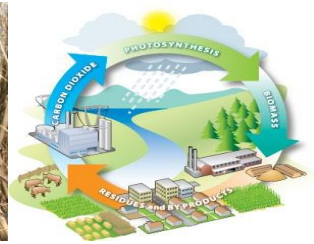
African Union
a United and Strong Africa

United Nations
Economic Commission for Africa

Mainstreaming African Bioenergy Framework and Policy Guidelines





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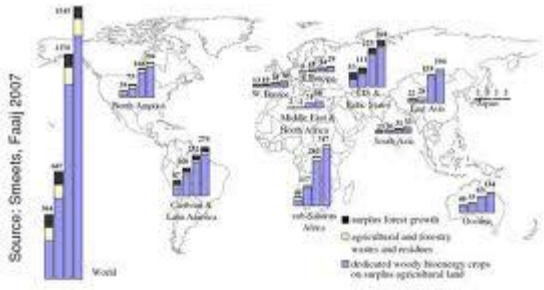
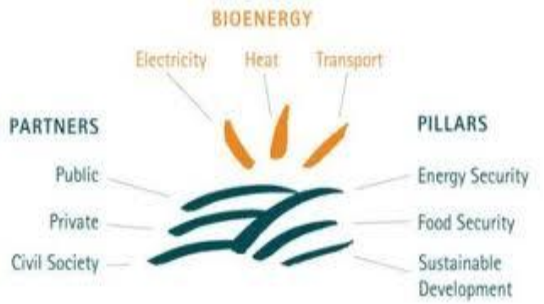
Presentation Outline

