

United Nations Environment Programme

Addis Ababa Highlights



Improving Urban Air Quality: Promoting Clean Fuels & Vehicles

Report by Selam Kidane

The urgency of improving ambient air quality in Africa was underlined in a recent workshop in Addis Ababa, during which international and local experience were mulled over by a cross-section of stakeholders.

Africa is experiencing rapid urbanization and expansion of cities, with Sub-Saharan Africa having the highest annual urban growth rate of around 4.58% and cities doubling in ten years. These facts culled from UN-Habitat materials underlie some of the problems of urban air quality that led to the establishment of the Partnership for Clean Fuels and Vehicles (PCFV) at the World Summit on Sustainable Development (WSSD) in September 2002. The Clearing-House of the PCFV is in the headquarters of the United Nations Environment Programme (UNEP) in Nairobi. The partnership comprises over 100 actors from governments, industry, international organizations and civil society.

The workshop on "Promotion of Clean Fuels and Vehicles in Ethiopia" was spearheaded by a national PCFV affiliate, the Forum for Environment (FfE) working in partnership with the Ethiopian Petroleum Enterprise (EPE), the Ministry of Transport and Communication (MoT&C), the Federal and the Addis Ababa Environment Protection Authority (FEPA and AAEP), and Environment and Development/Ethiopia (ENDA-Ethiopia). It was held on 22 July 2008 in Ghion Hotel. The workshop had two principal objectives, namely to sensitize stakeholders on the health and environmental benefits of lowering sulphur levels in fuels and adopting cleaner vehicles and cleaner



UNEP's Jane Akumu at the workshop

vehicle technologies to reduce urban air pollution, and to urge Ethiopia to import lower sulphur diesel fuels (at least 500ppm).

Mr.Negusu Aklilu, the FfE Coordinator, who welcomed guests and made introductory remarks, told participants that the workshop was the first of its kind. He said even if traffic accidents are a major problem, air pollution is becoming a concern for Ethiopia due to rapid urbanization. Mr. Aklilu then thanked UNEP and Horn of Africa Regional Environment Centre (HoAREC) for their contributions that made the workshop possible. He singled out for praise Ms. Jane Akumu, Programme Officer (responsible for PCFV) in the Urban Environment Unit, Division of Technology, Industry and Economics (DTIE), who came from Nairobi and gave the keynote paper.

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Improving Urban Air Quality: Promotion of Clean Fuels and Vehicles

Air pollution, health and climate change

Strike Mkandla (who gave the opening address on behalf of UNEP) said the topic of the workshop was an important theme this year because of its relationship to many campaigns around climate change, how to change activities and lifestyles that contribute to increase in greenhouse concentration in the atmosphere that is the cause of global warming and climate change. Quoting President Girma of Ethiopia, he said although Africa's contribution to climate change is insignificant (accounting for 3.5% of GHG) you don't pour combustible materials into a raging fire that is consuming your house just because you did not cause it. The African Union Summit, ministers of water, health, environment and lately also finance and economic development, have drawn attention to the pervasive impacts of climate change. The continent also stands to lose more than most from extreme weather events (particularly droughts and floods) that require adaptation measures to be developed. On urban air quality Mr. Mkandla said that air pollution is reaching crisis proportions and contributes to health conditions such as asthma, chronic obstructive pulmonary disease and lung cancer affecting millions of people; there is a pressing need to reduce levels of sulphur oxide particles, carbon monoxide, and hydrocarbons. The PCFV has made a great beginning because, as an Eastern saying goes, a journey of a thousand miles starts with the first step.

Reducing urban air pollution through clean fuels and vehicles

Jane Akumu located the discussion in the continental trends and perspective in her paper, *Improving Urban Air Quality Through Clean Fuels and Vehicles: The experience of Sub-Saharan Africa and Global Trends*". She drew links between urbanization and sources of emissions, among which vehicles are a major factor. In Africa 65% of vehicles may be as old as 50 years or more, while many regions in the continent have yet to move to low sulphur fuels. An ARA/World Bank refinery and health study will soon review the upgrading options and benefits of low sulphur fuels for Sub-Saharan Africa. In the continent South Africa and North African countries like Morocco have made strides already. The PCFV recommends lowering of sulphur levels in diesel fuels to at least 500ppm in the short term and 50ppm as a long-term goal. This has to go hand in hand with improved vehicle fleets, through importation of vehicles fitted with catalytic converters, review of the age and emission standards of imported vehicles, as well as enforcement of relevant regulations and development of future standards.

