



Energy, Ecosystems and Livelihoods in Eastern and Southern Africa

Workshop report

20th June 2009



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ACRONYMS

CDM: Clean Development Mechanisms
CEEZ: Centre for Engineering, Energy and Environment
CIFOR: Centre for International Forest Research
COMESA: Common market for Eastern and Southern Africa
EAC: East African Community
EIA: Environmental Impact Assessment
EPA: Environmental Protection Agency
FAO: Food and Agricultural Organization
GMOs: Genetically Modified Organisms
GTZ: German Technical Cooperation
ICRAF: International Centre for Research in Agroforestry
IUCN: International Union for Conservation of Nature
KAKUTE: Kampuni ya Kusambaza Teknolojia' (The Technology Extension Company) Ltd
NEPAD: New Economic Partnership for Africa
NGOs: Non-Governmental Organizations
PES: Payment for Ecosystem services
REDD: Reduced Emissions from Degradation and Deforestation
RSB: Roundtable on Sustainable Biofuels
SADC: southern Africa Development Community
SEAS: Strategic Environmental Assessments
TaTEDO: The Tanzania Traditional Energy and Environment Development Organization
TEEB: The Economics of Ecosystems and Biodiversity
TNRF: Tanzania Natural Resource Forum
UNIDO: United Nations Industrial Development Organisation
WWF: World Wide Fund for Nature

1. Introduction

This workshop was carried out as part of a broader IUCN project on Energy, Ecosystems and Livelihoods funded by the Italian DGCS Trust Fund 2007. The newly established IUCN region of Eastern and Southern Africa was chosen as a region where the issues of energy and development as well as climate change adaptation are critical. The main objectives of the workshop were:

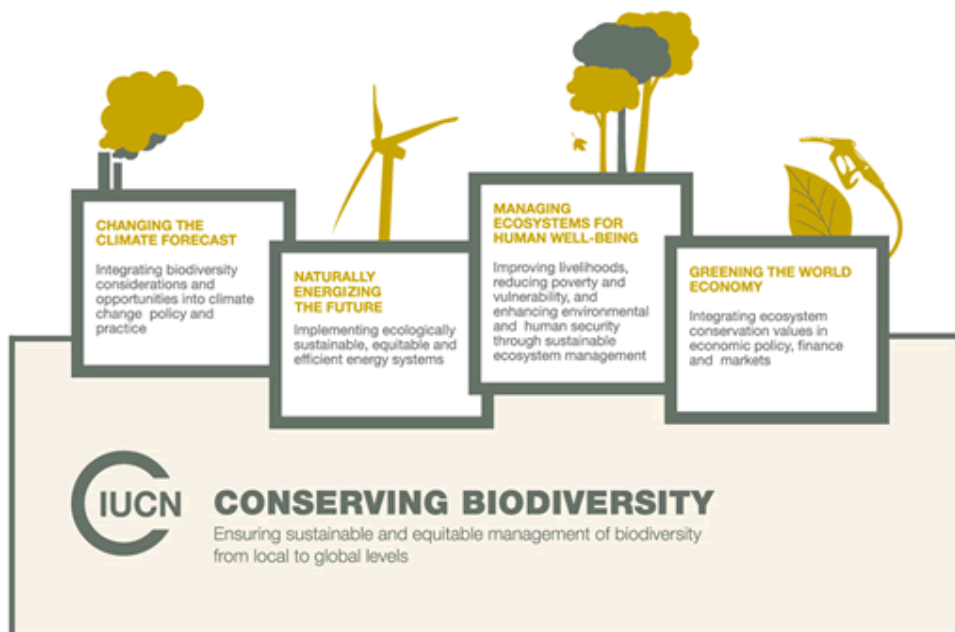
- Building mutual understanding of the vulnerability of energy systems to ecosystem changes as well as the risks posed to ecosystems and livelihoods from energy options being pursued or planned in the region;
- Building networks for delivery on the Energy and Climate change thematic programme of the 2009-2012 IUCN Programme.

It was hoped that the outputs from the workshop, including this workshop report will serve to help kick-start delivery towards IUCN's regional and global results on energy, building on existing processes within the IUCN Secretariat, Membership and partner network and create potential opportunities for funded collaboration in the future.

2. IUCN Background

IUCN new programme 2009-2012

The new programme, as approved by IUCN members at the 4th World Conservation Congress in Barcelona was presented¹. With biodiversity conservation at IUCN's core, four other themes are prioritised for the 2009-2012 period as having major impacts on our potential to conserve biodiversity. Though the 4 themes are inter-related, IUCN's approach to each is complementary but distinct.



