing was changed or added that was not discussed in the meeting, as it would not make sense because the outcome results presented here are result of a group work. Due to lack of time, it was not possible to discuss point number 7 about "Shared rivers for Peace, Development and Security", however if all these guidelines are followed, the process can only achieve the sharing of rivers for peace, development and security.

11. Findings and recommendations from African NGO presentations at the workshop

"Promoting Transparency and Dialogue on Dams and Development in Mozambique: Learning from Africa's Past Record on Large Dams", in Maputo, Mozambique, November 19-21, 2007

summarized by JA! Justiça Ambiental

"It is developing countries that can least afford to make the mistakes of the developed world."
Kader Asmal, Chair of World Commission on Dams, 2000

A gathering of Mozambican civil society and government officials, African dam-affected communities, and international development experts[1] came together to discuss issues arising from the development of large dams in Africa, how to apply the lessons learned from these past dam projects to improve energy planning in Mozambique, and to address ways forward on the controversial US$2.5bn Mphanda Nkuwa project now being prioritized by the Mozambique government.

The following are the key lessons learned from Africa's dam legacy that we believe should guide further development of all large dams in Mozambique, including Mphanda Nkuwa.

Lessons Learned: Social Impacts

- Communities who are resettled or impacted by downstream changes to a river have consistently been left poorer by Africa's dam development, yet have not shared in the benefits such projects bring. Therefore, benefit-sharing needs to be guaranteed to affected communities.
- Top-down resettlement planning has almost universally failed to restore people's lives. Communities in the areas to be affected by planned dams should be involved at the earliest stages of planning to ensure comprehensive options assessments, avoid conflicts, and promote equitable pro-poor and context relevant energy and water development.
- Once livelihoods have been diminished or destroyed, it is very difficult to restore them. Successful resettlement and income restoration processes can only happen with comprehensive and early involvement of affected communities. Virtually all resettlement programs for large dams in Africa have failed to prevent further impoverishment of affected communities. A two-way dialogue is critical for ensuring that those who stand to lose the most to the development of dams end up being beneficiaries of these projects.
- Mozambique should follow the example of Maguga Dam in Swaziland, which is one of the few projects in Africa where resettled people say they are content with the resettlement and development program they experienced. Communities there were empowered to negotiate their own resettlement package, which included programs for benefits sharing, an independent dispute resolution mechanism, good schools and clinics in the new communities, irrigation for farms in the new areas, and training programs. Communities were allowed to design and build their own houses, and help pick their resettlement site.
- N.B.: At the meeting, some government officials made statements to the effect that there was no

1 Most of the workshop's presentations are available in Powerpoint form (and in two cases, DVD movies) from JA!

need for further dialogue at this time, that it is difficult to engage with affected communities, that Mozambique would not repeat the mistakes of past dams in Africa, and other comments. The conference organizers welcomed government participation from the floor, even though they were sometimes in direct contradiction to the evidence being presented and seemed to imply that Mozambique's energy planners did not agree that there were lessons to be learned from the evidence being presented. We believe such comments back up our argument that Mozambique needs a multi-stakeholder dialogue sooner rather than later, and greater transparency in general on the issue of planning dams.

Lessons Learned: The development of energy projects must be balanced to account for diverse development needs in Mozambique

- Energy development in Mozambique is now heavily weighted toward exports and the growth of energy-intensive industries. This approach is not meeting the needs of our majority population, nor is the nation truly benefiting in a direct fashion from energy development.
  - We risk falling victim to the "resource curse" that has afflicted so many other African nations that rely too heavily on exporting their natural wealth. The resource curse can result in a risk of increased internal conflict, missed opportunities for sustainable job creation, corruption, the perpetuation of unjust and inequitable distribution of the benefits and costs of development.
  - To avoid this resource-curse approach, Mozambique needs to find a better balance between large-scale grid energy development and decentralized electrification programs for rural development. Pro-poor energy planning that helps Mozambique meet the Millennium Development Goals should be prioritized. Large-scale grid projects should first prioritize meeting national needs.
- Mozambique should reject the extractive, exploitive, irresponsible model of development now on offer from China, and work with China to undertake more sustainable, forward-thinking development projects.
  - There is a growing record of African dam projects built by China on which standards for mitigating environmental and social problems have taken a back seat to economic factors. China has supported repressive and authoritarian governments that violate the human rights of their citizens, as exemplified by Sudan. Benefits of these dams are even lower than most as China employs only its own labor force in the construction of the dam
  - China's own standard for resettlement on dams is higher than what it uses internationally.
  - China is prioritizing development projects within its own borders that are better suited to meeting Mozambique's own needs. China has extensive programs for trickle-up rural development that came before its emphasis on industrialization. China also has a growing emphasis on renewable energy manufacturing and installation that has raised the capacity of its own energy sector, created a large number of jobs, and is leading to a more sustainable energy supply.
  - Solar PV power, solar thermal, biogas digesters, micro- and small-hydro are just a few examples of renewables being widely developed by China that Mozambique could be exploiting. Bringing universal solar power to all Mozambicans now without electricity would be cheaper than building Mphanda Nkuwa.
  - The Mozambique government should actively seek development cooperation with China that emphasizes the types of decentralized, sustainable energy development projects that China itself is now prioritizing[2].

