

Climate Change and Energy Access

International Parliamentary Hearing

for East African Legislators

June 6-8, 2008, Samburu Game Lodge, Kenya

Co-sponsored by the World Future Council

Summary report

Twenty legislators from across East Africa agreed that in view of the threat of climate change and the spiralling price of oil, there is an urgent need for Africa to switch to renewable sources of power.

MPs from Kenya, Uganda, Tanzania, Ethiopia, Burundi, Rwanda, the Seychelles, Comoros and Madagascar heard presentations from a range of experts in the fields of renewable energy and rural electrification. They discovered that renewable sources could easily provide all the power that the region requires – if the political will and investment is forthcoming.



Less rain has fallen in East Africa recently making vegetation scarce for wild animals.

The hearing provoked lively discussions regarding the appropriateness and viability of the various technological options available as well as the best legal and regulatory frameworks to promote such solutions.

In particular, MPs were enthused by the finding that geothermal energy – which draws on the natural heat from deep underground to drive steam turbines – is available in abundance in the

region. The Rift Valley could provide 9 gigawatts of energy, which is far greater than projected energy demand for the whole of East Africa.

If this potential is tapped – along with that of other technologies such as solar, mini-hydro, biogas and biomass from agricultural waste, East Africa could entirely eradicate the need for expensive fossil fuel imports to supply its power.

The parliamentarians learned with great interest that several countries in the region have already implemented innovative policies to promote grid expansion and the development of renewable energy. For example, Kenya has a German-style Feed-In Tariff policy to encourage entrepreneurship in the renewable energy sector while Ghana has a unique Self-Help Electrification Programme to help extend the electricity grid to poor rural areas.

At the end of the hearing, the legislators agreed that urgent action is needed to tackle the growing energy crisis and returned to their home parliaments poised to ask parliamentary questions on the issue and to advance the debate.

The e-Parliament looks forward to supporting their initiatives to propose relevant legislation in their national parliaments.

This report is divided into four sections:

1. Participants
2. Action Ideas Discussed
3. Follow-up Actions
4. About the e-Parliament and the World Future Council



Legislators, experts and members of the e-Parliament team at Samburu.

1. Participants

Members of Parliament:

Haji Ali MP, Parliament of Ethiopia. Chair, Infrastructure Development Sub-committee.

Kwame Ampofo MP, Parliament of Ghana. Member, Committee on Energy and Mines. Member, e-Parliament council.

Jocelyn Borida MP, Parliament of Madagascar. Member, Environment Committee.

Abdo Adem Buser MP, Parliament of Ethiopia. Vice-chair, Rural Development Committee.

Dora Byamukama MP, Ugandan member of the East African Legislative Assembly. Member, e-Parliament council.

Lucas Chepkitony MP, Parliament of Kenya.

Florence Ibi Ekwau MP, Parliament of Uganda. Member, Committee on Natural Resources.

Terrence Francoise MP, Parliament of the Seychelles. Member, Standing Orders Committee.

Alex Getnet MP, Parliament of Ethiopia. Chair, Environment Committee.

John Kigyagi MP, Parliament of Uganda. Vice Chairperson, Committee on Natural Resources; Member, Committee on National Economy.

David Koech MP, Parliament of Kenya.

Wilson Litole MP, Parliament of Kenya.

Fabergé Gabriel Mamitiana MP, Parliament of Madagascar. Member, Energy Committee.

Said Hamid Mlatame MP, Parliament of Comoros. Chair, Foreign Affairs Committee.

Assoumani Youssouf Mondoha MP, Parliament of Comoros. Member, Foreign Affairs Committee.

Jacqueline Muhongayire MP, Rwandan member of the East African Legislative Assembly.

Julius Murgor MP, Parliament of Kenya.

George Nangale MP, Tanzanian member of the East African Legislative Assembly. Member, e-Parliament Council.

Mike K. Sebalu MP, Ugandan member of the East African Legislative Assembly.

Abdulkhariim Esmail Shah MP, Parliament of Tanzania. Member, Agriculture, Livestock and Water Committee.

Expert Presenters

Langiwe Chandi, Senior Energy Officer for Renewables, Zambian Ministry of Energy.

Francis Gbeddy, Director, Natural Gas, Power and Renewable Energy, Ghana Energy Commission.

David Jacobs, Policy Action on Climate Toolkit (PACT) project, World Future Council.