Energy within the IUCN new programme

IUCN's global result "*Naturally energising the future*" is split into two parts:

1. Energy policies and strategies mitigate the impact of the growing energy demand on biodiversity.

¹ See http://www.iucn.org/about/work/global_programme/ for more information.

2. Ecosystem services that underpin sustainable and equitable energy are incorporated in energy policies and strategies.

The first result looks to manage the negative impacts of all energy options on the environment, often building on and encouraging implementation of existing initiatives. The second result explores a new area which looks to how ecosystems actually support energy options, and then can therefore be valued to provide a more sustainable energy future. This workshop focused on two main energy options where the supporting role of ecosystems is clear, but potential negative impacts also need managing: hydropower and bioenergy.

Suggested role for IUCN

A discussion around IUCN’s niche and potential role as a nature conservation network in energy discussions. Suggestions were made during the workshop that IUCN could:

- champion ecosystem management for sustainable energy and adaptation to climate change
- help to penetrate energy-related politics through scientific fact/technical briefs and analysis on sustainable and efficient energy options
- serve as a clearing house mechanism for information on available energy solutions linked to ecosystems
- help to bring different actors together (such as energy ministries and the development community)
- provide a platform for NGOs to input their work through networking with members and partners.
- Consistent with the “One Union” approach, several members and partners are working on energy issues such as WESSA, KZN Wildlife and SAN Parks
- Develop normative standards for evaluation, that include ecosystems and livelihoods
- Pull together an inter-regional task team to assist with the energy work.
- Question – what are the routes/main ways that IUCN Members and other partners can input into IUCN’s work.

3. The energy context for Eastern and Southern Africa

The overall energy context both globally and in the region must be recognised and understood if any intervention based on an ecosystem and livelihood approach is to be successful. Recognising the risks and therefore potential opportunities may also guide possible principles as well as intervention points.

Risk	Opportunity
OVERALL ENERGY STRATEGY	
Should we prioritise GHGs mitigation in the region of access to energy?	All countries in the region are signatories to UNFCCC and since CO2 once emitted is everywhere, it is an opportunity to support global climate change mitigation and local adaptation through clean and green energy.
Inappropriate energy policies and investments made if all energy needs are not recognised.	<ul style="list-style-type: none"> • Recognise the diversity of options dependent on the actual needs and ways they can be met. • Industry has very different needs to households. • Households may use electricity for lighting or a fridge/TV and also use fuelwood for cooking.
There is lack of coordinated planning and decision making / implementation.	<ul style="list-style-type: none"> • Need multi-ministerial forums for energy decision-making. • Build on existing mechanisms, such as CDM (where conservation benefits are not recognised).
Situation different in South Africa and the rest of Africa.	<ul style="list-style-type: none"> • May need different approach but the principles are the same. • In both cases, there is often “suppressed demand”, so complementary/flexible options are required for local grid connections.

BUILDING ON EXISTING WORK	
Lots of existing energy related work, don't want to duplicate (South Africa Renewables Forum, EU/Africa Union partnership, funding institutions, etc.)	IUCN also doesn't want to be an energy organisation, so we can hopefully enhance the existing work by emphasising the conservation/ecosystem links.
Lots of energy projects – but there needs to be a more strategic environmental assessment conducted, highlighting where some regions are better endowed than others.	Need easy to use and understand tool/package that doesn't make decisions, but helps right people to understand the issues to be considered. Refine UNIDO tool? Potentially: <ul style="list-style-type: none"> • Target National Energy Regulator equivalent and/or Ministries of Planning as limited staff, especially compared to the private sector. • Committee Management Agencies, for energy decisions around river catchment areas. • Enable members of affected communities to meet with Ministers and Members of Parliament (e.g. in Tanzania).
Lots of information and facts, sometimes contradictory	<ul style="list-style-type: none"> • Need for a common clearing house place, which also needs to be kept up-to-date
Some technical issue gaps need filling, otherwise we need to communicate/market better existing information.	<ul style="list-style-type: none"> • Common, strong message • How to transition to economy with sustainable renewable energy at its heart.
EVALUATION OF ENERGY OPTIONS	
Dominance of low cost coal	Need full-costing - internalization of all externalities associated with its use.
Cost benefit analysis not reflective of real costs.	<ul style="list-style-type: none"> • Opportunity cost often falls to villagers. • Need externalities to be built in appropriately. • Should also reflect equity needs, e.g. minimum energy per capita, not household. • Need to compare to alternative scenarios – e.g. a switch no longer turning on a light or a kettle. • Link to the TEEB process.
“Be the change you want to see”	<ul style="list-style-type: none"> • Walk the talk! • Inspired by examples in National Parks and Member organisations.