Environmental and health benefits of low sulphur fuels

Other presenters reiterated that high levels of sulphur in fuels have negative environmental and health effects. Mr. Berhan Genet, Programme Development, Monitoring & Evaluation Officer of ENDA-Ethiopia, pointed out that air pollution whether indoor or out door has affected health; more than 800,000 people die because of it annually, while environmental effects could be seen on crops and forests because of acidification of soils and incidence of acid rain. Stricter sulphur standards and higher taxation of second-hand cars were needed, he said.

Mr. Manaye Balcha and Mr. Tsegaw Yoseph from the Ethiopia Petroleum Enterprise echoed and added to ENDA's points on benefits of lower sulphur fuel. Mr. Balcha said even if environmental issues are not included in the vision and mission of EPE, the enterprise has a direct contribution to air pollution as it is the only importer of fuel to the country. In addition, Ethiopia is currently experiencing a high demand for construction materials. Cement factories have already ordered great amounts of sulphur. For its part, EPE is committed to promotion of low sulphur fuels and has tried to import low sulphur fuel, which is relatively expensive. EPE is working with the Ministry of Mining and Energy in promoting alternative energy sources like hydro electrical power and biofuels like ethanol and bio-diesel.

The way forward

Organizers expressed satisfaction on the outcome of the workshop. They felt that the workshop was able to effectively sensitize stakeholders on the benefits of cleaner fuels and vehicles. However the high fuel prices were seen as a hindrance to importation of lower sulphur diesel fuels, so expecting Ethiopia to import lower sulphur diesel fuels immediately may not be realistic. In the meantime, efforts to raise public awareness would continue. One likely next step is another workshop, this time for parliamentarians



Mr. Negusu Aklilu, FfE Coordinator

to discuss the recommendations of the current workshop. It is expected too that there will be a drive to revise the national diesel fuel standards from the current level of 10,000ppm to 5,000ppm (the import standard).

The State of African Cities Report

Report by Rose Munyiva & Basil Gonsalves



Arkebe Oqubai, State Minister

Projections indicate that by the year 2030 the majority of Africans will be residing in the continent's cities. This and other data is the subject of ***The State of African Cities Report 2008-2009*** by the United Nations Human Settlements Programme (UN-Habitat), being prepared in collaboration with United Nations Environment Programme (UNEP) and the United Nations Economic Commission of Africa (UNECA).

This is the first issue of a recurrent publication series, whose Ad Hoc Editorial Board was convened at the UNECA headquarters in Addis Ababa Ethiopia 16-18 July 2008. The report is intended as a start in benchmarking urban issues and data while sensitizing African governments at all levels about the challenges of rapid urbanization. The current plan is to launch the report at the Fourth World Urban Forum in Nanjing, China, 3-7 November 2008.

The Guest of Honour at the opening session of the editorial meeting (chaired by UNECA's Ousmane Laye) was H.E. Mr Arkebe Oqubai, State Minister of the Ministry of Works and Urban Development of the Federal Democratic Republic of Ethiopia. Participants were welcomed to UNECA on behalf of the Executive Secretary Mr. Abdoulie Janneh by Mr. Josué Dioné, Director of UNECA's Food Security and Sustainable Development Division. Those at the opening included Mr. Daniel Biau, UN-Habitat Director for Regional and Technical Cooperation Division; Mr Alioune Badiane the UN-Habitat Regional Director for Africa and the Arab States; Mr. Peter Acquah, Acting Director in the UNEP Regional Office for Africa and Secretary of the African Ministerial Conference on the Environment (AMCEN); Mr. Strike Mkandla, UNEP Representative to the African Union, UNECA & Ethiopia; Mr. Eduardo Moreno (UN. Habitat); and the consultants commissioned to work on the report as well as several key staff from UNECA.

