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**AFRICAN FORESTRY AND WILDLIFE COMMISSION
SIXTEENTH SESSION**

**NEAR EAST FORESTRY COMMISSION
EIGHTEENTH SESSION**

18 – 21 February 2008

KHARTOUM, REPUBLIC OF THE SUDAN

**FORESTS AND ENERGY
REGIONAL PERSPECTIVES: OPPORTUNITIES AND
CHALLENGES FOR FORESTS AND FORESTRY**

INTRODUCTION

1. Wood is increasingly used for energy. High fossil fuel prices together with new energy and environmental policies are making woodfuel an attractive component of energy policy for the reduction of fossil fuels use, improved energy security, and reduced greenhouse gases emissions.
2. In developed countries woodfuels, including bioethanol and biodiesel derived from agricultural products, are already being increasingly used for heat, electricity and power production. In the meantime, in developing countries wood remains the primary source of energy for heating and cooking. In Africa¹ and many Near East² countries, almost 90 per cent of all wood removals are used for energy. With higher fossil fuel prices, demand for woodfuels will grow and will increase pressure on forests and trees for energy use, especially in the poorest countries.

¹ The Role of Wood Energy in Africa. FAO Working Paper FOPW/99/3
(www.fao.org/docrep/x2740e/x2740e00.htm)

² The Role of Wood Energy in the Near East. FAO Working Paper FOPW/00/2
(www.fao.org/DOCREP/003/X9085E/X9085E00.HTM)

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3. The production of wood-based fuels can contribute to energy independence and improve livelihoods of local communities, through employment and income generation. However, an increased utilization of wood for energy may also cause additional pressures on forests leading to additional deforestation and forest degradation if actions for the sustainable production of wood fuels are not taken.

ISSUES

- 1) Woodfuel production is closely linked to deforestation: Over 90 percent of the wood produced in African countries is used as fuel, mainly by the rural and urban poor³. While most woodfuels are derived from forests, trees outside forests also make a great contribution. Unsustainable farming and forestry activities are the major causes of deforestation in Africa, and fuelwood and charcoal are the main by-products of these land-clearing operations. Near East countries have a dominant role in global energy supply but fuelwood and charcoal are also a major source of energy in rural households. In fact, about 66 percent of the wood in the Near East is used for fuel, compared with a global average of 40 percent. With international prices of fossil fuel rising, it can be expected that fuelwood use will also increase not only in these regions but also in all other parts of the world.
- 2) Deforestation also contributes to climate change: Deforestation and forest degradation in the countries of the regions lead to the reduction of global carbon stocks. Reversing deforestation is just one mitigation measure needed to reduce greenhouse gases emissions in the atmosphere⁴.
- 3) Competition of land for food, fibres and fuels: The rapid surge in global oil prices, has also led to increased interest in liquid biofuels for internal combustion engines, such as bioethanol and biodiesel. They are produced from agricultural crops such as: corn, sugar cane, palm oil, rapeseed, soybeans and cassava. The increased consumption of liquid biofuels for transport may also trigger competition for land between food, fodder, fuels and forest sectors. Forests occupy land which could be used for crops that produce liquid biofuels. National policies and programmes on bioenergy contributing to energy security, climate change mitigation, food security, forest and biodiversity conservation, and the domestic supply of industrial round wood, as well as other policies related to land use and conservation, may enter into competition with each other.
- 4) Great untapped biomass resources for energy: forests and residues from forest industries, together with significant quantities of residues derived from a wide range of agroindustries such as bagasse from sugar mills, rice husks from rice mills, cotton stalks, and others are available for energy production but not yet used. They are a cost-effective source of energy at present fuel prices and the technology needed for energy production is mature and easily available worldwide.
- 5) New technologies for production of bioenergy: Trees are a technically, economically and environmentally sound source of bioenergy⁵. The bioenergy market is creating great

³ WISDOM - East Africa (2006) (<http://www.fao.org/docrep/009/j8227e/j8227e00.htm>)