4. Hydropower - ecosystem and livelihood implications

4.1. Overall context

1. What has been done/is currently being done?

- World Commission on Dams, though this was not adopted as too strict.
- Hydropower and climate change studies have been conducted, but need higher resolution models of rainfall projections.
- Payments for ecosystem services (PES) have been introduced. E.g. Uganda and tree planting, Zambia and enhancement measures linked to a nature reserve.

2. What can be improved?

- Sustainable energy supply is not always reliable – need multi-use/diverse sources.
 - Inequalities are committed at the planning phase.
 - Vulnerability of rainfall not taken into account into studies.
 - Displacement compensation needs much improvement.
 - Some sites are better than others but political rather than ecosystem/social issues take precedent.
- Accurate cost-benefit analyses could help to overcome this.

3. What is not being done/gaps?

- Carrying capacity of area for resettled peoples not considered.
- Need better water balance models.
- Need a regional approach for identifying and promoting better sites (though does IUCN want to be promoting a massive dam on the Inga, which will also require massive transmission infrastructure?)
- Political will for rural electrification not (yet) matched with funding.

4. What tools/approaches do we have?

- regional collaboration/approach, e.g. on Lake Victoria.
- Advocate more advanced PES for this region.
- ESIA's - Need hydropower specific
- Kagala offset – multi-ministerial/stakeholders involved
- International Hydropower Association – developing sustainability principles/protocol based on the World Commission on Dams – norms and standards.
- Support off-stream vs on-stream dams – will be more expensive to move/pump water but then the costs will be internalised.
- Better upstream/catchment management – spread good practice, e.g. link Ministry of Forestry with Ministry of Power.
- “the best dam is an avoided dam” - retrofit water storage dams with hydropower
- dams should be developed with maximum benefits with least impacts
 - 1. What is the market? Where is the concentration of the load centre? Who is the dam for? Can it meet energy, industry, fishery, agricultural needs too? It can help to decrease reliance on fossil fuels and meet peak demand by pumping some water.
 - 2. What is the flow, and how will climate change increase or decrease the flow (i.e. it will become increasingly difficult to predict!)
 - 3. Best scale? Most efficient where most height differential, then the size of the reservoir created and run-off area. The smaller the surface area, the smaller the evaporation, which can help with adaptation. Design can also help to avoid methane accumulation.

4.2. Ecosystem and livelihood principles for hydropower

The information below was captured during the group work sessions. Many of the points below can be converted to general principles for incorporating ecosystem and livelihood considerations into general principles for hydropower. These could then be checked against existing principles that are being discussed in other fora, as well as supplement the general energy framework guidelines.

1. Main environmental and livelihood issues of hydropower

- Environmental conservation concerns with hydropower development is frequently associated with dam construction. A variety of alternatives in hydropower development need to be explored.
- *Environment also supports efficient hydropower installations, through water flows in catchment areas, forests, etc. Need upstream and downstream considerations.*
- A precautionary principle with marginal areas excluded.
- Livelihood concerns relates to what happens with the people that are directly affected by the project:
 - resettlement issues and whether the benefits derived from the projects are being shared with the people directly affect. The resettlement management plan is able to determine the impact of a particular project on the people's livelihoods.
- Availability of affordable electricity from the hydropower schemes are able to revolutionize peoples livelihoods

2. Gaps/needs

Policy/investments

- The need for clear policy guidelines on resettlement aspects – this should include the fact that the worst affected people or communities should be the ones to benefit most from the project
- In terms of enhancing security of supply in the face of climate change, energy planning should include facilitation of better mix of energy sources to supplement hydropower schemes
- There is need to strengthen institutional capacity and policy in the area of effective impact assessment for hydropower.
- Hydropower sustainability depends on well managed upper catchment ecosystems. However no resources from power generation is invested in the catchment management.

