Policy Framework and Guidelines for the Sustainable Development of Bioenergy in Africa (AUC-UNECA)

IEA-FAO Expert Workshop on Waste-to-Energy and Biogas in Southern Africa

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How to Develop Sustainable Bioenergy in Africa?

AUC-ECA Vision

1. Assess the baseline status, nationally, regionally and continentally
2. Developing Africa's Bioenergy Policy Framework
3. Strengthen the capacity of member states to develop, implement, and monitor proper bioenergy policies and development plans

1- Assess the baseline status, nationally, regionally and continentally

- **In collaboration with AUC, ECA undertook two continental assessment studies were undertaken:**

(1) Bioenergy Sustainable Development in Africa: Toward Energy Security and Sustainable

- **The setting – the African energy profile and the place of bioenergy**
- **Modern bioenergy: drivers, benefits and risks**
- **A pan-African sustainable bioenergy policy framework: rationale and objectives**
- **Key issues and policy options**

(2) Biofuels Development In Africa: Technology Options and Related Policy and Regulatory Issues

- **Setting the scene: the african energy challenge**
- **Bioenergy technology options: prospects and opprtunities for africa**
- **Economics of biogas electricity**
- **Enabling environment: analysis of biofuels policies in africa**
- **Prospects for A biofuels future in Africa: conclusions and recommendations**

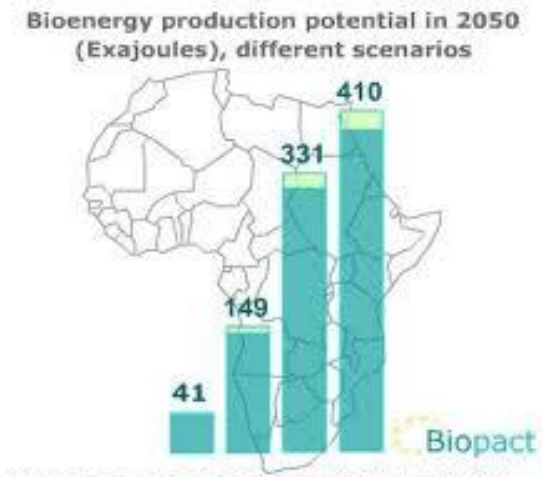
Key Lessons Learnt

- Inadequate measures to ensure environmental sustainability and climate benefits
- Mandatory blending targets and subsidies determined in isolation
- Lack of consistent policy and regulatory frameworks
- Tendency to overlook potential negative impacts of biofuels
- Treating bioenergy policy as a standalone policy without integration into the overall socioeconomic and natural resource management policy of the country .
- Permitting foreign investment without ensuring strong backward, forward and lateral linkages to the economy including in-country processing capacity as well as rural and human development
- Missing champions that would help minimizing the “fear barrier” to implementation of bioenergy programmes and risks by avoiding unworkable approaches

Overall Conclusion

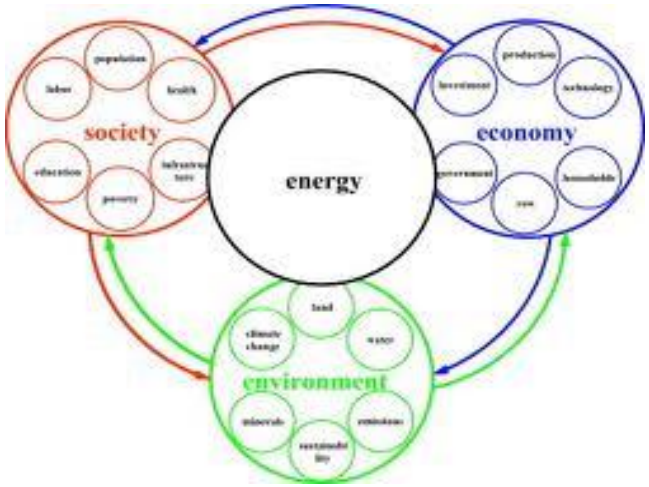
- Promote sustainable development of energy at the policy level should consider:
  - no single solution to a country's energy problems; each country needs to harness its wealth of renewable (solar, hydropower, geothermal, and wind) and non-renewable resources
  - modern and sustainable bioenergy is an option that needs to be pursued seriously
  - sustainable bioenergy is socioeconomic, political and environmental imperative

Why pan-African sustainable bioenergy policy?