Stephen Karekezi, Director, Energy, Environment and Development Network for Africa (AFREPREN/FWD).

Dr. Gerhard Knies, Physicist, Coordinator, Trans-Med Renewable Energy Cooperation (TREC).

Dr. Anthony Nyong, Kenya, Lead author on Africa in the IPCC 4th Assessment Report.

e-Parliament Staff

James Corre, Programme Officer for Climate, Energy and Ecosystems.

Nicholas Dunlop, Secretary-General.

Jesper Grolin, Executive Director.



Legislators and experts listening to a presentation at Samburu.

2. Action Ideas Discussed.

Links to each of the presentations referred to below can be found in the top left corner of this page.

Nick Dunlop, the e-Parliament's secretary-general, opened the hearing by introducing the process and principles of the organisation to the parliamentarians present, many of whom represented countries which had not yet been involved in e-Parliament's work. He also summarised the current and predicted impacts of climate change on the region and highlighted the need to act quickly to prevent catastrophe.

Stephen Karekezi, the director of e-Parliament's regional partner, the Energy, Environment and Development Network for Africa (AFREPREN/FWD), also offered an opening presentation. Noting that the balance of power in East Africa was shifting towards parliaments and that the political initiative was no longer purely in the hands of the executive, he introduced the MPs to the challenges facing the energy sector in Africa. In particular, he noted that the current situation in which population is growing faster than energy generating capacity while the cost of oil is spiralling could spell disaster for Africa. Mr. Karekezi predicted that if the price of oil rises to \$200 per barrel, as predicted by some experts, many East African countries' economies could grind to a halt entirely. He proceeded to introduce a range of possible solutions to be discussed during the course of the hearing, including a list of suggested policy and legislative measures.

Climate Change and its Impacts on East Africa:

Dr. Anthony Nyong, a lead author on Africa for the 4th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), set the tone for the meeting by offering a stark assessment of the impacts that climate change is already having in the region, and the projected impacts of climate change on life in the region over the course of the twenty-first century:

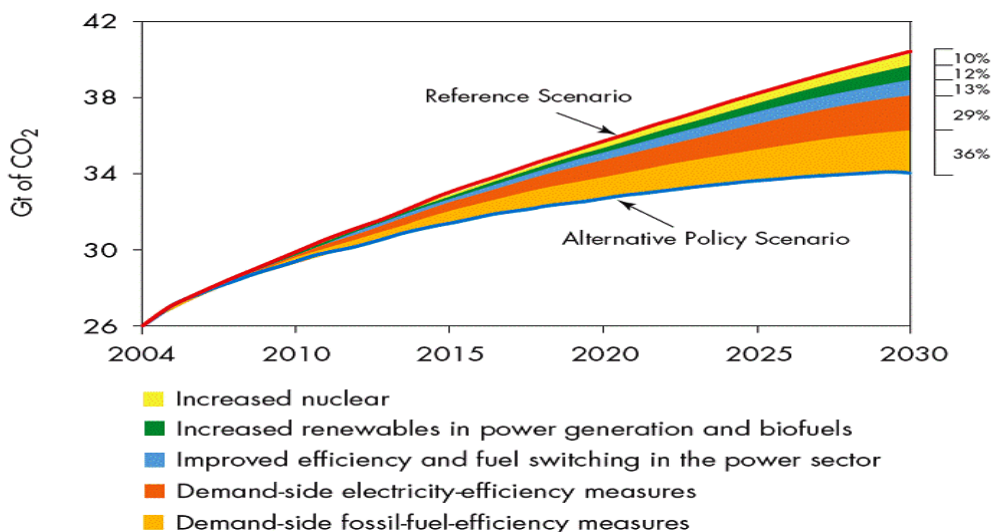


Dr Antony Nyong warned that crop yields in Africa could fall by as much as 50 percent.

- **water** – between 75 and 250 million more people likely to be exposed to water insecurity to by 2020, leading to the possibility of water-based conflict.
- **livelihoods** – the strong likelihood of increased variability of rainfall (with decreased precipitation in most places) would be a startling development for a continent whose agriculture is almost entirely rain-fed. Much of the continent is likely to experience a decrease in length of growing season, reducing yields by up to 50% in many places. Decrease in fish populations is also likely.