Planning/assessment

- Effective public consultation mechanisms at planning stage – this aspect is not being handled well currently.
- In terms of conservation assessments for hydropower, there is need for more specific activity based guidelines which incorporates ecosystem approach aspects.
- There is need to provide decision makers with scientifically based objective, reliable and verifiable information on the project.
- Research component need to be strengthened before implementation of each hydropower project. E.g. The Kihansi toad negative impact could have been prevented if the research component strengthened and supported before project implementation

Research

- On climate change impact, there is need for more refined models to help with prediction and forecasting in water management.
- There is need for development of a set of best practices that ensure equitable sharing of water in the hydropower schemes (multipurpose use)

3. Main actors / decision makers

- Local people / communities in the project area – gender consideration
- Government / Finance, Energy and Environment (Relevant)
- Power companies, engineering, designing institutions
- Consumers / user institutions
- Funding agencies
- Catchment managers / users
- Need for diversity of decision makers to include natural resource / catchment management institutions

5. Bioenergy – ecosystem and livelihood implications

It was decided to split the approach to bioenergy under large-scale biofuel production for external use and traditional bioenergy linked to local use as the approaches are quite different. The former is currently based on large-scale agriculture models, and the latter is based on the sustainable use of forest resources. This was then also reflected in the ecosystem and livelihood principles that were developed during the workshop, which are generally applicable to large-scale biofuel feedstock production, rather than for traditional access to bioenergy.

5.1. Overall context – biofuel production

<p>1. What has been done/is currently being done?</p> <ul style="list-style-type: none"> - A phenomenal amount is being done! However, it is uncoordinated. The COMPETE project is the best effort so far. - South Africa, Malawi and Tanzania so far have the most land allocated for biofuel production. - Tanzania has a multi-ministerial Biofuels Taskforce in place. - Botswana has undertaken feasibility studies. - FAO has looked at bioenergy and food security projects in Tanzania and Mali, based on cassava. - Zambia has a dual purpose programme on sweet sorghum.
<p>2. What can be improved?</p> <ul style="list-style-type: none"> - RSB standards are being developed but they need to be improved. - More agronomic research. - More research on biodiversity impacts (including invasive risk potential) and water use and food security. - Conflict with other land users, including wildlife corridors and tourism. - More work on use of waste and how to improve yields, as a way to avoid conflicts. - Market is the biggest barrier. Need greater awareness and standards.
<p>3. What is not being done/gaps?</p> <ul style="list-style-type: none"> - Legislation, policies and incentives (reduced levies, subsidies, etc) specifically for ethanol and biodiesel are not in place in every country. - Land acquisition without secure land tenure/rights established. - Support/funding from governments. - Assigning of responsibilities in the supply chain.
<p>4. What tools/approaches do we have?</p> <ul style="list-style-type: none"> - The RSB – though more representation of African organisations is required in the newly established Chambers. - Hybrid model/business models/best practice (e.g. Tanzania) to address land issue and social issues. - Work with companies to be more relevant with recommendations.

5.2. Overall context – traditional bioenergy/energy poverty

<p>1. What has been done/is currently being done?</p> <ul style="list-style-type: none"> - Not enough is being done. The needs and wants are very different. - South Africa – basic electricity grants are for everyone one the grid, including the richer people! Doesn't benefit those not on the grid. - Mali and Zambia have local energy service companies. - <i>Climate Action Partnership</i> has a project in the Northern Cape developing a climate change adaptation resource pack, which includes energy options. - Game Rangers Association ran information on the their newsletters on solar and energy efficient camps but few takers - Botswana – The options are made in reference to supply enhancement and demand mitigation. The options of supply enhancement include large scale plantations, village woodlots and management of natural woodlands/foresets. Demand mitigation options aim at conserving wood energy by designing and disseminating woodfuel stoves and by promoting woodfuel substitutes (fuelswitching). If the fuel being promoted is not locally produced, there might be a problem of foreign exchange cost. In addition, substitutes such as coal (promoted in Botswana) are may be associated with the problem of indoor pollution. Studies undertaken in China have revealed that indoor pollution from the use of coal is associated with a number of illnesses such as lung cancer and respiratory diseases.
<p>2. What can be improved?</p> <ul style="list-style-type: none"> - the multiplier effect – keep energy cycle in the community - education on alternative options - efficient stoves and solar cookers are too expensive, need to re-direct subsidies for fossil fuels to support them (perhaps through GTZ?) - FAO Small-scale bioenergy case studies, but did not include natural resource efficiency or energy balance, or a detailed economic analysis - EIAs for development of an area – should encourage developments to be energy efficient and even self-

sufficient, especially if off-grid (it shouldn't be obligatory to connect to the national grid)
- agriculture is one of main drivers of deforestation but fuelwood and charcoal production also degrades forests – if not harvested sustainably. Shouldn't stop wood use, make use more efficient and sustainable.

3. What is not being done/gaps?

- matching energy source to needs (e.g. heat/cooking/lighting/livelihoods/small-scale industry) and have an integrated and appropriate small-scale renewable energy systems, therefore need genuine community involvement in energy decisions
- sustainable energy from a human rights view?