2 "The Price of Power: Poverty, Climate Change, the Coming Energy Crisis and the Renewable Energy Revolution" states that it roughly costs $25,000 to bring solar PV to a village of 50 households. Mozambique has approximately 17.6 mn people without access to electricity, which at this rate would cost $1.76 bn to bring universal solar access.

Lesson Learned: Environmental costs need to be taken into account and plans for resolving them prioritized and included in project budgets

Environmental costs have rarely been accounted for on African dam projects, leaving a legacy of costly problems for which there is no funding to resolve them. The example of the Zambezi alone is very troubling:

- Management of the existing dams on the Zambezi to maximize electricity generation has resulted in major changes to downstream flow regimes that have caused significant impacts to delta ecosystems, including by allowing saltwater intrusion and decreasing available water to these systems.
- Downstream ecosystems receive reduced sediment flows, which negatively impacts river flora and fauna such as fish, prawns, and riparian plants.
- The reduction in riparian plant life contributes to increasing erosion of the river banks. Downstream changes in river flows, flood regimes and sediment loads have disrupted people's ability to continue river agriculture, decreased fish catches, and often made river transportation itself more difficult.
- The huge costs associated with these changes to the river have not been accounted for by planners now considering new dams, nor compensated for by past dam developers.
- Therefore, environmental and social 'externalities' need to become 'internalities' – key components of the analysis for development projects that are given the same weight as economic concerns.
- Planning for river basin development should consider the entire river basin for adequate integrated water resources management and should involve local stakeholders at all stages of this planning so the decisions are not made solely by regional and international policy institutions (i.e. SADC). This is important for managing equitable distribution of costs and benefits.
- Spain has adopted new, participatory water planning process that promotes a more decentralized, sustainable model for water resources rather than more large dams. We should try to learn the lessons of creating a "new water culture" such as Spain is attempting to do.

Lesson Learned: Climate change will alter southern African rivers and therefore dams' viability, and must be taken into account

- Mozambique should take climate change into account in all energy planning and project development. Climate change is expected to severely alter the hydrology of Mozambique's rivers, bringing both more unpredictable floods and droughts. The nation should prioritize as a matter of urgency climate change adaptation measures in the energy and water sectors and for flood management. Key steps include the following:
  - Like most SADC nations, Mozambique is now overly dependent on hydropower for its electricity supply. We must immediately take steps to diversify the energy supply to reduce the economic risks of hydropower dependency. The risks of continued hydropower dependency in the face of climate change include increasing economic, environmental and social costs, decreasing benefits, and increasing risk of potential disasters.
  - All proposed energy and water projects must be independently evaluated for their ability to help Mozambique better adapt to a changing climate and more erratic, less predictable hydrology.
  - Priority should be given to renewable energy solutions and energy efficiency measures that help spread energy development to areas not currently electrified, while also providing insurance against climate change.
  - Large dams, especially hydropower dams, are not a viable solution for flood control in a time of changing climate. Non-engineered solutions to flood management should be prioritized, such as improved warning systems and disaster-response planning for communities downstream of dams, operating plans for dam management that ensure enough room is left in reservoirs to store annual floods during the rainy season, restoring wetlands, and other "soft-path" solutions to managing floods.
  - All dams are becoming increasingly dangerous in a changing climate. Dam safety evaluations should become increasingly stringent and regular, and further analysis undertaken to understand the potential impacts of dam

breaks from existing dams, and to develop emergency plans for downstream areas.

