



Steps toward Sustainable Bioenergy Development in Sierra Leone

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Outline

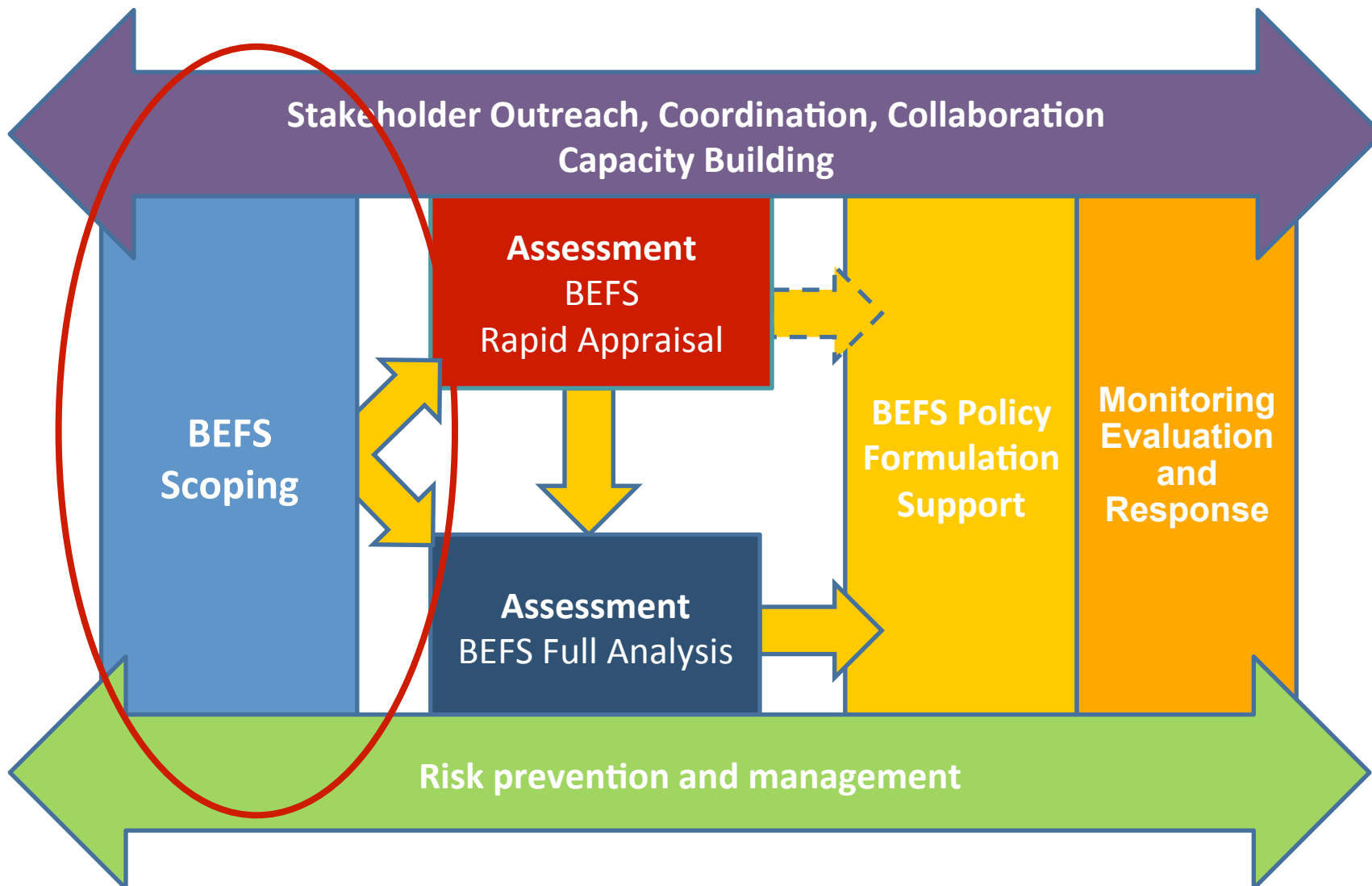
- The BEFS scoping phase in Sierra Leone
- The Bioenergy and Food Security Strategy for Sierra Leone
- The Guidelines for Sustainable Bioenergy Investment

FAO's support through the BEFS Approach

- Bioenergy bears opportunities and risks
 - sustainable bioenergy strategies are country, context and feedstock/processing specific
- Need for country-specific assessment
 - the BEFS approach supports countries in this
- Request for assistance for bioenergy policy formulation received from **Ministry of Energy and Water Resources** in February 2011



BEFS Approach: Components



FAO's support through the BEFS Approach in Sierra Leone: The Scoping Phase

- BEFS Scoping phase:
 - Main outputs:
 - Inter-ministerial working group
 - Country background document
 - BEFS strategy for the country
 - Duration: 6 months, FAO funding



Cross-ministerial dialogue: The Bioenergy and Food Security Working Group



BEFS



Ministry of Energy and Water Resources

Ministry of Agriculture, Food Security and Forestry

Ministry of Local and Rural Development

Ministry of Lands, Country Planning and the Environment

Ministry of Trade and Industry

Ministry of Finance and Economic Development

Sierra Leone Investment and Export Promotion Agency

Environment Protection Agency of Sierra Leone



FAO's support through the BEFS Approach in Sierra Leone: The Scoping Phase



- **Facilitation process and generation of cross ministerial dialogue:** through the BEFS Working Group, led by the **Ministry of Energy and Water Resources**, with support from **FAO**
- Consultations with BEFS working group on:
 - **Reasons** for bioenergy development in Sierra Leone, opportunities and risks?
 - Discussion of **bioenergy policy** formulation in the country: information required, existing policies and information available (forestry, land, water etc.)
- Initial collection of information to establish the country context (agriculture and food security, energy, environment, etc.) for the analysis:
 - Which are the main food staples?
 - Energy access/security status?