4. What tools/approaches do we have?

- natural resource management
- cost-benefit analysis – especially for substitution of fuelwood (is it really better?)
- ecosystems approach
- Protected Areas – enforce law with community involvement; promote sustainable use of buffer zones.
- Reduced Emissions from Deforestation and Degradation – focus on the Degradation part, linked to fuelwood use. Money needs to get to the community to improve efficiencies.
- Communication essential. Highlight good examples!

5.3. Ecosystem and livelihood principles for biofuels

Ecosystems

For any development, the investor/government should consider the key impacts on:

- water use competition, and pollution
- biodiversity
- GMOs
- Changes in landuse – previously used for food
- Climate change – emission of greenhouse gases
- Fossil fuel energy balance or primary energy uses
- Pollution from fertilizers, water, air pollution
- Invasive potential to be managed e.g. is the *Jatropha* invasive in African context same as it is in Australia??

Social

- See tangible benefits for country – win-win situation
- Best investment practices – e.g. hybrid models,(combining large-scale and outgrowers)
- Corporate social responsibility on the side of companies and governments endorsing biofuels projects
- Enhance technology transfer
- Food price – is biofuels the real course
- Labour rights/health issues
- Land tenure/local communities ownership of land being maintained/ safeguarded
- Knowledge and information before any developments

Economic

- Biofuels projects demand for subsidies for them to take off., e.g. SEKAB looking for loans and guarantees from SIDA
- Big opportunity for rural livelihoods
- Micro economic impacts too, including possession
- Interaction of other sectors of the economy – pharmaceutical, agriculture, industry, travel – new markets
- Foreign exchange benefits

Approach

- how are we going to undertake biofuels
- need holistic investment
- need to have more investment in research and development

Organizations for biofuel networking in the region

- Tanzania – Tanzania Natural Resource Forum (TNRF), WWF Tanzania, TaTEDO, KAKUTE HakiArdhi, Oxfam.
 - South Africa – CSSIR, Department of Minerals and Energy, CSIR, CURES
 - Botswana – EECG
 - Zambia – CEEZ
 - Kenya – EDDF, GAF,
- Also need to include international Centers such as ICRAF, CIFOR, ICRISAT, NARS, FORESTRY CENTERS
- And sub-regional organizations: NEPAD, EAC, SADC, COMESA, NEPAD, AFRICA ECONOMIC COMMUNITY, ASARECA

6. Workshop outputs

Through the discussion, several concrete potential areas for action were identified. The workshop participants are encouraged to work with IUCN to help take forward these concepts, and identify opportunities in their existing work or potential work to take these forward.

6.1. Policy-making framework for linking ecosystems and livelihoods for energy

Why

- The IUCN Programme theme *Naturally Energising the Future* has linkages with the other 4 programme themes which all depend on and link with biodiversity conservation. It is important that energy decisions support rather than compromise these results.
 - Biodiversity conservation
 - Greening the economy
 - Managing Ecosystems for Livelihoods
 - Climate change forecast
- Inter-governmental departments needing to be cross cutting, IUCN can assist environmental ministries getting into energy decision-making...

What and how

- Don't get caught up in details, focus on principles and key policy messages
- Develop policy documents/messages to be targeted at policy makers and investors/donors
- Build on existing IUCN resolution on access to energy

Climate Action Partnership - Wind farms for biodiversity conservation
Land in the Northern Cape were being used for small-scale mining. The community has now decided to put in place wind turbines, the land around it will be protected and will also serve to help conserve biodiversity

- Clearly state with is the ecosystem approach for energy decision-making
- Reinforce other messages such as climate change adaptation for energy security
- Can then identifying which ecosystems to focus conservation

and management for each energy option, identifying specific norms and standards (see Bioenergy and Hydropower sections)

- Could also target EIA legislation and implementation (e.g. strengthen capacity for EPAs)

Example - Durban derives the equivalent of £1m of energy from the local forest. However, if the forest goes, Durban does not have the finances to be able to pay for an equivalent amount of energy from the grid.

- Other targets include Clean Development Mechanisms, combining biodiversity standards into energy projects) and adaptation standards
- The target is to have “x” amount of energy sourced sustainably from ecosystems with “progressive approximation” to improve the target over time.
- Use lessons from case studies from the region to back-up principles, e.g. Tanzania example. IUCN programmes, Members and partners can provide case studies to feed-in to the development. The case studies can be used to support the policy documents to get the policy practice linkages...

Energy conservation for nature conservation
WESSA has a programme on energy, including energy education and communications.