Opening Session

In his opening speech Minister Oqubai emphasized the importance of the report under discussion to African policymakers, urban managers and planners, as a tool for taking informed actions on emerging issues. He told participants that Ethiopia was to soon embark on the preparation of a "State of Ethiopian Cities Report". The minister said Ethiopia, being among the fastest urbanizing countries in Sub-Saharan Africa, has given due attention to the urban sector by having it as one of the key pillars in the 5 year development plan currently under implementation (the Plan for Accelerated and Sustainable Development to End Poverty - PASDEP). To address the challenges of urbanization, the government has devised comprehensive urban development and good governance programs. The Minister concluded by noting that the situation on the ground was dynamic hence the need to find new approaches that better utilize the abundant human resources and the precious natural resources, among other things.

Mr. Josué Dioné noted that Africa has witnessed a historically unprecedented rate of annual urban growth of 5.8% which is the highest in the world, and the continent was becoming home to an increasing share of the world's urban population and urban poor. Consequently, with the huge shortfalls in human and institutional capacities, there is an urgent need to better understand the contribution of the African cities to national and regional development, with particular attention to issues related to governance, environment and productivity.

Mr. Peter Acquah said aspects of the six thematic areas of the UNEP Medium Term Strategy (MTS) for 2010-2013 are important at the city level, the "microcosm" of national and global development. The recent AMCEN session in Johannesburg had for example dealt comprehensively with the subject of climate change that is both a driver and a development issue. Of special note in this respect is the AMCEN decision on the need for an African Common Position on Climate Change and the preparation of the continent's negotiators for global processes. The potential impact of climate change on African cities and the report under preparation should be a key input to the Africa Environment Outlook (AEO) produced under the auspices of AMCEN.

Mr. Daniel Biau recounted how the process that started with the evolution of the State of the World Cities report in the 1990s was now spawning regional reports in Africa and Asia. These regional reports would improve the availability of policy reform options and also improve the knowledge base. On trends, he observed that the 987,000,000 people in Africa would soon reach a billion, representing 25-40% growth in the last 35 years. Of these, the urban population is expected to top 760 million by 2030, that is, a doubling in

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The State of African Cities Report



Mr. Daniel Biau

size. Although Eastern Africa, which includes Ethiopia, has the lowest level of urbanization of Africa's five regions it has the highest growth rate, Mr. Biau said.

Focus of the report

The discussion was organized around the draft sub-regional reports prepared by the consultants contracted for the exercise.

The contents were rigorously examined and substantive changes and

improvements suggested. It was observed that there was a knowledge gap on the state of region's cities and on urbanization. As an endeavor to give a general overview of urban and shelter related issues throughout the continent, a consensus had been reached that the report would cover 6 topics: population and urbanization; the growing economic role of cities; urban poverty and housing conditions; urban environmental challenges; urban governance systems; and emerging urban corridors.

Issues of concern

Several issues were highlighted that required policy backup. Among these were; food for cities, especially with the current price hikes, the increasing urban population and hence demand for food, and the unfavorable urban land prices.

Due to its socio-economic impacts, the current trends in water supply and sanitation in Africa raised concerns with serious considerations as to whether it should have a stand-alone topic, finally it was concluded that it should be addressed under environmental challenges. Similarly, since urban areas consume 75% of the world's energy and can be held accountable for 80% of global green house gas emissions, it was yet another issue of concern. The need to look into more sustainable and affordable energy alternatives was highlighted. For North Africa, UNEP has done work looking at financing of energy and would share the case study.

The low level of risk preparedness of African cities was yet another issue of concern. Furthermore, the continent's mountainous regions are especially vulnerable; over 50 serious earthquakes between 1980 and 2002 have hit Africa, making seismic hazards a real threat. Sea level rise and surge flooding were also underscored as needing immediate attention due to climate change impacts.

Prof Anthony Friend, ecologist, pops in

Professor Anthony Friend, a renowned economist, paid an unexpected visit to the UNEP Addis Ababa Office on 22 July 2008.

A citizen of Canada, Prof Friend is an Ecological Economist and has held positions at the universities of Ottawa, British Columbia and the West Indies. He has had a long standing relationship with Africa, setting up the first environmental statistics workshop in 1982. He also prepared an environmental statistics handbook for the UN Statistics Division. The main purpose of his visit to UNEP, Addis Ababa, was to alert the UN community and get participation for the upcoming conference by the International Society for Ecological Economics (ISEE). The conference entitled "ISEE 2008 Nairobi: Applying Ecological Economics for Social and Environmental Sustainability" will be held from the 7th to the 11th of August 2008.