- **health** – in addition to the effects of malnutrition, epidemics of meningitis, Rift Valley Fever and malaria have been predicted, the latter due to the spread of malarial regions as temperatures increase.
- **ecosystems** – spreading desertification and decreased rainfall are amongst the contributory factors leading to predicted extinction of 10-15% of the species found in the region’s national parks by 2050, including hundreds of plant species.
- **coastal zones** – sea level rises will put up to four million people at risk of flooding by 2080; coastal erosion is likely to have wide-reaching economic and humanitarian consequences.
- **natural disasters** – there is a strong probability of increased storms and a surge in cyclone activity.

Responding to climate change – both in terms of adaptation and mitigation – must be viewed as integral to the continent’s economic development, and Dr. Nyong argued that Africa must embrace the “twin brothers” of renewable energy and energy efficiency measures. Using a graph



showing the relative CO₂ savings projected to result from various measures, he demonstrated that any vision that did not take sufficient account of the gains possible from energy efficiency measures was likely to be ineffective. This is particularly pertinent with regard to the design of new buildings, where the largest CO₂ savings stand to be made. To Nyong, this amply demonstrates the need to provide training in energy efficiency to architects and planners throughout the continent, as well as to provide centralised financial support to energy-efficient technologies, which often involve a higher initial outlay than their traditional equivalents due to the initial purchase cost of solar panels, wind turbines and so on. In conjunction with a massive-scale shift to renewable energy, such strategies could form the basis of the region's continued economic development and thus its ability to achieve the Millennium Development Goals.

Renewable Energy Options:

Dr. Gerhard Knies, physicist and coordinator of the Trans-Mediterranean Renewable Energy Cooperation (TREC) initiative, introduced a range of renewable energy options available to policy-makers and industry in East Africa. He emphasised that renewable

sources offer the potential to easily meet demand for energy in the region despite the growing population, and that the technology required to do so is already proven and available. Dr Knies went on to outline the technological options that could contribute to meeting all of East Africa's energy needs without any additional carbon emissions. Comparing the relative merits of geothermal, solar thermal (CSP), solar photovoltaic (PV), wind, biomass, and hydro power, he focussed attention on what he views as the two technologies capable of generating the largest amount of power in the region – CSP and geothermal.



Geothermal energy is a low-cost source of power that can provide security against high and fluctuating oil prices and drought-related hydropower problems. It does not produce any greenhouse gases, nor does it pollute the areas where it is produced. The development of a

geothermal plant involves drilling deep into the earth's crust to release naturally-occurring steam, which is then used to drive a turbine generator. The estimated geothermal potential of the Rift Valley is over 9000 MW – over 3000 MW in Kenya alone. Significant potential exists in Ethiopia, Tanzania, Uganda, Djibouti, Rwanda. The presence of volcanoes is a good indicator of potential for geothermal development (see map of the Rift Valley, left).

Solar thermal, or concentrating solar power (CSP), uses mirrors to concentrate sunlight, which heats water or other liquids in order to produce high-temperature steam that can drive turbines and thereby power conventional electricity generators. Among solar technologies, CSP is the cheapest, and also holds the potential of becoming the largest bulk producer of solar electricity. And because CSP uses a thermal phase, the energy generated can be stored as heat – in the form of molten salt – so that generation of energy can take place at night as well as during the day.

Dr Knies talked of the '10/3' crisis: with the world's population set to increase to 10 billion by 2050, the increasing scarcity of fossil fuels means that if we continue to rely heavily on these traditional sources of energy, we will only be able to supply enough energy for about 3 billion people. Therefore, he said, quite apart from the climate change issue, there is a desperate need to convert to renewable sources in order to maintain supply. He said that the criteria for any renewable source should be that:

- it is clean,
- it is abundant,
- it can be globally distributed,
- it has long term source security,
- it can be developed quickly,
- the technology has been proven.

CSP meets all of these criteria.



Dr Gerhard Knies focused attention on the two technologies with most potential in East Africa: CSP and geothermal.

In relation to East Africa, Dr. Knies pointed out that Northern Kenya or Ethiopia would be ideal environments for CSP due to their lack of clouds. He also noted the economic benefits of CSP over oil: there would need to be a significant investment in building a renewable energy industry in the region, creating local jobs that would not be necessary if energy were generated from imported fossil fuels. In order to successfully create such a renewables industry, an appropriate economic and political framework would need to be established in order to attract loans at favourable rates and ensure security for

investors.

Finally, Dr. Knies explained that High Voltage Direct Current (HVDC) transmission lines would have to be built

from desert power stations in order to ensure minimum wastage in the transmission of the electricity from source to user. HVDC lines entail a power loss of only 3 percent over each 1000 kilometre-stretch, significantly lower than traditional alternating current lines.