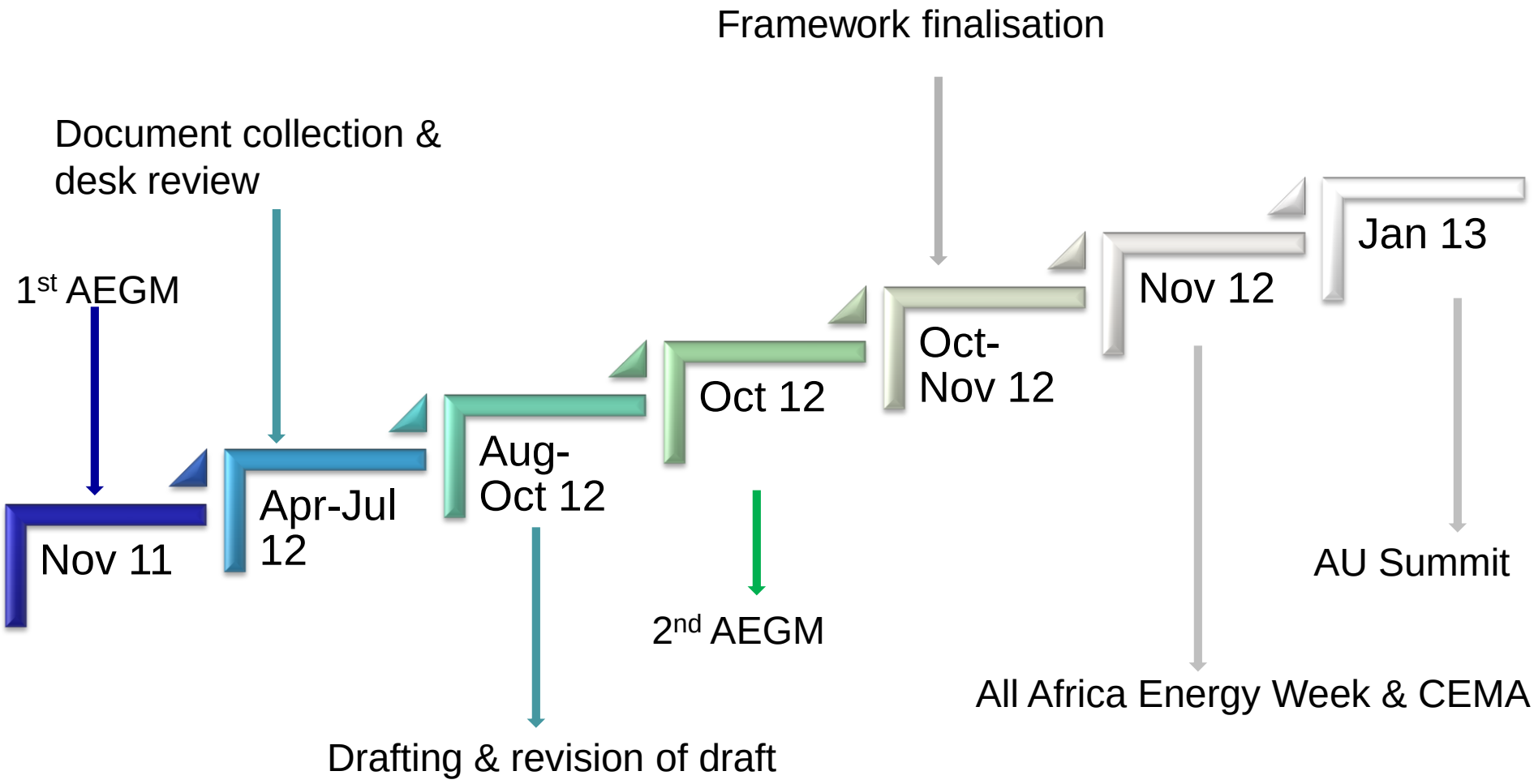
Source: E. Smeets, A. Faaij and I. Lewandowski, 2004, *A quickscan of global bio-energy potentials to 2050*.