The forthcoming conference is a joint undertaking by ISEE, the African Society for Ecological Economics (ASEE) and UNEP. The main purpose of the planned conference is to highlight the vision, methods and policy adjustments needed for ecological economics principles to be applied to the design and management of environmentally and socially sustainable development

processes. The conference will promote capacity building in this area in developing countries in the face of growing global changes and interdependence.

Prof Friend, on arriving at UNEP met with Strike Mkandla, UNEP representative to the AU, UNECA and Ethiopia; and UNEP staff members Basil Gonsalves and Rose Munyiva (interns respectively from St Andrews and Nairobi) This was followed by brief meetings with Dr Josué Dioné, Director of the Food Security and Sustainable Development Division (FSSD) of UNECA and Mr Ousmane Laye, Chief of the Environment and Sustainable Development Section (FSSD-ESD) of UNECA.

Prof. Friend devoted some time to the young people in the UNEP Office and gave them an overview of his academic and research interests. According to the young people, Prof. Friend was a minefield of knowledge in various areas of economics. Various academic/theoretical topics were brought up such as: thermoeconomics, degrowth and other issues which were related to a paper he published in 2006 entitled "System of Accounting for Global Entropy Production, (SAGE-P): the mirror image of GDP" in the International Journal of Ecological Economics & Statistics.

Ethiopia Activities

National Workshop on Status of Bio-fuels in Ethiopia

Report by Rose Munyiva



Dr. Tesfaye Bekele

Amidst the soaring oil prices and the search for alternative energy sources coupled with the big debate on food crisis and biofuel production, this workshop could not have come at a more appropriate time. The National Workshop on Bio-fuels Status in Ethiopia was held

24-25 July 2008 at Addis Ababa University. Sponsors of the workshop were, *inter alia*, David Lucile & Packard Foundation, Britain's Department For International Development (DFID) and the Horn of Africa Regional Environmental Centre and Network (HoAREC). Participants included government officials, academicians, researchers, and members of non-governmental organizations and the private sector.

The purpose of the workshop was to assess impacts of imported oil, particularly fuel for transportation, as well as to assess feasibility of biofuel as an alternative for fossil fuel. This meant looking into the policy issues, socioeconomic and environmental impacts, and the technical feasibilities.

Workshop proceedings

Issues presented and discussed at the workshop addressed the biofuel strategy put in place by the government; policy gaps were identified, biofuel potentials pointed out, and environmental and social impacts of biofuel production and use in Ethiopia emphasized.

The Ministry of Mines and Energy spoke on the biofuel strategy at the workshop. Ethiopia has developed a comprehensive biofuel strategy through the ministry. The government adopted the biofuel strategy in July 2007 to achieve energy security. The principle and objective of the strategy is to ensure energy self-sufficiency and implement the development of biofuels without affecting the economic and social values of the society. Particularly it shouldn't affect farmers and pastoralist's farmland, water, grazing land and other resources. Therefore the aim of the strategy document is to enhance technology transformation, research and

development, stimulate demand, export trade and export earnings, and involve biofuel actors.

In addition to an introduction/overview by Dr. Araya Asfaw, themes presented included: the strategy for biofuel production in Ethiopia (Mr. Melis Teka), policy gaps and issues on biofuel production and use (Prof. Wolde Ghiorgis), potential of bio-fuel production and use in Ethiopia (Dr. Asmare Gessesse), methanol production and use in Ethiopia (Mr. Ephrem Bekele), sustainable land management vs. bio-fuel production (Prof. Legesse Negash), the environmental impacts of bio-fuel production and use (Mr. Negusu Aklilu), ethanol stove for clean cooking (Gaia Association), food security vs. bio-fuel production and use (Dr. Tesfaye Bekele) and the role of bio-fuel production and use on macro-economics and its impacts on energy security (The Ethiopian Economics Association).

Prof Wolde Ghiorgis pointed out that ample experience from both developed and developing countries shows that development and uses of bio-fuels need to be implemented under clearly defined policy guidelines. Lack of research and development to bridge the gap between production and use of biofuels in Ethiopia and the importance of defining the roles of cooperating institutions, were some of the gaps he dwelt on.