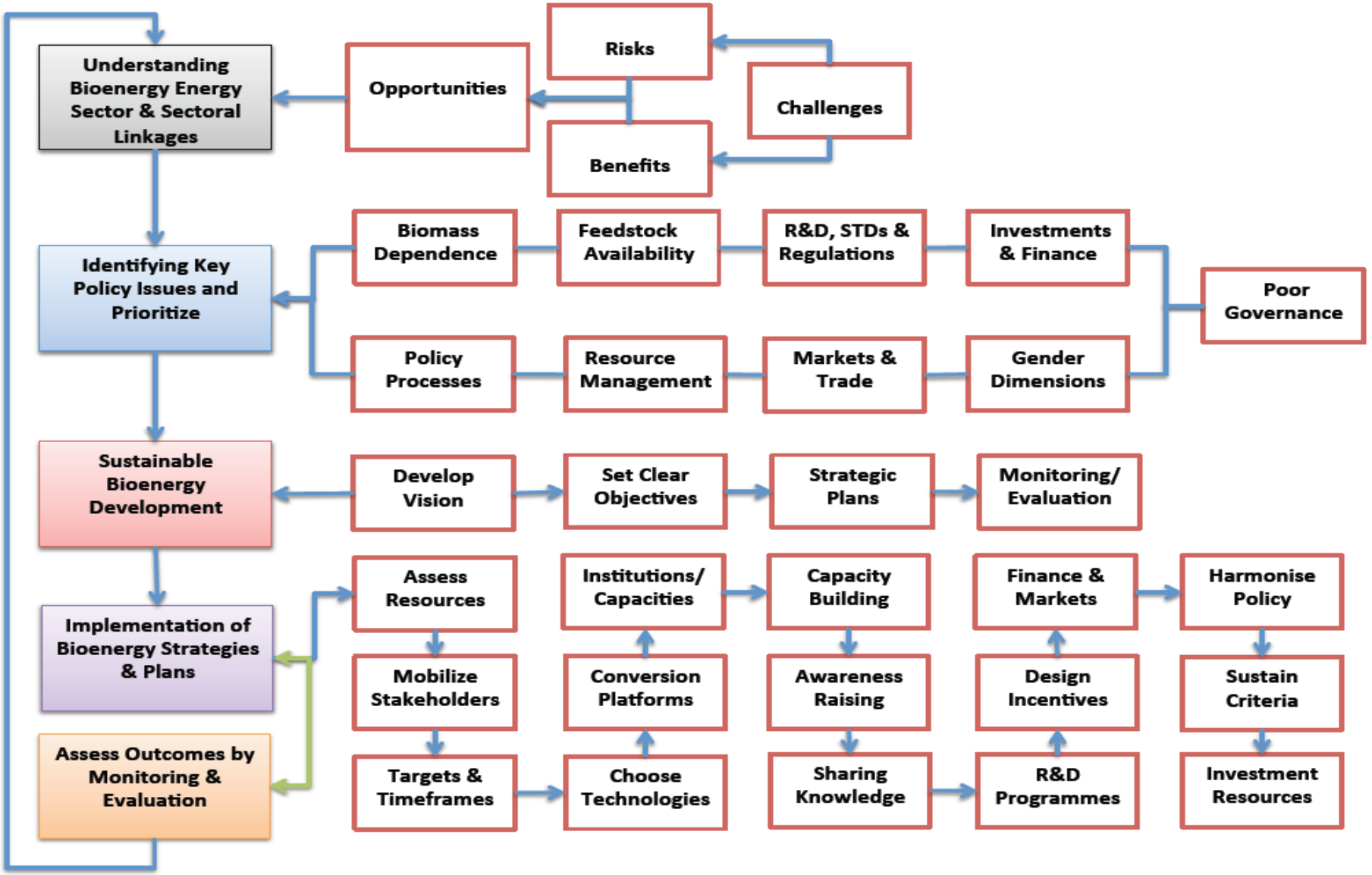


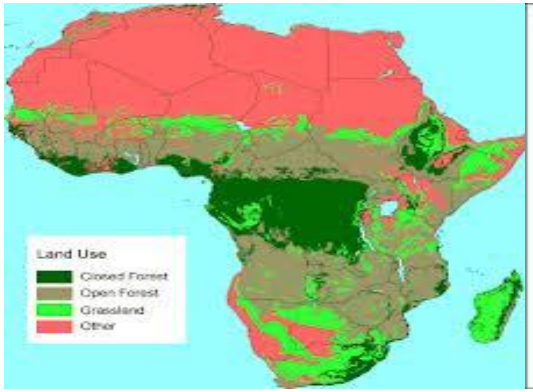
Total bioenergy production potential in 2050 based on system 1 to 4 (EJ·y⁻¹; the left bar is system 1, the right bar is system 4

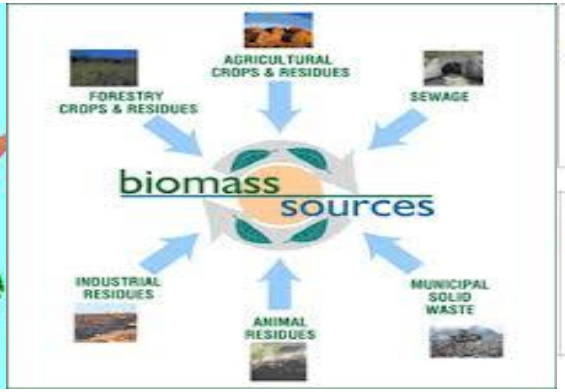


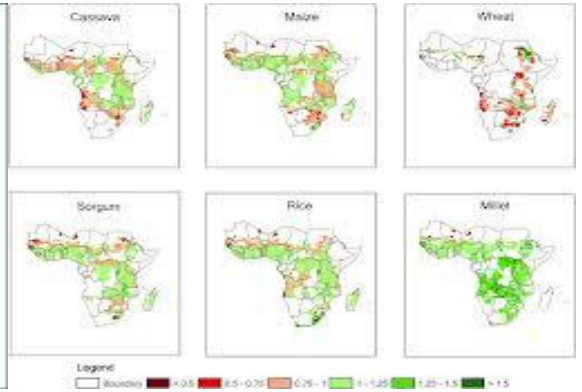
- Why Africa Bioenergy Policy Framework and Guidelines?
- Understanding Bioenergy in African Context
- Key Bioenergy Issues & Policy Considerations
- Process of Sustainable Bioenergy Policy Development
- Bioenergy Policy Implementation Action Areas
- M & E Implementation
- Implementing the Bioenergy Framework & Policy Guidelines
- Conclusion and Recommendations