- Need to enhance cross-sectoral understanding and awareness among African leaders, the general public and media about modern bioenergy policies and practices and their benefits, costs, tradeoffs, opportunities and risks



- Need to fulfill goals and aspirations of NEPAD and subsequent decisions of AU through making Africa a vital and efficient producer of biofuels

Policy Framework Development Process



Rationale for Africa Bioenergy Policy Framework and Guidelines

- Well-designed bioenergy policies support achievement of sustainable development and poverty eradication
- Africa has considerable potential for bioenergy production for local energy needs and export market
- Regulatory frameworks developed in other regions to manage negative impacts of bioenergy on food production, poverty & the environment
- Small achievements of national programmes
- Need for a continental policy & regulatory framework & regionally agreed sustainability criteria to inform national policies and strategies

Objectives of the Framework

- Build a consensus around a shared framework to provide guidance to individual countries in developing policies and regulations

- Enhance awareness among African leaders and the general public about the need for environmentally and socially friendly bioenergy development policies covering economic, social and environmental issues.

What are expected accomplishments of the policy framework?

- Africa Bioenergy Policy Framework and Guidelines to serve as an integrated toolkit for developing national and regional bioenergy policies and programmes aimed at promoting sustainable development of bioenergy in Africa

- NEPAD's NPCA to take lead in developing and implementing national policies and capacities.

Africa Bioenergy Policy Framework Outline

1. **Introduction**
2. **Understanding Bioenergy in the African Context**
3. **Bioenergy Development: Key Issues and Policy Options**
4. **Process of Sustainable Bioenergy Policy Development**
5. **Bioenergy Policy Implementation Action Areas**
6. **Monitoring and Evaluation Implementation**
7. **Implementation of the Bioenergy Policy Framework**
8. **Conclusion and Recommendations**

Understanding Bioenergy in the African Context - The Opportunities

The bioenergy resource potential in Africa

- 60% of the world's uncultivated land
- A wide range of agro-ecological zones that provide a wide spectrum for growing a range of energy crops
- Availability of labour
- Potential to harness yield increases and efficiency gains
- Sustainable bioenergy potential of SSA will increase by 41 to 410 exajoules (EJ) by 2050, compared to the current generation of 19 EJ
- Africa has a huge potential of valorising co-benefits by using effluents and residues from agricultural and agro processing activities

- ***Potential of electricity product from biomass residues in selected countries***

	Need (billions kWh)	Potential (billions kWh)	Eq. Diesel (Million litres)	Eq. Barrel of oil (Million)	Eq. million USD (year 2008)
Benin	0,60	6,20	2 336	17	1 168
Burkina Faso	0,50	10,00	3 746	27	1 874
Cote d'Ivoire	2,60	17,20	6 465	46	3 234
Guinée B	0,10	0,50	188	1	94
Mali	0,80	8,00	2 989	21	1495
Niger	0,50	6,30	2370	17	1186
Senegal	1,90	2,90	1094	8	547
Togo	0,60	4,00	1514	11	757
TOTAL	7,90	55,10	20 701	148	10 356

Source: ***UEMOA/ILTIS, 2008***

Understanding Bioenergy in the African Context - Economic Benefits

- Bioenergy is amenable to small-scale production and processing, opening up opportunities for rural income growth, poverty reduction and economic transformation from raw material production to processed goods.

- Of the renewable energy types, bioenergy has a special role in rural development as (i) biomass is currently the most important source of renewable energy, primarily for cooking and heating; (ii) biomass is present almost everywhere (iii) agri-food systems can also be used to produce bioenergy through integrated food-energy systems.

- The huge estimated potential of agricultural residues could significantly improve farmer's revenues; specially the smallholders..