With Petroleum prices on the increase and the transport industry expanding, more than 70% of Ethiopia's export earnings goes into the importation of fossil fuel, hence the need to look for alternatives. With this backdrop, the potential for biofuel production and blending in the country are high. *Jatropha curcas* is a promising biofuel plant due to the fact that the locals grow it as live fencing and it is thus available in the country; it can thrive in degraded marginal land and is a non-edible plant. The use of this plant for bio-diesel was a recurring proposition.

The issue of blending came into consideration six years ago in Ethiopia. Currently all the six oil-supplying companies have been instructed to begin selling ethanol blended gasoline to car owners beginning September 2008. By this it is hoped that Ethiopia will cut down on the amount of fossil fuel the country has been importing.

It was pointed out that methanol production is also a viable addition to ethanol; it can be produced from nearly all organic materials as well as from other primary energy sources. On top of that, the workshop was informed that for large-scale methanol production, improved gasification

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Non-State Actors in Protected Area Management



Report by Bezawit Eshetu

Examples of current roles and possible future intervention by non-state actors in the management of protected areas in Ethiopia was the theme of the sixth public meeting in the series “Protected Areas in Ethiopia: 50 Years and Beyond”. This public lecture and debate was put up by the Forum for Environment (FfE) in collaboration with the Ethiopian Association for Impact Assessment (EAIA), the Ethiopian Wildlife Association (EWA), the Ethiopian Wildlife and Natural History Society (EWNHS), the Frankfurt Zoological Society (FZS), the Horn of Africa Regional Environment Center and Network (HoAREC), the Wildlife for Sustainable Development (WSD) and WildCODE. It was held at Axum Hotel, Addis Ababa, on 25 July 2008.

The presentation for the day was entitled, “Few Examples of Roles Played by Non-State Actors So Far and Possible Future Intervention” and was made by Dr Assefa Mebrate. He identified the major non-government actors responsible for protected areas in Ethiopia; who defines their role, what roles they have, what they have contributed so far and what they could possibly do in the future to ensure sustainability of the benefits they provide both locally and globally.

According to Dr. Assefa, protected areas need urgent and effective intervention by not only government but also nongovernmental actors since they have reached a point where they exist only on paper. This is mainly due to: gaps in coverage of all representative ecosystems; poor management; lack of sufficient financing; lack of public involvement in their selection, establishment and management; expansion of human settlement and growing human population size in and around them, increasing demand and unsustainable use of the plant and other natural resources, overgrazing by large livestock population and illegal hunting of wild animals; and lack of cost benefit sharing between investment made in these areas and the local community.

In order to overcome these challenges, the government has declared two main proclamations: Proclamation No.541/2007 on “Development, Conservation, and Utilization of Wildlife”, and Proclamation No.575/2008 on “Establishment of the Ethiopian Wildlife and Development Authority”. The main objectives of these resources proclamations are to conserve, manage, develop and properly utilize the wildlife of Ethiopia, to create conditions necessary for discharging government obligations assumed under treaties regarding the conservation, development and utilization of wildlife, to promote wildlife based tourism

and to encourage private investment and to establish an autonomous public agency, accountable to the Ministry of Culture and Tourism.

On the other hand the non state actors comprising of civil society, professional associations, environmental activist groups, religious and cultural groups, community based organizations, academic and research organizations, policy institutions, trade union organizations, private sector, donor organizations, the media, armed groups and the likes have been actively engaged in alleviating the problem. Their roles are mainly defined by various Articles, from the 1994 constitution, dealing with Freedom of Association, The Right to Development, Economic, Cultural and Environmental Objectives.

Different non-state actors like the Ethiopian Wildlife and Natural History Society (EWNHS), Frankfurt Zoological Society (FZS), CARE Ethiopia, WWF, GTZ Ethiopia, FARM Africa, LEM Ethiopia, Addis Ababa University (AAU), Biological Society of Ethiopia (BSE), Forum For Environment (FfE), Horn of Africa Regional Environmental Center (HoAREC) and many others have been working on a variety of issues. These include:

- ❖ Providing technical, material and/or financial support in protected area selection, establishment and management
- ❖ Providing alternatives to communities and assisting in social upliftment through protected areas
- ❖ Practical awareness creation and formal and informal training in wilderness management
- ❖ Protected area management and wilderness advocacy
- ❖ Basic and demand driven research.