Dr. Knies's presentation stimulated a lively debate amongst the delegates with regard to whether it is yet appropriate for Africa to take up CSP on a large scale. Some participants – including many of the expert speakers – argued against immediate investment in CSP on the grounds that the technology was not yet sufficiently developed and therefore represented both too great a risk for Africa and too high an investment cost. Proponents of this view suggested that Africa should wait until production had reached a larger scale and thereby brought the unit cost down. Others – including the majority of the MPs who pronounced on the issue – argued that Africa should be pioneering solar thermal technology due to the continent's strong solar potential, its current dependence on less efficient or fossil fuel-based technologies, and the potential economic gains to be won from being amongst the first to develop the technology. It was pointed out by David Jacobs

that in the current climate the main challenge was to create a movement towards renewables in general, and that the detraction of any particular technology would be likely to be harmful to this overarching goal. Several of the MPs present called for a prototype project to be launched in East Africa, and requested that e-Parliament assist in such an initiative. Dr. Knies warned, however, that a suitable Feed-In Tariff or other regulatory framework was an essential prerequisite for a successful pilot project. . It was suggested that an exploratory study should be organised on the potential for CSP in the region.

Creating Strong Markets for Renewable Energy

Representing the hearing's cosponsor, the World Future Council (WFC), offered a presentation on Feed-In Tariffs (FITs). Mr. Jacobs is a member of the team that delivered WFC's Policy Action on Climate Toolkit (PACT) project .



Mr Jacobs said that the costs of a feed-in tariff could be paid for by a centralised fund – avoiding price rises for the consumer.

He began by pointing out that many renewable energy sources are already cheaper than their fossil fuel equivalents over the long term, but that the main obstacle to their development and use are their high initial capital costs. Hence, there is a need for a consistent legal framework to encourage investment and enable investors to guarantee returns within a certain time-period. Reviewing the different mechanisms by which this might be achieved, including tax incentives, subsidies and tendering schemes, he argued that FITs would be the most universally appropriate and effective of these mechanisms.

Feed-In Tariffs oblige utility companies to purchase electricity generated from renewable sources at a premium rate, usually guaranteed over a certain number of years. By guaranteeing renewable energy producers access to the grid and setting a favourable price per unit of power, FITs ensure that renewable energy is a stable, sound and long-term investment, thereby increasing investment and demand for renewables. Mr. Jacobs explained that the various FITs already established include almost all forms of renewable energy apart from large hydro installations, which are highly controversial. The industry shorthand used to refer to renewables - excluding large dams - as “new renewables”.

The cost of the FIT is usually shared among all energy users in the form of a small levy on each consumer's electricity bill. By sharing the cost in this way, the cost to each individual is minimal – coming to approximately €1.50 per month for each household in Germany, for example. The German FIT has led to the rapid development of both the wind and solar (PV) industries based on a tariff of 9 euro cents per kilowatt/ hour for wind and 56 cents per kilowatt hour for PV (though prices paid do vary according to location). Producers have clearly benefited from the stable price for renewables, and the feed-in tariff in Germany have led to other huge benefits: over 40 million tonnes of CO2 have been saved and 250,000 jobs created.

Mr. Jacobs acknowledged that one obstacle to the successful implementation of FITs in certain African countries would be the absence of strong national energy industry regulators, which would need to be set up. He went on to address the concern that FITs are inappropriate for Africa because they pass on the extra cost to the consumer, a move that in Africa could put the price of electricity even further beyond the reach of many of the poorest people. Although this has been the traditional model, he said, there is no reason why the extra cost could not in fact be paid from a centralised fund, avoiding price increases for the consumer.



Dr Kwame Ampofo MP from Ghana and Jacqueline Muhongayire MP from Rwanda.

Finally, he discussed how the Feed-In Tariff model might be adapted to support mini-grid or off-grid sources, presenting a model from an unpublished study by the European PV Technology Platform. The proposal involves setting up large funds, which would enable multilateral development agencies to fund projects at a scale that would otherwise be too small to attract funding from such sources, possibly tied to microcredit schemes.

To assist MPs in promoting the benefits of FITs, the e-Parliament has produced two concise toolkits taking the German and Spanish experiences as case studies of best policy. These were circulated at the hearing, and can be accessed here.

