

BAfA'S MISSION IS TO:

- Provide high-quality energy information for African policy-makers and other stakeholders;
- Coordinate the gathering and delivery of bioenergy information at the continental level;
- Ensure the long-term continuity of data supply; and
- Provide an innovative GIS tool based on the integration of key data sets.



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**HOW GEO CAN CONTRIBUTE TO
THE DEVELOPMENT AND MANAGEMENT
OF BIOENERGY RESOURCES IN AFRICA**

MANAGING ENERGY RESOURCES

At a time of rapidly rising world energy demand and high oil prices, the production and use of bioenergy has entered a new era of global growth. In Africa, bioenergy could, if properly exploited, make a significant contribution to the continent's development. However, efforts to exploit this potential face several challenges. A major technical barrier is the lack of accurate and well-organized data on renewable energy resources, such as biomass data as they relate to land and water availability, competing uses, and processing.

The Group on Earth Observations (GEO) is responding to the need for better information on local African energy resources by developing the Bioenergy Atlas for Africa (BAfA). Bioenergy is produced from biological sources and is made available as electricity, heat, fuel or chemicals. It offers both opportunities and risks. Modern bioenergy can contribute to mitigating climate change by replacing fossil fuels, and it can reduce poverty by providing access to affordable and safe forms of energy and to new sources of income for rural populations. On the other hand, large-scale energy crops may induce land-use changes that put food security at risk or lead to the destruction of natural ecosystems.

The GEO Bioenergy Atlas for Africa will be a valuable tool for planning and managing bioenergy resources in Africa. It will enable policy-makers and other stakeholders to visualize which initiatives hold the greatest potential over time and what their potential effects may be on the continent's environmental sustainability.

Launched in 2005, the Group on Earth Observations has been recognized by ministerial summits, the G8, and other leading forums. In addition to energy, it addresses eight other societal benefit areas: agriculture, climate, disasters, ecosystems, biodiversity, health, water and weather. Some 80 governments, the European Commission and dozens of international organizations are working through GEO to coordinate their observation strategies and establish the Global Earth Observation System of Systems, or GEOSS.

THE BIOENERGY ATLAS FOR AFRICA

With its warm climate, abundant water and large amounts of unused fertile land, Africa has the potential to become an important player in the production of bioenergy. It could supply its own increasing energy demand while exporting energy to developed markets. Harnessing this potential requires encouraging large-scale investments that are economically, socially and environmentally sustainable.

Bioenergy includes energy derived from dedicated crops, agricultural and forestry residues, animal wastes, and biogas. The Bioenergy Atlas will combine layers of data (land-use, hydrology, soils, demography, infrastructure, etc.) with analytical tools, allowing planners

to visualize existing and potential bioenergy resources and to determine which technologies are the most viable solutions at national or regional scales. Space-based and in-situ Earth observations will be integrated with ground surveys, historical records and market information, and assimilated with geographic information systems (GIS) and analytical tools to illuminate short- and long-term trends in bioenergy demand and supply at regional and local scales.

The atlas will be visually appealing and easy to employ by users from different fields and with different types of expertise. It will also provide users with metadata, on-line help support and built-in scenarios exemplifying its application.

GEO is taking the following steps to implement this initiative:

- Identify the providers of relevant observations systems, data and data bases, information services and other resources and invite them to contribute to the Atlas.
- Identify gaps in coverage, assemble partnerships to address them, and advocate for strengthening and sustaining existing monitoring systems.
- Build a network of people and organizations, in Africa and elsewhere, willing to collaborate, contribute and share ideas and information.
- Promote full and open access to bioenergy data, as recommended by the GEOSS Data Sharing Principles.
- Based on agreed technical standards for metadata and interoperability, work towards integrating various types of energy data with other relevant data available through GEOSS.
- Transform data and information into an operational and user-driven decision-support tool.
- Disseminate the Atlas and other results through a user-friendly web portal.
- Develop and contribute to programs for building the capacity of individuals and institutions to both use and contribute to the Bioenergy Atlas for Africa.

Based on these steps, GEO has already started to coordinate the gathering of data and the building of a network of interested contributors. Over the next few years, GEO will continue to engage the Earth observation community to ensure the availability of high-quality bioenergy information for African policy-makers and other stakeholders.

MEETING BASIC NEEDS

Four out of five people without electricity in the world live in the rural areas of developing countries. In sub-Saharan Africa, more than 92 percent of the rural population is without electricity. Extending an electricity supply grid to remote households in a rural setting can mean costs of up to seven times the cost of providing electricity in an urban area. In this context, the availability of more bioenergy can help provide cleaner energy services to meet basic energy requirements.