Dr.Assefa mentioned that, apart from the above activities, these non-state bodies can assist the state by developing policies and laws to govern protected areas, extensive funding, capacity building, research and developments activities, and also implementing of treaties ratified by Ethiopia.

In his conclusion, the presenter remarked that the state plays the determinant role in the selection, establishment and management of protected areas while non-state actors can only try to influence, assist/support its effort and those that are of mutual interest. As a way forward, he suggested formulation of management plans including faunal & habitat survey, survey of park-community interaction, draft management plan that addresses the needs of the wildlife and local communities, plus engaging communities and other stakeholders to discuss and agree on the management plan.

Ethiopian Gaia Association gets international award

The Gaia Association is used to promoting and rewarding achievements by communities and other actors. This time it was the turn of the association to celebrate on 31 July 2008 with its Ethiopian constituency, at the Sheraton Hotel in Addis Ababa, its own recognition through an international award.

The Gaia Association had been presented with the Asheden Award for Sustainable Energy on 19 June 2008 in London, for its outstanding performance in the Kebribeyah Refugee Camp in Ethiopia. Mr. Milkias Debebe, Managing Director of the association, received the award from the Nobel Prize laureate Prof. Wangari Maathai. The Ethiopian association, founded in 2005 by the US based consulting group introduced ethanol cooking stoves for household use in Ethiopia; and the first trial area was the Kebribeyah Refugee camp for 1,780 families with a ration of one liter of Ethanol per day. The association jointly funded the trial with the United Nations High Commission for Refugees (UNHCR).

The award was given based on the social, environmental and economic benefits of the venture, and involved a thorough judging process, including project visits and an independent judging panel. All the winners receive financial support, international publicity as well as ongoing support to help them scale up.

The Gaia Association marked the award achievement in tandem with a workshop and a reception at the Sheraton Hotel event. Dr. Tewolde Berhan Gebre Egziabher, the Director General of Ethiopia's Federal Environment Protection Authority (EPA), chaired the Gaia workshop, which brought together different sectors. Speeches were delivered from the Ministry of Women's Affairs (MOWA), Ministry of Mines and Energy (MME), Ministry of Trade and Industry (MoTI), UNHCR and others. They all congratulated Gaia for its success and pledged their continued support to its efforts.



Dr. Tewolde, Chair

“Renewable energies such as biofuels have substantial contribution in the country's development.

Clean energy for today's economic development is crucial to assure sustainable development. Ethiopia has favorable climatic conditions and land mass for the production of biofuels and can gain many advantages in many ways.” said H.E Mrs. Sinkinesh Ejigu, State Minister (MME).

“It is estimated that indoor pollution is responsible for millions of deaths annually worldwide. As women stand over their stoves for many hours, they are at risk of developing a host of diseases, including upper and lower respiratory infections and eventually chronic lung disease.” (H.E Mrs. Hirut Delebo, Minister, MOWA).

“The ministry is very interested in biofuels as a target for investment and as a motivator for economic expansion.” (H.E Tadesse Haile, State Minister, MoTI).

The presentation from Melis Teka, Energy Regulatory Department head and Biofuel Coordinator (MME), gave a full picture of the energy distribution, resource potential, gaps and actions being undertaken by the government within the country. He said that the bulk of the energy requirement is derived from biomass fuels (94.5%), of which household consumption takes the lion's share (93%). In fact electricity consumption of households is also the highest whereas for industry and other services it is very low and in agriculture it is slim to none. The high dependence on biomass resulted in increased consequences in deforestation and degradation of rural ecosystems and reduced agricultural production and productivity, as well as lack of opportunities for income-generating activities.

Although the government recognized this phenomenon the transport sector takes priority over household energy consumption and the government's plan to blend ethanol with diesel will result in a shortfall of 2.7 million cc of ethanol for household use. This is a major challenge. The remedy suggested to fill the gap is scaling up ethanol production and promoting other plant based oils.