Reaching out to the Margins

Francis Gbeddy, Director of Natural Gas, Power and Renewable Energy at the Ghana Energy Commission, gave a presentation on his country's unique self-help scheme for accelerating grid expansion and rural electrification.



Francis Gbeddy explained how communities could get involved in self- help electrification programmes

The first two phases of the Ghana's National Electrification Programme (NEP) – which was financed by a consortium of banks led by the World Bank – focussed on large infrastructural projects. Whilst later phases of the programme were intended to extend the grid to rural areas, the Self Help Electrification Programme (SHEP) was established as a response to frustration in rural areas at the length of the wait-time for inclusion in the project.

The Self Help Electrification Programme offers those communities that initiate their own electrification projects government support to complete the electrification process earlier than the scheduled date of connection under the NEP. The communities must procure and erect all the low voltage electricity poles required for the local

network as well as funding and all wiring of properties. Once communities have completed these steps and provided evidence that a minimum of one-third of houses in the community are wired and ready to receive electricity, the SHEP scheme completes the process by connecting the community to the national grid via the pre-installed poles. A fixed low-cost charge based on 150 kWh per month of usage provides an effective subsidy enabling poorer households to connect to the scheme. Those who exceed 150 kWh have to pay in full for each kWh used. This pricing structure, which serves to extend access and encourage energy efficiency simultaneously, is known as a 'lifeline tariff'.

The SHEP scheme – which is funded by a consortium of foreign banks and development agencies – is a broad collaborative effort including local stakeholders, government ministries, district assemblies, energy companies, contractors and independent energy consultants.

The combined NEP and SHEP programmes have been highly effective: grid access has been raised from 10% to 54% of the population in less than 20 years! The success of SHEP has been such that it has now superseded the NEP's rural provisions as the primary means of extending the national grid into rural areas.

Like David Jacobs, Mr. Gbeddy spoke of the need to establish a permanent, independent agency to coordinate the project to prevent corruption or political interference.

Acknowledging that grid extension is not always appropriate, particularly for more sparsely populated areas, Mr. Gbeddy ended by discussing how the lessons of SHEP might be applied in order to support off-grid electrification using small hydro, wind, solar and so on. He spoke of the Ghanaian government's plan to extend a parallel fee-structure to that used for SHEP to those connected to mini-grids, in part necessitated by an atmosphere of resentment that has arisen amongst populations too far from the current reach of the grid to be considered under the SHEP.

Small-Scale Solar, Wind and Hydro Energy



Langiwe Chandi explained that the Zambian government had removed all import duties for solar equipment.

Langiwe Chandi, Senior Energy Officer for Renewables at the Zambian Ministry of Energy, picked up from Mr. Gbeddy and spoke about the potential of smaller-scale applications of renewable energy, and about how such installations might be linked up into mini-grids in areas too remote or too sparsely populated to make grid connection a feasible option.

Mrs. Chandi spoke of Zambia's Rural Electrification Master Plan, which is implemented by a dedicated government agency, the Rural Electrification Authority. The authority is developing several pilot projects involving biomass, biogas, solar and wind. These projects are deemed an essential aspect of economic development in a country that has a national electrification rate of only 23%, and a rural electrification rate of just 3%. She outlined various ways in which the Zambian government is supporting the growth of a renewables industry, including the removal of all import duties for solar

equipment and other technologies necessary for such an industry. The authority plans to have created 150 kilowatts of off-grid capacity by 2015.

Focussing on wind, solar PV and mini-hydro as the best-suited technologies to power mini-grids at this point, Mrs. Chandi outlined the principal requirements and nature of each technology. With regard to wind, she noted research being undertaken in Zambia to develop prototype windmills that can generate electricity at speeds lower than 5.5 m/s, which is currently the minimum wind-speed requirement. She also discussed a pilot project for a 36 kW mini-grid in northern Zambia, to be powered by solar photovoltaics.

There is considerable scope, she said, for converting existing mini-grids currently powered by diesel generators or other fossil fuel-based systems to renewable mini-grids simply by introducing a new source of power at the point of generation.

It was noted that the Chinese mini-grid model is taken as an archetype for the development of such systems elsewhere, since successful projects in China have already brought electricity to millions of people. China is currently providing training to Zambian engineers, particularly with regard to mini-hydro, a technology which has now been implemented in Zambia in four separate projects. Stephen Karekezi pointed out that Nepal has also been highly successful in this regard, with a large number of small hydro and biogas projects.