- These policy pieces can then be used by IUCN to communicate to key decision-makers and also used by partners and members to do the same.
- The learn by doing or adaptive approach: advise that countries adopt complex systems view, that a certain amount of change is acceptable in the ecosystem... you manage the system within

this, the change should be mitigatable

- Input the ecosystem approach (described above) into existing mechanisms (Kyoto, REDD) within climate change and biodiversity discussions so that these mechanism benefit ecosystem conservation and livelihoods within our countries.

Incorporation of ecosystem and livelihood principles for truly sustainable energy policies – draft principles

- Putting in place sustainable energy options should not jeopardise other objectives
- Encourage cross decision- making and help Ministries of Environment to get on to energy decision making processes
- There must be a broader framework based on systematic conservation that will unlock areas for sustainable energy development including Strategic Environment Assessments (SEAs).
- Bringing ecosystem approach into the energy discussion:
 - Consideration of livelihood dependency on ecosystems- e.g. fuelwood
 - Impact of climate change on ecosystems and how this effects energy (hydropower example)- these systems may change with climate change and provide different services, and therefore energy options
 - Consideration of upstream and downstream impacts of the energy or development action
 - Emphasizing the ecosystem based adaptation to climate change (by protecting or restoring the ecosystem you are building resilience of the ecosystems and its services and protecting biodiversity and enhancing the community ability to adapt)
- A multi-ministerial taskforce should decide on energy policies and investments
 - Energy programmes affect not only energy suppliers and users, but also have impacts for development, agriculture, natural resources, agriculture and conservation.
 - Furthermore, natural resources provide the only truly renewable and sustainable forms of energy, therefore their valuation is required in energy assessments.
- Clean energy does not equal green energy
 - Energy options should be assessed not just on their greenhouse mitigation.
 - Apart from energy conservation and efficiencies, each energy option can impact on the environment. These impacts should be minimized and mitigated to ensure that future energy supply is not jeopardized.
 - Each energy option should be assessed for its dependence on ecosystem services, and how these may alter with climate change.
 - *Could provide examples for each energy option.*
- Maximise livelihood benefits for each energy investment
 - Limited financial resources are available for renewable energy investments. They should be introduced on a needs-basis. What is the energy required for (considering suppressed demand) and a range of appropriate alternatives considered, identifying the one/range that maximizes return on ecosystem services and investment.
 - Any large-scale energy investment should not by-pass near-by communities.

- Local communities should be provided with flexibility to develop renewable energy options to also be able to feed into the local/national grid.
- Decision-making process for determining which resources are used for energy production should consider:
 - to what degree the resource is used and by whom,
 - it should be reasonable (consider trade offs)
 - evidence based and
 - an open and participatory decision making process.
- Efficient energy use should be promoted that the resources are conserved and sustainably managed and climate change is mitigated or limited
- Promote precautionary principle: The use of non renewable resources is discouraged if a) the original quantity of the resource is unknown and b) the persistence of the remainder of the resource (or the ecosystem it supports) is threatened by the use of it...if no more coal, then discourage the use of coal...ultimately we are promoting diversification
- The full cost of all energy options (including environmental and social impacts) should be considered when conducting cost-benefit analyses of different energy options.
- Revenue generated from energy production should contribute to supporting policies and investments for sustainably produced renewable energy resources.
- Revenue from energy production needs to be re invested back directly into natural capital..... use mechanisms such as CDM but the revenue must go back to those who are directly influencing the ecosystem conservation with the result I beneficiation of the natural capital...
- Accept that all energy production must not occur outside of legislative frameworks and international norms/best practice.
- Recognize that alien vegetation species (invasive) where they occur in such numbers that they pose a threat to the ecosystems could be removed for energy production, aimed at averting risk to biodiversity, at same time they can provide livelihoods but this can be limited unless they occur in such numbers that the livelihood would be sustainable.

6.2. Sustainable energy options show-cased in Protected Areas

- “Be the change you want to be” – walk the talk!
- Protected Areas have very well-established existing networks
- Energy use in ecotourism areas should consider using renewable energies in the lodges
- Use of buffer zones/corridors as controlled areas for sustainable fuelwood harvesting.

Impacts of transmitting energy

KZN Wildlife has a project to manage the impacts of power lines through Protected Areas.

Leading by energy example

SAN Parks has a requirement that national parks should aim to have energy efficient practices in their lodges and visitor centres.

6.3. Development of piece on REDD/bioenergy linkages

- Produce 1-2 pages on traditional bio energy and bio fuels / REDD linkages by June (UNFCCC), including renewable energy targets as back-up.

Example - Linking energy into REDD discussions

Potential IUCN member *Wildlands Trust* has a programme of work on REDD and energy.
Link with work by *Climate Action Partnership* and IUCN Climate team?