- Projects that improve the ability of ecosystems and communities that depend on them to withstand the impacts of a changing climate should be prioritized. One example we support is the re-operation of Cahora Bassa Dam[3] to provide an annual flood at the beginning of the rainy season. Experts believe this can be accomplished with no cost in lost hydropower, and with major benefits to the Zambezi Delta, which has been badly damaged by upstream dams. This also improves the ability of the dam to store floods for the rest of the rainy season.

Lesson Learned: An open, transparent process for planning large dams (or any project with significant social and environmental impacts) is critical for project success

Large dams across Africa have almost universally had significant and persistent social, environmental and economic costs. Mozambique cannot afford to repeat these mistakes. One key element that can help reduce the impacts of the development of future large dams is to open up the planning process to include civil society and affected communities. A multi-stakeholder dialogue at the national level, involving equal and empowered representation from all stakeholders, would be a good first step toward resolving differences, analyzing problems, and suggesting ways forward.

- Multi-stakeholder processes are key, but to be genuine and effective, they must:
  - Be inclusive
  - Be transparent
  - Be accountable to the public
  - Consider all aspects of the project, not just economic aspects, but social and environmental costs
  - Be set up at the very beginning of the process, not at end
  - Help build relationships between stakeholders
- The process for planning Mphanda Nkuwa should be more transparent and more participatory. The current closed-door approach could result in a repeat of the problems of the past, and a project that in the end is a development failure. Specific recommendations to address this problem include the following:
- Immediately begin including affected communities in the planning process. The Mozambique authorities planning the dam project must develop and implement, with cooperation from affected communities and civil society, a plan for bringing affected communities to the table on the Mphanda Nkuwa project.
- Decision making on the project must be based on a complete analysis of all key issues, and a transparent process of information sharing. The project authorities must now publicly release all available information and studies on the project. Critical information that is still lacking – such as sedimentation studies, seismic analysis, and economic justification for the project – should be undertaken without delay.
- Corruption is a serious problem on large dams. Protections such as those recommended by the WCD and Transparency International should be put in place to ensure corruption does not influence the process of planning and building Mphanda Nkuwa and future large dams in Mozambique. Greater transparency based on principals such as "publish what you pay" should also be put in place for large development projects such as Mphanda Nkuwa.
- Before Mphanda Nkuwa moves forward, the problems from past dams should be addressed. This includes moving forward with the plan to restore more natural flows from Cahora Bassa, and establishing a multi-stakeholder process to address other impacts still outstanding from the dam's construction on downstream communities, industries and ecosystems.

3 RICH BEILFUSS – DRIFT Model of Zambezi River and Cahora Bassa Re-Operation

Conference Program

Promoting the Transparency and the dialogue on the dams and the development in Mozambique: Learning with the events of the past in relation to great dams in africa.

November 19-21, 2007

Date: November 19/20/21, 2007;
Local: Kaya Kwanga;
Promoter: JA! Justiça Ambiental;
Participant: Lists enclosed

THE JA! Justiça Ambiental, promoted a similar conference of promoting larger transparency and dialogue in subjects related with dams and development in Mozambique. The meeting was held in Maputo, Mozambique.

The referred event, it counted with the civil society and ONG's of Lesotho, Uganda,Tanzania, Nigeria, Zimbabwe, Zambia, Kenya,Congo,Togo,Angola,Swazilandia, South Africa, Brazil, United States of America and Europe to present their experience and the knowledge on dams.

The conference was held in the city of Maputo in Mozambique, and it followed this order:

DAY 1 (19/11/07)

08h30-10h00: Opening and Intro to the Workshop:

- Opening: Minister of Environment, Mozambique (MICOA)
- Introduction: Anabela Lemos, Justiça Ambiental
- Keynote: Lori Pottinger, Director, Africa Program, International Rivers (USA): "Dams, Rivers and Climate Change in Africa: Weighing the Risks"

10h00-10h15: Tea Break

10h15-11h30: Costs and Benefits of Mphanda Nkuwa: National and Regional Perspectives

- Daniel Ribeiro, Justiça Ambiental (Mozambique): Identified Problems with Mphanda Nkuwa
- Terri Hathaway, International Rivers (USA): Trickle-down vs. trickle-up energy development models in the African context
- Voices of the Zambezi (Mozambique): Community perspective on dams on the Zambezi