Mrs. Chandi joined several of the other speakers in emphasising the need for a strong institutional and legal framework to support the growth of the sector, warning that without financial incentives the industry is not likely to grow quickly enough. She spoke of the need for the introduction of state subsidies for such technologies to enable them to overcome the difficult initial stages in their introduction to a country's energy mix.

It was pointed out by Mr. Karekezi that there is potential for mini-hydro in Tanzania and Kenya, and that there is a correlation between the areas where this potential is found and those where tea is grown. This latter relationship could be particularly fruitful in view of the fact that the tea industry is also a major source of demand for energy.

Mrs. Chandi concluded by highlighting the social benefits of mini-grids and off-grid electricity, noting that they were likely to reduce rural-to-urban migration by improving rural standards of living and increasing employment opportunities in rural areas.

Biomass, Biogas and Geothermal



Stephen Karekezi, director of e-Parliament's partner organisation in East Africa – the Energy, Environment and Development Network for Africa (AFREPREN/FWD) – gave a presentation focussing on two renewable sources promising to make a vast contribution to making up the shortfall in East Africa's energy requirements: i.e. biomass energy from agricultural waste and geothermal energy.

With regard to **biomass**, Mr. Karekezi made it clear that the challenge for Africa is to switch to different *kinds* of

Stephen Karekezi explained that there was a need to convert to more efficient forms of biomass production.

biomass. Wood smoke is currently the third biggest killer of children under five on the continent, and Africa is the only place in the world where reliance on such traditional forms of biomass is projected to increase over the coming decades. He explained that there was a two-step transition from traditional forms of biomass to modern biomass sources, with the initial step being improved stoves or kilns for cooking and heating, which are both safer and more efficient than traditional models or makeshift facilities. The spread of such stoves has become a model for how the already existent informal economy can be utilised to maximise production. Mr. Karakezi noted that whilst there were programmes to promote more efficient stoves throughout Africa – such as those involving the highly successful Kenya Ceramic Jiko design – there remains enormous potential for the wider dissemination of such systems.

This initial step should be followed by an eventual shift towards more advanced biomass, involving the conversion of bio energy to liquid fuels, gas and electricity.

Reviewing projects to introduce biogas – or fuel produced by processing animal waste – to the region, Mr. Karekezi noted that at the household level such projects have yielded limited gains, partly because most homesteads have tried to accomplish it on too small a scale, and partly due to the lack of effective funding mechanisms. However, projects at a larger, industrial scale have been much more successful.

This observation with regard to scale is also pertinent with regard to biomass-for-electricity, where the cost of collection is often a barrier to efficiency. He proposed that the solution to this problem is for energy planners to work closely with agro-industry towards a form of ‘cogeneration’. The preeminent model for such collaboration in the region – and possibly in the entire world – is Mauritius, whose Feed-In Tariff for energy from sugar-cane bagasse is highly profitable for the industry and has resulted in energy being much cheaper than elsewhere in East Africa. Mauritius has gradually implemented a strong legislative framework supporting the growth of the industry, including tax cuts, subsidies and progressive energy pricing structures, and it now produces 40% of its total energy supply from cogeneration, a proportion which continues to grow rapidly. The country has also developed a revenue-sharing mechanism which ensures cooperation between agro-industry, small producers and energy utilities. Mr. Karekezi suggested that such efficiency could be replicated elsewhere in the region by encouraging an ‘out-grower’ mechanism by which small land-owners allocate up to 50% of their land to the production of biomass for energy.

The speaker pointed out the economic benefits of biomass, which entails the creation of far more jobs than would be required to produce the same amount of energy by traditional means, or even by many other renewable sources.

Addressing the controversial topic of biofuels for transportation, Mr. Karekezi insisted that the use of agricultural waste was a highly attractive option for Africa *provided that the continent does not enter into producing such fuels for export*. He warned MPs to beware of

Video producer Ina Hume interviewing Florence Ekwau in a break between sessions.



“land-grabs” by foreign companies wishing to cultivate crops for biofuels, saying that this phenomenon poses a threat to Africa’s control over its greatest natural asset: its land. He also pointed to the environmental threat posed by biofuels, including the possibility of forest clearance or the diversion of land currently used for food production, leading in turn to further destruction of ecosystems.