6.4. Build on IUCN Resolutions

- Build on existing energy IUCN resolutions
- Come up with a motion for Post 2012 negotiations on access to energy with guidelines, norms and standards.

6.5. Linking with other potential initiatives within IUCN

- The Economics of Ecosystems and Biodiversity (TEEB) – an energy component will hopefully be developed with BC Hydro. Outputs from this workshop will be very helpful for this process. If you're interested in contributing case studies, please contact: nadine.mccormick@iucn.org.
- Capacity building for Environmental Impact Assessment of different energy options, identified in Oceania, Nairobi (invasives and biofuels) as well as this workshop. For those that are interested, please contact: Abdulrahman.issa@iucn.org.

7. Next Steps

As commented in the one of the evaluation forms, there is a lot that needs to be done on energy in the region. Some very good general recommendations were made in the presentations. For follow-up to this workshop, it is important to focus on what can be realistically achieved within the informal networks that have been created. The below list highlights work/events that can be done as part of our existing work. For more detailed follow-up, more resources are required and so participants are encouraged to communicate on potential joint funding opportunities to help take forward the good work that was started during the workshop.

It was noted in one of the evaluation forms that we should consult more to agree on the achievements of the workshop and the next set of actions, including the role of IUCN and the state actors/representatives.

IUCN follow-up

- Put together a draft report and circulate to the participants for comments by 1st May 2009.
- Develop a web-page where all presentations can be downloaded
- Add links to member organisations on the IUCN website
- Based on final workshop report, IUCN and interested participants to develop general principles for sustainable energy, and circulate for comments (by end of May), including specific energy technologies.

Participant follow-up

- Members and partners to provide specific examples of their work that will be highlighted on IUCN website.
- Upcoming events on energy related activities in the region where participants could highlight outputs from the workshop could be presented:
 - 20-21 May - Environmental Resource Economics (links to Payment for Ecosystem services) in Cape Town, South Africa. Will be attended by Sarshen Marais. <http://www.capeaction.org.za/index.php?C=events&P=2>
 - end of May - workshop on Jatropa in Ghana, more details from Prof. Kghati
 - 1-12 June UNFCCC meeting in Bonn, Germany. Will be attended by Sarshen Marais and IUCN Climate colleagues.

- 16-18 June Bio-energy conference, Addis Ababa, Ethiopia. More information from Daniel Nyamai. <http://www.africabiofuels.com/>
- 25th June, IUCN South Africa National Committee Meeting. More information from Bryan Havemann.
- June/July - Hydropower Africa in South Africa. More info from Isobel van der Stoep.
- November - COMPETE meeting, Brussels, Belgium.
- December - UNFCCC Copenhagen, Denmark. Will be attended by Sarshen Marais and IUCN Climate colleagues.
- 16- 24th May – International Association for Impact Assessment Conference (IAIA09), Accra Ghana. Will be attended by Paul Buyerah Musamali. <http://www.iaia.org>

Annex 1 - Workshop Presentations

Introduction and background

- **Hastings Chikoko** provided an overview of IUCN's work globally and on how IUCN was working on Shaping a Sustainable Future in East and Southern Africa for the period 2009-2012
http://cmsdata.iucn.org/downloads/02_hastings_introduction_to_iucn_ppt_programme_long_africa_en.pdf
- **Nadine McCormick** set the scene by providing an IUCN perspective on the Linkages between energy, ecosystems and livelihoods which emphasizes the important role that the ecosystems play in supporting biomass energy
http://cmsdata.iucn.org/downloads/03_nadine_iucn_energy_ecosystems_and_livelihoods_pretoria_28_april_09_nm.pdf
- **Prof Wikus van Niekerk** made a keynote presentation outlining the major renewable energy options which included, Solar Energy (Solar Thermal Power Plants and Photovoltaic Systems), Wind Energy, Wave Energy, Bio-Energy and Biofuels
http://cmsdata.iucn.org/downloads/04_w_van_niekerk_setting_the_scence_iucnwsnop_small.pdf
- **Excellent Hachileka** outlined the impacts of climate change on ecosystem services and consequently on various energy options, in his presentation on "Exploring energy and climate change linkages from an ecosystem perspective"
http://cmsdata.iucn.org/downloads/05_excellent_exploring_energy_and_climate_change_linkages_presentation.pdf