11h30-12h45: Environmental Impacts of Dam Projects on the Zambezi

- Jose Chiburre, WWF (Mozambique): Zambezi Delta project
- Eduardo Nhambanga: JA! Justiça Ambiental (Moçambique): "Impactos de Cahora Bassa"
- Dr. Patrocinio da Silva, Coordinator, GPZ/UGP Marromeu (Mozambique):

  Zambezi Delta experience

12H45-13h45: Lunch

13h45-14h40: Social Impacts of Dam Projects on the Zambezi

- Boniface S. Mutale, Director, Basilwizi (Zimbabwe): Realocação involuntária das Comunidades noVale do Zambeze.
- Nyambe Luhila, Oficial de Projectos, Kaluli Development Foundation (Zambia): Comunidades realocadas em Sinazongwe

14h40-14h55: Tea Break

14h55-15h50: Social Implications of Dam Projects in Africa

- Liane Greeff (Africa do Sul): Herança das Grandes Barragens em Africa
- Dr.Idris Musilim, Presidente, Comunidades Afectadas por Barragens (Nigeria), impactos nas terras húmidas de Hadeija Nguru Wetlands

15h50-17h25: Sudan to Mozambique: Role of China:

- Ali Askouri, (Sudan): Case study of the Merowe Dam
- Daniel Ribeiro, Justiça Ambiental and Carlos Serra, Professor, UEM (Mozambique): China's role in Mphanda Nkuwa and forests in Mozambique

Closing Statements by Facilitator: Sena Alouka, Africa Rivers Network

DAY 2 (20/11/07)

08h30-08h50: Summary of Lessons Learned from Presentations on Day 1

Thabang Ngcozela - Environmental Monitoring Group (South Africa)

08h50-10h25: Broader Perspectives:

- Korinna Horta, Senior Economist, Environmental Defense (USA): The 'Resource Curse' and Large Dams in Africa
- Betty Obbo, Program Officer, National Association of Professional Environmentalists (Uganda): Organizing, education and the Bujagali dam.
- ARA-Zambezi (Mozambique): Integrated Water Resources Management in the Zambezi Basin
- Dr.Ebenizário Chonguiça, IUCN (Mozambique): Challenges of Integrated Water Resources Management

10h25-10h40: Tea Break

10h40-12h15: Ways Forward – What We've Learned

- Santiago Martin Barajas, Director, Ecologists in Action (Spain): The New Water Culture and an alternative vision for water
- Bryan Ashe, South African Water Caucus: Analysis of the World Commission on Dam in Africa including the RSA process
- Hope Ogbeide, Director, Society for Water and Public Health Protection (Nigeria): Addressing flood-related impacts of Nigerian dams using community workshops, the World Commission on Dams and public education
- Sena Alouka, National Coordinator, Young Volunteers for Environment (Togo): New Energy: Youth and Renewables in Togo

12h15 – 13h15: Lunch

13h15-14h15: What Next for Mphanda?: Working groups on steps forward (Facilitation by Sena Alouka)

- Gaining Public Acceptance
- Comprehensive Options Assessment
- Addressing Existing Dams
- Sustaining Rivers and Livelihoods
- Recognising Entitlements and Sharing Benefits
- Ensuring Compliance
- Sharing Rivers for Peace, Development and Security

  (One group for each)

14h15-14h30: Tea Break

14h30-16h10: Report Back from Working Groups and discussion

Closing Statements by Facilitator: Sena Alouka, Africa Rivers Network

Day 3 (21/11/07)

08h30-08h45 Summary of Lessons Learned from Presentations on Day 2

Thabang Ngcozela- Environmental Monitoring Group (South Africa)

08h45-09h15 Dr. Carlos Bento,

Eduardo Mondlane University/Mozambique Museum of Natural History: Cahora Bassa Dam and its impacts

09h15-12h30 (includes tea break): Formulating a Position Paper on Lessons Learned and Ways Forward for Mphanda Nkuwa

- Introduction to consensus process
- Break into groups to read draft Position Paper, respond to prompting questions, suggest changes.
- Report back from groups (by note takers, one per group)
- Facilitated process to make changes to draft Position Paper.
- Final adoption of Position Paper

12h30-12h40: Summary and Closing Remarks

Lunch

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