Mr. Karekezi then turned his attention to the potential of **geothermal energy** in the region. He noted that this is by far the cheapest source of energy in Kenya, currently accounting for 10% of the country’s total installed capacity (129 MW). The Kenyan government is planning a massive expansion of exploration for appropriate sites to tap the underground heat, aiming to raise the proportion to 25% by 2020. Geothermal energy is available across the Eastern part of the continent, all the way from Egypt to Malawi, but is most concentrated along the Rift Valley in East Africa, which has the potential to produce 9 gigawatts of energy – far more than current total demand in the region.

In conclusion, Mr. Karekezi warned that such gains as had been outlined remained precarious as long as the policy instruments used to achieve them were not ‘locked in’ to the system by the introduction of binding legal instruments through national parliaments – hence the urgent need for those legislators present to begin the task of changing the legal framework to support renewable energy. He also echoed other presenters in emphasising the need for dedicated institutions to regulate the industry and promote the growth of renewable energy.

3. Follow-up Actions



Dr. Kwame Ampofo making notes during the final session.

Opening the final day of the proceedings, Kwame Ampofo, Ghanaian MP and member of the e-Parliament’s International Council, outlined a number of duties he sees as incumbent upon parliamentarians with regard to energy: to ensure breadth of access, economic efficiency, and energy security and to address environmental concerns. He reminded the MPs present that it was their role to keep a check on the executive and to make sure that it paid sufficient heed to these concerns.

Nick Dunlop outlined four ways of **affecting parliamentary action on renewables**:

- *ask questions in parliament;*
- *invite experts to present their research or experience to parliament, or to write a briefing for MPs;*
- *commission studies on these subjects;*
- *move a private member’s bill.*

COMOROS



Assoumani Youssouf Mondoha MP and Said Hamid Mlatame MP

expressed strong support for the aim of moving to renewables with the utmost urgency. However, they expressed concern that the immediate introduction of immature technologies like CSP may make electricity even more expensive in places where it is already beyond the reach of most of the population. Noting the unique circumstances of small-island states, they called upon the e-Parliament to organise a series of hearings focussing on the specific needs of these nations.

ETHIOPIA



Alex Getnet MP outlined his country's strategy for tackling the energy crisis, focussing on the construction of several major dams, and on a US\$1 million project to create a biomass industry based on bagasse from sugar cane, in addition to an emerging self-help electrification project which aims in the long term to generate up to 1870 MW of additional capacity. He also expressed a strong interest in supporting research with a view to exploiting geothermal resources along the Rift Valley in Ethiopia.

KENYA



David Koech MP spoke of the need for African politicians to take climate change more seriously, and to commit themselves to preparing people to move away from charcoal and other dirty technologies. He said he was strongly considering introducing legislation in the Kenyan parliament to ban incandescent light bulbs and requested support in this. He identified geothermal as the top priority in expanding Kenya's renewables capacity, and called for further meetings and field visits to help educate parliamentarians.



Chepkitony Lucas MP said that Kenya needed to liberalise the energy sector in order to break the current monopoly and prepare the way for a multiplicity of renewable solutions. He supports continued drilling to explore geothermal potential.



Wilson Litole MP echoed the positions of the other Kenyan legislators present in identifying geothermal as the single most promising energy source for the region. He said that the price of energy-saving light bulbs needed to be reduced significantly if they were to become a viable option for the region. He also proposed the notion of a region-wide Feed-In Tariff, to be introduced via the East African Legislative Assembly.

MADAGASCAR



Jocelyn Borida MP said there was a need to ensure that mini-hydro, biomass, and solar thermal all play a sufficient role in Madagascar's 'Action Plan', and to ensure that the country gives priority to increasing energy access for the poor. He also spoke of the need to involve the African Union in developing strategies for the region.

RWANDA



Jacqueline Muhongayire MP said that the extent of the climate challenge was already taken very seriously in Rwanda, which has recently passed a swathe of environment-focussed legislation, including laws to protect rivers and other ecosystems, to ban disposable plastic bags, and so on. She pointed out that women's groups have often played a strong role in initiating projects such as biogas trials. Ms. Muhongayire noted a range of projects already underway under the auspices of the EALA, including mini-grid projects and geothermal exploration initiatives.

SEYCHELLES



Terrence Francoise MP expressed the deep concern and fear felt by Seychellois regarding the projected impacts of climate change. He noted that since a 2m rise in sea levels would put 70% of the country underwater, neither mitigation nor adaptation could fully protect inhabitants of the country: the country's very survival is at risk. Acknowledging the irony of the islands' current dependence on imported diesel to generate electricity, he promised to look into the suitability of solar thermal for the Seychelles, possibly in combination with an HVDC line. He also mooted the idea of introducing legislation to promote energy efficiency in building design and to reduce import duty on energy-saving appliances.