Sierra Leone: The context



- Classified as a **low income food deficit country**, with 70 percent of the population below the poverty line, 35 percent undernourished with a per-capita GDP of 261 USD in 2009, HDI ranking is 180 out of 187
- **Agriculture** contributes 46% of GDP, employs 60% labour force characterized by subsistence farming, rain-fed production, low productivity (abundant rainfall)
- **Highly** dependant on imported fossil fuels and domestic supply of wood-based fuels
Less than 7% of the population has **access to electricity**

97% of household energy comes from fuelwood & charcoal



- Deforestation is the main environmental problem

Main food crops in Sierra Leone

Main food crops:
Rice and also cassava and
palm oil

Potential **bioenergy feedstock** that would need to be assessed:

- Woody biomass
- Crops: - sugar cane and palm oil, maybe also cassava, sorghum coconuts, groundnuts
- Residues (crops, agroprocessing, livestock and forestry)

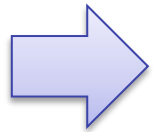
Ranking	Commodity	Calorie Share (%)
1	Rice	42
2	Cassava	10
3	Palm Oil	9
4	Groundnuts	6
5	Wheat	4
6	Sugar	3
Subtotal share for selected items		74
Total Calories per capita		2,130

Source: FAOSTAT 2009

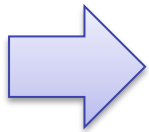


The Outcomes of the Scoping Phase

- Based on the information collected and the expert discussions, the BEFS WG formulated:



The Bioenergy and Food Security Strategy for Sierra Leone for the longer term development of a **sustainable bioenergy sector**, targeting food security, poverty reduction, rural development and increasing energy access.



A set of **initial steps** to support the Government in responding to bioenergy investors and build awareness.





The BEFS Strategy in Sierra Leone

- The strategy has three components:
 - Component 1: **Institutional strengthening**
 - Long term establishment of BEFS WG
 - Component 2: **Technical analysis, legal and policy support**
 - Technical analysis with a focus on forestry and land
 - Legal support: review of current SL legislation to bridge technical analysis outcome into current SL legislation
 - Policy support
 - Component 3: **Capacity building**
 - Technical capacity building
 - Policy level capacity building
- Funding issue



BEFS Support in SL: Interim steps

- Interim set of activities, additional FAO funding, 5 months work

Output 1: Guidelines for sustainable <u>bioenergy</u> development
Output 2: Community sensitization support
Output 3: Report detailing the findings of the legal review
Output 4: BEFS WG action plan

THANK YOU!



BEFS



ENERGY PROFILE



Energy access is one of lowest in the region, less than **7% of the population has access to electricity** and only 1% in rural areas.

Energy matrix

largely **dependent on biomass** (firewood and charcoal) (87%)

high dependend on fossil fuel importation and hydropower.

Energy Uses by Household

Lighting: 91% use **kerosene** and 2,7% **electricity**.

Cooking: 85% use **firewood** and 14% use **charcoal**.

Potential

Biomass is stimate at 656,000 tonnes of crop waste/year (2,700 GWH/year)

Solar radiation is estimated at 1,460 – 1,800 GWH/annum

Wind speed is recorded as between 3-5 m/s

Exploration activities for **curde oil** and **gas** (territorial boundaries)

Objetive National Energy Policy (2009):

To ensure the provision of modern energy services for increased productivity, wealth creation and improved quality of life for all Sierra Leoneans.

The BEFS Strategy proposed for Sierra Leone



Component 1: Institutional Strengthening

Support the Bioenergy and Food Security (BEFS WG) working group
Strengthen the expertise of the BEFS WG
Develop a long term strategy for the BEFS WG

Component 2: Technical analysis, policy and legal support

Provide sound technical analysis to support the sustainable bioenergy development
Integrate technical information with the legal framework into the existing policy infrastructure

2.1. Technical analysis: The application of the BEFS Analytical Framework

2.1.1 Agricultural Outlook

2.1.2 Natural resources assessment

2.1.2.1 Land suitability assessment

2.1.2.2 Water Resources Management

2.1.2.3 Biomass residues assessment

2.1.3 Production costs and green house gases (GHG)

2.1.4 Socioeconomic analysis

2.1.5 Land Tenure

2.1.6 Monitoring and evaluation

2.2 Legal support

2.3 Policy support

Component 3: Capacity Building

Strengthen technical capacity in the country
Strengthen institutional and policy capacity in the country