Key Issues and Policy Options

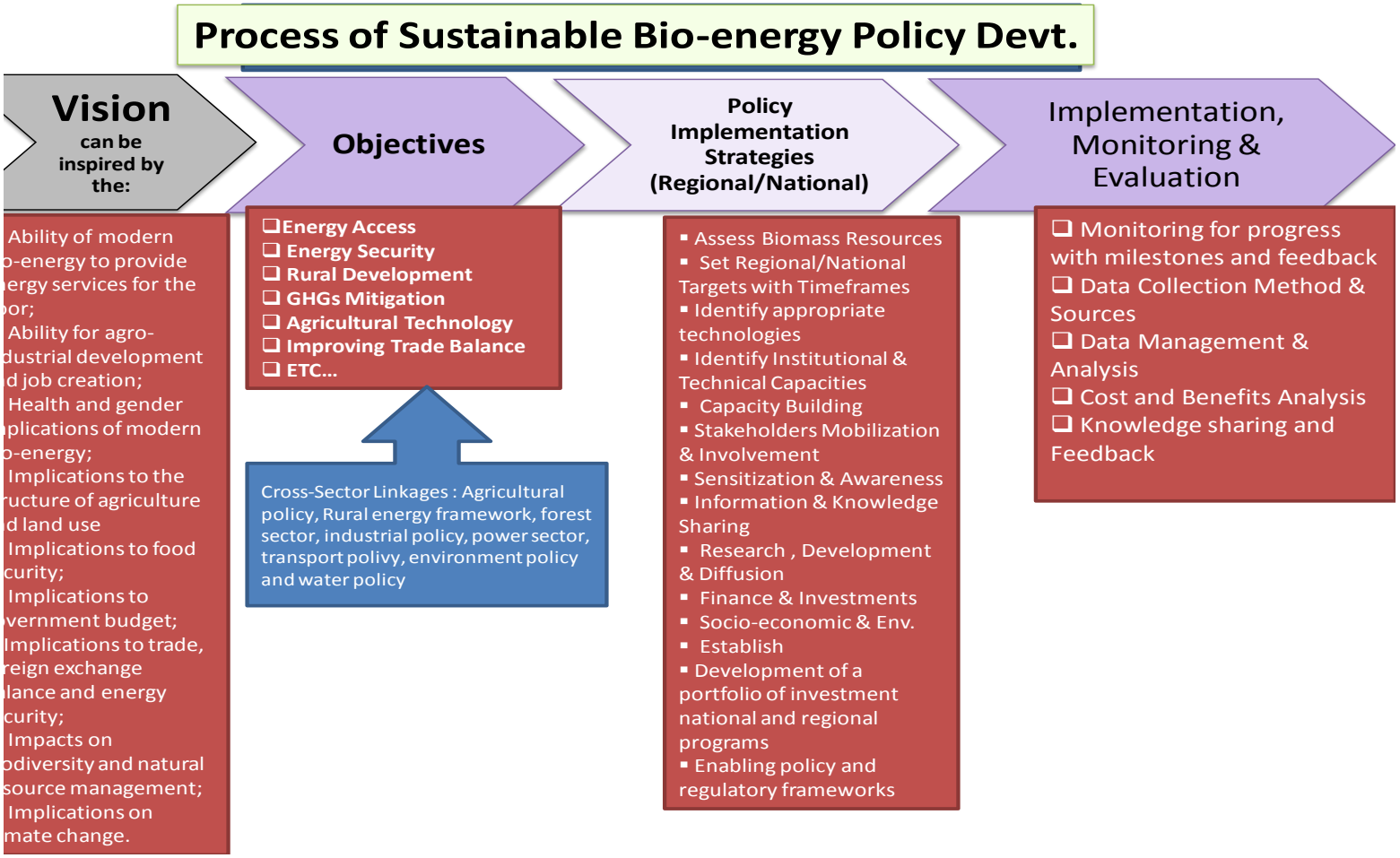
- A holistic approach to the energy (RE & non RE) development (macro and sectoral) issues is prerequisite for advancing the bioenergy agenda
- A national bioenergy policy NOT a standalone policy -- integral part of a national energy, and agro-industrial development and transport sector strategy & in turn is part of national development strategy (macroeconomic and sectoral).
- Well-articulated bioenergy policy has huge multiplier effects and cross-sectoral impacts that positively influence agricultural, industrial, and trade development.