TANZANIA



George Nangale MP said that the most immediate need in the region was to increase expertise in the field of renewables in order to introduce a more nuanced debate in regional parliamentary fora. He suggested that a resolution on energy-saving light bulbs should be moved as a part of the East African Master Plan under the EALA.



Abdulkharim Esmail Shah MP noted that Tanzania has recently enacted a law liberalising the electricity sector and said that the obvious next step was to introduce a Feed-In Tariff. He promised to approach the minister responsible for energy regarding the issue of subsidising compact fluorescent lightbulbs (CFLs) in order to bring down their price, which is currently beyond the reach of most people. He invited the e-Parliament, and any other body wishing to assist, to initiate a CSP pilot project on his home island of Mafia. Finally, he proposed that those MPs representing small islands form a special interest group within the e-Parliament to discuss issues specific to such areas, which are particularly at risk from climate change.

UGANDA



Florence Ibi Ekwau MP said that Uganda is desperately in need of a SHEP along the lines of the Ghanaian model, yet there was a need for proper mapping in order to approach this efficiently. She said that biomass, solar thermal and geothermal were all possibilities that should be investigated further by the Ugandan authorities.



Dora Byamukama MP said that in order to fully engage in the climate debate, African MPs needed a clearer understanding of the Kyoto protocol and the UN climate change negotiations; she asked for the e-Parliament's help in this matter. She also called on the e-Parliament to help develop model legislation relating to FITs, purchasing agreements, and other policy initiatives mentioned in the course of the hearing, as well as to organise study visits to help MPs develop expertise in the potential of renewable energy sources.



John Kigyagi MP expressed his enthusiasm for CSP technology, saying that it should be given priority in terms of research and resources. He supported the idea that the EALA introduce regional legislation to promote compact fluorescent lightbulbs. Finally, he requested that the e-Parliament help to source and document the cases in which the Feed-In Tariff has already been applied in the African context, such as in Kenya, Malawi and Mauritius.



Mike K. Sebalu MP spoke of the need for regional co-operation – in particular to take greater account of energy issues within the East African Master Plan proposed by the EALA. He suggested introducing a common external tariff on incandescent light bulbs and to channel the income generated straight into the promotion of energy-saving light bulbs. Finally, he stated that biomass should be further emphasized on the grounds of its reliability and wide availability. He noted that working with the tea industry held great potential for the region.

At the request of MPs attending the hearing, e-Parliament agreed to **commission four additional toolkits** for the use of MPs wishing to replicate the best policies that they had heard about during the hearing:

- 1) **Feed-In Tariffs** – on adapting the FIT concept for the African context, using the Kenyan and Mauritius experiences as case studies;
- 2) **Geothermal energy** – the Kenyan experience and the potential for further exploitation of this resource in the region;
- 3) **Self-Help Electrification Programme (SHEP)** – on the potential for replicating this Ghanaian project in other countries; and
- 4) **Energy Efficiency** – The experience of Ghana and other countries in implementing initiatives based on the distribution or exchange of compact fluorescent lightbulbs (CFLs)

These documents will be posted on the e-Parliament website as soon as they become available.

Finally, the e-Parliament agreed to draft a series of model parliamentary questions based on the hearing. These were developed as set of single-page briefing papers which were circulated to all MPs who attended.

4. On the e-Parliament and the World Future Council

The e-Parliament is a new global forum in which democratic national legislators work together to exchange and implement good policy ideas. It is led by an international Council of members of Parliament and Congress. We are combining the new communications technologies with face-to-face meetings to apply at the global level some of the methods of a national Parliament. For more information on the e-Parliament please visit our website at www.e-parl.net.

The World Future Council (WFC) aims for a global membership of wise thinkers, practical pioneers and young leaders. It will identify the "implementation gaps" between current practices and necessary measures to assure a sustainable and equitable world. As an institution representing humanity's common values, the WFC will provide an ongoing forum for debate and action. For further information please see our website at www.worldfuturecouncil.org/.

5. Acknowledgement



The e-Parliament would like to thank the European Commission for funding this project. This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of the e-Parliament and can in no way be taken to reflect the views of the European Union.