Other energy issues are environmental problems due to deforestation, following the scarcity of woody biomass and consequent imperative for low income families to devote a considerable amount of time to searching for fuel, and reliance on petroleum imports that have impacted on Ethiopia's trade balance and foreign exchange availability. It is also estimated that some 550,000 tons of grain is lost annually as a result of the burning of dung as fuel instead of use as soil nutrient.

In line with promoting sustainable energy the government has developed the first national energy policy that promotes and supports private sector participation in the energy sector, and renewable energy programmes (Biogas, Wind Energy, and Geothermal Development). In geothermal development, already 7.5 MW has been realized and further exploration is going on.

National Workshop on Status of Bio-fuels in Ethiopia

technology has been developed and more economical gas clean-up methods are available. In Ethiopia, specifically in the Afar and Somali region, an invasive species *Prosopis Juliflora* covers around 700,000ha, increasing available raw biofuel stock! Therefore, the total amount of methanol that can be produced per annum could reach around 5.9x10⁵M³.

In addition, the Gaia Association, an Ethiopian registered NGO that promotes ethanol as a clean and environmentally sustainable household cooking fuel in the country, highlighted two key issues in the household sector that were of increasing concern: the widening gap between sustainable supply and demand for biomass, and the adverse environmental impact of household energy use at indoors, local and global scales. To curb this challenge they recommended use of the clean stove that uses ethanol or methanol and has been redesigned for the Ethiopian market to make it affordable and readily available.

Biofuels concerns

Although bio-fuel poses as a good and clean alternative to traditional fuels in the increasing demands for energy, there are major concerns that come along with it that are causing major waves in the environmental, social and economical circles. One of the major concerns raised at the workshop is the competition between food and biofuel production and consequent threats to food security. It was felt and strongly argued that for optimal yield and biofuel production to be economically viable it required optimal conditions unlike what marginal land offered. For this reason it was argued that there is a tendency for arable land instead of marginal land being allocated for this production.

In addition, with the promising economic benefits to be accrued from biofuel production due to ready market, there is a need to put in place regulatory mechanisms, to ensure that farmers do not switch completely to growing for the biofuel market. Similarly, it was pointed out that forest areas were being allocated for biofuel production and this has adverse environmental impacts because forest land was being cleared in the process. This interfered with the ecological systems and resulted in habitat conversions leading to loss of biodiversity.

Recommendations

It was recognized that despite development policy issues and gaps that may be met as challenges, bio-fuels appear to offer huge potentials for Ethiopia and also for East Africa. Thus production and use of bio-fuels will continue to grow. The workshop therefore came up with recommendations to ensure sustainable production and use of biofuels in the country, some of which were:

- Studies and consultations will need to be undertaken seriously so as to appraise the socio-economic benefits of bio-fuels on short- and medium-term bases.
- Prevailing trends of energy development need to be followed, and impacts to be expected from uses of bio-fuels considered directly and broadly.
- Preferably, existing or unforeseen policy issues and gaps will first need to be addressed and recognized by all concerned in public, private and academic institutions.
- It has to be ensured that biofuel development is happening on degraded lands that cannot be used for other purposes.
- Bio-fuel development projects should undergo environmental impact assessment (EIA) study and regularly monitored, and
- Other forms of alternative/renewable energy technologies should be equally considered to bring about energy security

Conclusion

The National Bank of Ethiopia reported that in the last quarter the revenue spent on imported oil had exceeded the total export earnings. According to an International Monetary Fund (IMF) report that was released last June, countries such as Ethiopia would be left with reserves below a safety level of three months of imports as a result of the combined price increase of food and oil.

The workshop is expected to assist the nation in embarking on a sustainable bio-fuel program. Based on the outcome of the national workshop there will be an international workshop in September 2008 with experience sharing from other African countries as well as from the United States of America and Europe. A sustainable biofuel national platform and program is expected to come out of the international workshop.

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Addis Ababa Highlights Team

Feedback: unepoffice@uneca.org

Editor-in-Chief: Strike Mkandla

Layout: Yonathan Tadesse, Eden Mesfin

Production: Milha Desta, Rose Munyiva, Basil Gonçalves, Selam Kidane, Bedir Ayderus, Bezawit Es-hetu, Selamawit Gudeta, Hilma Nangombe