Bioenergy Development: Key Issues and Policy Options - Policy Formulation process

Issues to be considered during the formulation process

- economic, social, environmental, political and cultural dynamics.
- social organization; institutional coordination.
- sub-regional and global cooperation, trade and investment relations.
- development financing, stakeholders participation as well as technical issues such as developing sound methodology and availability of reliable data.
- The process of ensuring that there is a strong political commitment and capacity to enforce regulatory measures is also important.

Process of Sustainable Bioenergy Policy Development



Recommendations

1- Assessment national biomass resources through:

- Coherent biomass assessment approach;
- Application of sustainability criteria; and
- Consideration of cross-country effects.

2- Formulation of national bioenergy strategies and biomass action plans that:

- Integrate national bioenergy strategy;
- Set up sound and science based targets and priorities;
- Prevent and manage risks through promotion of good environmental and socio-economic practices in bioenergy feedstock production;
- Provide status and quality of national biomass action plans (BAPs);
- Are based on attractiveness and consistency of national policy frameworks and support schemes for bioenergy promotion

Recommendations

3- Implementation of national bioenergy policies should be based on:

- Policy impact on actual market and industry development; foods, environment, biodiversity;
- Cost-effectiveness of bioenergy strategy and support schemes;
- Efficiency of administrative procedures;
- Information and integration of stakeholders; and
- Quality standards and qualification of key actors.

4- Monitoring of national bioenergy markets and policies to ensure effective approach to:

- Market monitoring;
- Policy performance measurement; and
- Sustainability guarantee with a proper reward and penalty system.

Key relevant messages

Africa is home to substantial bioenergy resources and potentials, though the resources are mostly underdeveloped (agri-processing, farming and household wastes) or poorly used (inefficient energy conversion process and poor cooking devices). There is urgent need to formulate policies that can mobilize resources and stakeholders to make proper use of the resources to the benefit of humans while maintaining healthy ecosystems.

The following key messages provide the way forward for the development of the bioenergy sector in Africa, and recognize the importance it plays in the energy economy of the region currently and in future:

- Sustainable energy transition will not succeed without paying attention to the modern bioenergy.
- Bioenergy is already an important source of energy for households, but the mode of production, transformation and consumption is very inefficient.
- To reach a sustainable energy mix, it is crucial to modernize the traditional biomass sector and develop modern bioenergy encompassing other sectors.

Key relevant messages, Cont.

- A holistic approach to bioenergy development is essential; a broad development agenda that takes bioenergy beyond the transport sector aiming at improving access to energy at the household level (rural and urban) for cooking and lighting, as well as at the commercial or industrial levels; focusing on non-food feedstock; and evaluating each bioenergy feedstock for its economic, social and environmental benefits and costs prior to issuing investment contracts.
- The process of policy development is as important as the policy itself. Assessing global and regional dynamics and opportunities, identifying the needs and societal concerns, putting in place the necessary legal and institu-tional frameworks for coordinating and integrating economic, social and environmental objectives, mobilizing and building capacities (human and institutional), consulting and engaging stakeholders, and setting up monitoring mechanisms are all critical to the success of a sustainable bioenergy policy.
- Developing bioenergy is not without risks and sustainable criteria are paramount to ensure sound scaling up of bioenergy.

Key relevant messages, Cont.

- Technology is only one component of the sustainable energy solution and low carbon emissions. Financing, regulatory frameworks, research and development and capacity building are crucial to bioenergy deployment on a sustainable basis.
- Policies and regulatory frameworks should be harmonized across countries to facilitate regional cooperation and trade.
- The “Africa Bioenergy Policy Framework and Guidelines” is an important tool to overcome the barriers to the deployment of sustainable and modern bioenergy and ensuring that bioenergy is contributing to economic growth, energy and food security, poverty reduction and the protection of natural re-sources.

Fast-tracking Waste-to-Energy and Biogas within ABPF perspective

- Would require localization acting on four dimensions:
  - Technology Choices: Tech Roadmap & baseline Assessment
  - Targeted Investment: enhancing manufacturing capacity via industrial Policy & System of Innovation
  - Enabling environment (Regulatory & Legislation & Policy
  - Market Development

Thank You