⁴ WISDOM - East Africa 2006 (<http://www.fao.org/docrep/009/j8227e/j8227e00.htm>)

⁵ www.ieabioenergy.com/OurWork.aspx

opportunities for innovations in the traditional use of forests and agriculture products. As soon as new technologies for the conversion of lignocellulosic biomass into liquid biofuels and other forms of energy become economically viable and available in the market (the so called “second generation” technologies), wood will become an even greater source of energy. For instance, in Europe, biodiesel is mainly produced from rapeseed, while in South East Asia palm oil is used. Diesel production from other oil-producing plants has also begun, although as yet to a lesser degree, such as *Jatropha curcas*.

- 6) New energy services in the regions are urgently required: The lack of access to efficient energy services is one of the major barriers to achieving sustainable solutions for poverty alleviation and climate change mitigation. Existing wood energy systems are usually subsistence-oriented, unhealthy, unsafe and unsustainable in nature. If properly managed and modernized, the existing systems can become clean, efficient, safe, healthy and sustainable. They can also contribute to meet the energy needs of Africa, to development by creating jobs and generating income for the rural poor, as well as reducing GHG emissions, and consequently contribute to climate change mitigation.
- 7) National forestry agencies need to be better prepared: There is a large range of institutional barriers and obstacles which need to be overcome sustainable wood energy systems. In some cases, the role and potential of wood energy is not completely understood by policy and decision-makers. Hence, woodfuel ends up not being properly incorporated in political, economic and social agendas, including those related to the Millennium Development Goals, with institutional arrangement between Forestry Services, Energy Agencies, Ministry of Agriculture, Environment and Development usually being weak. Statistics and data on wood energy aspects and issues are insufficient and inaccurate. The resources for research and development are limited. The involvement of the private sector is far from satisfactory, despite the fact that most woodfuel trade in Africa and the Near East regions is marketed as private business. But the amount is inadequate due to extremely low levels of investment.

CONCLUSIONS

4. National and international demand for woodfuels is expected to increase in most countries. The increased demand for wood for energy may become a motor for the development and expansion of forestry activities. However, increased utilization of wood energy may also contribute to the creation of increased competition for land, food, fodder and fibres; may cause additional deforestation and forest degradation, and even contribute to carbon dioxide emissions. Therefore, bioenergy policies and enhanced national capabilities are urgently needed to avoid or lessen negative impacts.

DISCUSSION ITEMS FOR THE COMMISSIONS

5. AFWC and NEFC members may wish to consider the following actions to enhance sustainable wood energy production and consumption:
 - Expand and adopt the development of sustainable bioenergy systems through policies, laws, programmes and projects properly integrated with energy, agriculture, forest, environment and poverty reduction policies;
 - Enhance national and regional capacities for the development, implementation and monitoring of wood energy systems;

- Enhance statistics and information systems⁶ for assessing the technical, economic, environmental and social aspects of wood energy for the formulation of sound wood energy (and bioenergy) policies⁷;
- Adopt new methodologies for the development of wood energy policies and strategies, such as the Woodfuel Integrated Supply/Demand Overview Mapping (WISDOM)⁸, which would help develop the wood energy sector in line with sustainable forest management concepts.
- Promote the transfer of know-how in the use of sustainable, efficient and healthy wood energy systems;
- Introduce safeguards for the production of biofuels to avoid unwanted negative impacts on the environment (soils, water) and local populations;
- Carefully consider possible impacts on other sectors when introducing incentives for biofuel production;
- When embarking on large-scale biofuel production, consider trade-offs between the different land-use options.

⁶ i-WESTAT Interactive-Wood Energy Statistics Update 2004-2005

(www.fao.org/docrep/009/j6448e/j6448e00.htm)

⁷ A guide for woodfuel surveys 2000-2002 (www.fao.org/DOCREP/005/Y3779E/Y3779E00.HTM)

⁸ WISDOM - Woodfuels integrated supply/demand overview mapping (2003)

(www.fao.org/docrep/005/y4719e/y4719e00.htm)