Hydropower

- **Elenestina M. Mwelwa, a Senior Manager for a power utility company** gave an insight on the, the Good, the bad and the ugly from hydropower generation which emphasized the point that hydropower has many development, environment and livelihood benefits if well managed and integrated into broader ecosystem and catchment management
http://cmsdata.iucn.org/downloads/06_elenestina_hydropower_generation_presentation.pdf
- **Paul Buyerah Musamali** provided an insight in managing the ecosystem and livelihood impacts of energy options using a case of the Bujagali HEP in Uganda
http://cmsdata.iucn.org/downloads/07_paul_managing_ecosys_ppp_uganda_april_2009.pdf
- **Hartley Walimwipi** shared the findings of a research done on the climate change/variability implications on hydropower generation in the Zambezi Basin
http://cmsdata.iucn.org/downloads/08_hartley_climate_change_and_hydropower_generation_ppt_revised.pdf
- **Lameck Noah** introduced the importance of upstream catchment management for sustainable hydro power production and for other economic developments and livelihoods downstream using a the Case of Usangu Floodplains Tanzania
http://cmsdata.iucn.org/downloads/09_managing_the_upstream_20power_point_1.pdf

Biofuels

- **Daniel Nyamai** emphasized the Opportunities & Constraints for Sustainable Development of Biofuels /biodiesel in ESA Sub-region based on lessons and experiences in terms of development strategies, technological advancements, energy policies/legislation, incentives and political will in the region
http://cmsdata.iucn.org/downloads/10_biofuels_presentation_d_nyamai_iucn_workshop_pretoria.pdf
- **Emmanuel Sulle** shared findings of his research on Biofuels, Land Tenure and Rural Livelihoods in Tanzania
http://cmsdata.iucn.org/downloads/11_emanuel_tanzania_biofuels_presentation_light_bg_2pp.pdf
- **Donald L. Kgathi** made a presentation on the Potential Impacts of the Production of traditional liquid Biofuels on Ecosystems and Social Sustainability using his experiences from Botswana
http://cmsdata.iucn.org/downloads/12_donald_kgathi_biofuelsppt_pretoria.pdf
- **Nadine McCormick** shared a report from a workshop on Invasives and biofuel production which highlighted the potential of most feedstock plants to become invasive and the need to be aware and careful in the promotion of alien feedstock plants for bioenergy
http://cmsdata.iucn.org/downloads/13_nadine_invasives_and_biofuels_workshop_pretoria_28_april_09_nm.pdf
- **Annie Sugrue** presented the work of the Roundtable on Sustainable Biofuels on the development of principles and criteria for sustainable biofuels production
http://cmsdata.iucn.org/downloads/14_annie_jan_2009_rsb_vzero.pdf

Traditional bioenergy

- **Bryan Havemann** provided a short presentation on Traditional bio-energy – Lessons from the Region which highlighted the significance of wood as biomass energy for the majority of households in Sub-Saharan Africa
http://cmsdata.iucn.org/downloads/15_bryan_bio_energy_wessa_iucn_pp_beige.pdf
- **Annie Segrue** presented a second time as CURES on small scale Bio-energy initiatives and the critical role of gender considerations in energy decisions
http://cmsdata.iucn.org/downloads/16_annie_segrue_gender_and_alternative_energy_iucn_april_09_pptx.pdf

Annex 2 – Further references

IUCN news story -

http://www.iucn.org/about/work/initiatives/energy_welcome/?3106/energyecosystemsecurityEasternSouthernAfrica

IUCN workshop page -

http://www.iucn.org/about/work/initiatives/energy_welcome/ecosystems_energy/energy_workshop_pretoria.cfm

Participants list – to be circulated ASAP

Annex 3 – Workshop evaluation

Thanks to the workshop participants who provided useful and constructed feedback. Overwhelmingly the workshop was successful, with an average score of 3.3 (1 poor – 4 excellent).

Most participants appreciated the networking opportunities that the workshop presented with a diverse range of colleagues, though we share some concerns that we were not able to bring more government and private sector representatives. The learning opportunity thanks to the informative presentations was also appreciated. Time-keeping was also appreciated allowing enough discussion time, though the un-balanced design of the agenda did not allow enough discussion time following individual presentations. A couple suggested to have fewer case-study presentations and time for broader discussions. Though the focus of the workshop was welcomed, many noted the lack of realistic or specific objectives and outcomes. This was compromised in having a more flexible, dynamic process. However, based on this workshop, it should be easier to identify clearer objectives and outcomes linked to IUCN’s work on energy, ecosystems and livelihoods. For another time, we will give as much notice as possible of workshop logistics and objectives. The location and logistics were also appreciated – we passed on the compliments to Ditse!

Further comments/suggestions are always welcome!

*“Keep the wind in your face
The sun on your back
And the IUCN values
Deep in your heart!”*
(From one of the evaluation forms.)