

6. Policy options and recommendations

Global energy consumption will continue to grow. Despite concerns about climate change and energy security, fossil fuels will continue to be the main source of energy. At the same time, high fossil fuel prices will encourage countries to become more energy efficient. The gradual conversion from fossil fuels to alternative fuels for the generation of power and for transport is already under way. Investments in bioenergy research and development are increasing. Technologies may soon be available to convert cellulose to liquid biofuels on a large-scale at economically attractive prices. This could have considerable impact on the future management of forests.

In most countries, policies and programmes to promote bioenergy development are still in their early stages. Most programmes focus on liquid fuels, especially for the transport sector. These policies and programmes tend to be limited in terms of scope, with more attention on regulatory measures than on investments in areas such as research and development, market liberalization, information and training. To date there has been relatively little transfer of technology or information about bioenergy from developed to developing countries.

Several developing countries have enormous potential to produce energy from forests and trees outside forests with relatively low investment and risk, but this potential is not properly reflected in national energy development strategies. Poor forest management and lack of proper data collection – often the result of widespread illegal forestry operations – frequently prevents assessment of the full economic and social potential of forestry and of wood energy production. Putting forestry on a sustainable and transparent footing will provide multiple benefits including improved energy production.¹

Large bioenergy projects require extensive land area and can affect food security, social structures, biodiversity, the wood processing industry and the availability of wood products. To mitigate these impacts, land-use planning, consideration of policies in other sectors and effective governance are necessary. The involvement of all stakeholders when developing bioenergy strategies is also of great importance in balancing trade-offs between economic, social and environmental impacts and benefits.

¹ Recommendations in this section are largely drawn from the FAO High-Level Special Event on Forests and Energy, Rome, 17–24 November 2007; the International Tropical Timber Organization (ITTO) International Conference on Wood-based Bioenergy, Hanover, Germany, 17–19 May, 2007; the United Nations Economic Commission for Europe (UNECE) Workshop on Mobilizing Wood Resources, Geneva, 11–12 January 2007; and the UNECE/FAO Policy Forum on Opportunities and Impacts of Bioenergy Policies and Targets on the Forest and Other Sectors, Geneva, Switzerland, 10 October 2007.

In a national strategy, it is important to consider potential carbon and energy efficiencies of forest- and agriculture-based energy as well as cost-effectiveness and environmental performance. Planting trees can help mitigate climate change, combat erosion and restore ecosystems especially in degraded areas; but large-scale monoculture plantations can have negative impacts on soil and water resources.

Developing countries tend to have limited financial resources and human capacity, so bioenergy development should first explore opportunities based on already available biomass and proven technology. Integrating energy generation into forest industrial operations is a competitive way of reducing risks, increasing profitability and improving forest management. It also strengthens energy security and contributes to climate change mitigation and should thus be a priority area for exploration.

All countries would benefit from better information about wood energy feedstocks, including biomass recovered from forest operations and trade of forest biomass. Resources are needed to assess bioenergy and wood energy development potential, in particular:

- quantifying the potential of forest biomass for the generation of different energy outputs (e.g. heat, power, cellulosic liquid biofuel);
- evaluating the potential contributions of natural forests, woody biomass outside forests, energy plantations, residues and postconsumer material to wood energy production;
- determining trade-offs between different land-use decisions.

Traditional analysis of wood supply and demand, centred on wood removals from forests and wood input to industries is no longer fully adequate. Therefore, in more advanced countries an updated approach based on wood resource balances, is likely to be beneficial. To the extent possible, information collection should be aligned to current reporting processes, in particular the FAO Global Forest Resources Assessment (FRA).

All countries need to develop clear national-level policy goals for forests and energy that reflect the principles of sustainable development and sustainable forest management. Goals should account for national and international impacts as well as impacts between economic sectors. Consideration should also be given to trade-offs between wood energy, agrofuels and other energy sources and land-use options. The following points should be considered when developing wood energy policy at the national level.

- Policy processes should address bioenergy as a cross-sectoral issue and integrate energy into forest, agriculture and other land-use policies.
- Policy processes should involve adequate consultation and analysis of environmental, economic and social impacts in the context of specific regional, national and local conditions.
- Information flow to forest owners, tenure holders, the general public and consumers should be improved to support informed decisions about management of forest resources.
- Policy processes should consider rural employment, environment protection, land-use management, the forest products sector and other relevant areas to tap possible synergies and avoid negative impacts.

- Policy should provide broad support for facilitating bioenergy development including education and training, research and development and through transport and infrastructure measures, and not only incentives to producers, distributors and consumers.
- Policy processes should strive to create an appropriate balance between agriculture and forestry, as well as between imported and domestic biomass sources. Contingencies should also be taken to avoid competition with food production.
- The impacts of bioenergy policy on other economic sectors should be considered to avoid creating market distortions.
- Governments should verify that strategies and legislation outside the forestry sector do not have a negative effect on wood mobilization for bioenergy.
- Policies should be monitored regularly and systematically to avoid negative impacts on the environment and rural communities.
- Steps should be taken to avoid the destruction of valuable natural resources and biodiversity.

In relation to wood supply and the wood industry the following issues should be addressed:

- sustainable mobilization of wood resources in relation to legal and institutional constraints (e.g. forest ownership structures), access to data, forest infrastructure, and adequate prices for wood;
- supportive laws, regulations and policies, as well as information and motivation of forest owners, entrepreneurs and other actors;
- efficiency gains through more intensive use of existing forest resources, including wood assortments and forest-based and industry residues not currently used, woody biomass from outside the forest; postconsumer recovered wood products;
- the long-term expansion of the forest area and enhancements in the productivity of forest resources, such as silvicultural and genetic innovations.

Transfer of energy- and resource-efficient technologies for wood-based bioenergy to developing countries will be of considerable importance in achieving the climate change objectives of bioenergy development. The present situation represents a major opportunity for the forestry sector to find new roles and to contribute to the security of energy supply and to the mitigation of climate change by replacing fossil fuels and by sequestering carbon in forests and in forest products.