Schematic illustration of Africa Bioenergy Policy Framework & Guidelines









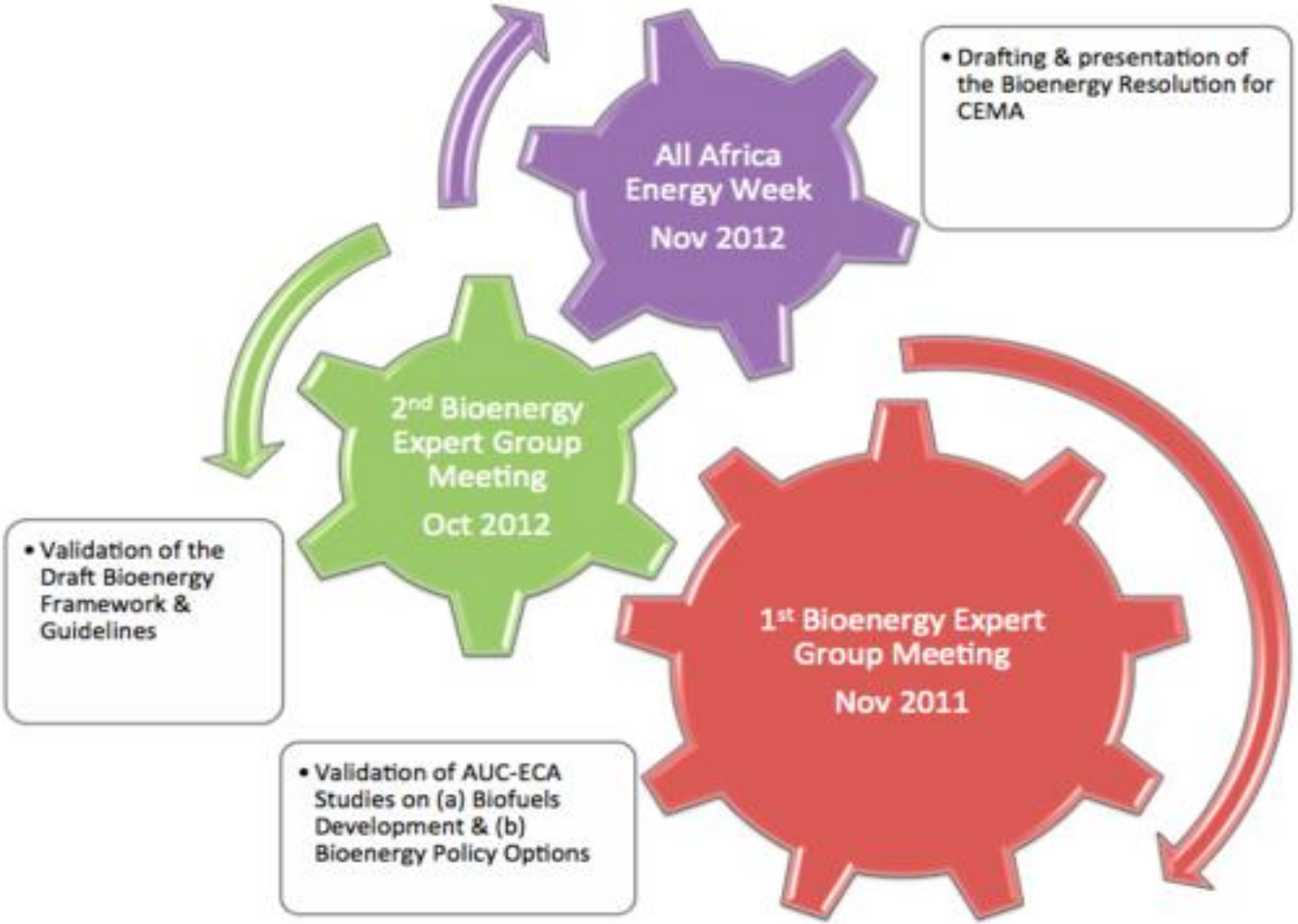
Why Africa Bioenergy Policy Framework and Guidelines?

The purpose of the Framework

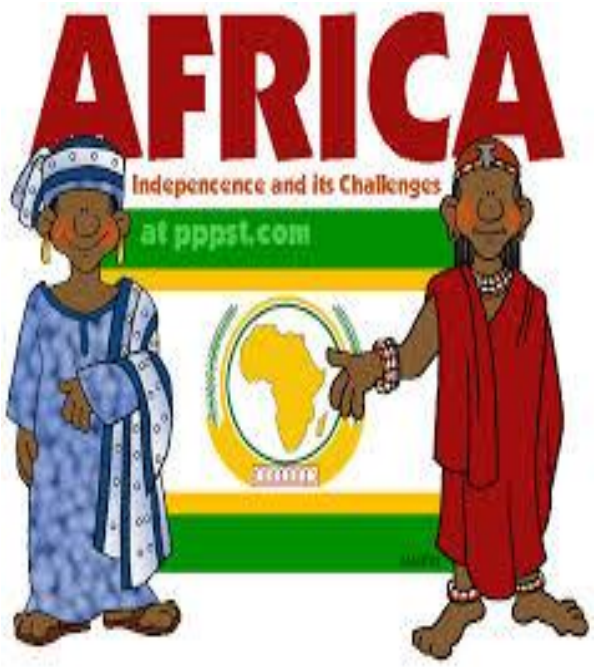
"… (a) **Build consensus** on shared framework that inspires & provides guidance to individual countries and regions in developing bioenergy policies and regulations; and (b) **Enhance awareness** among African policymakers and the civil society about the need for environmen-tally friendly and socially acceptable bioenergy development policies…."

- Why does Africa need a harmonized bioenergy approach?
- What are the opportunities & associated risks?
- Which particular policy issues will be addressed?
- How should the Framework be designed?
- What are accompanying implementation strategies &plans?
- How will strategies and plans provide desired goals?
- How will this Framework & plans & strategies be implemented?

The process of developing the Framework



Challenges to development of bioenergy in Africa

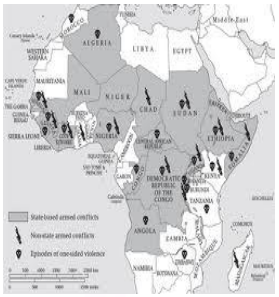


- **Land** requirement
- **Policy** & institutional weaknesses:
- Access to & **efficiency** of technologies
- Increasing **water** shortage & insecurity
- Lack of continental bioenergy **experience** for lessons
- Making bioenergy **costs** competitive with petroleum products
- The lack of **distribution** infrastructure
- Energy, water and agriculture **nexus**

Bioenergy Policy Implementation Action Areas

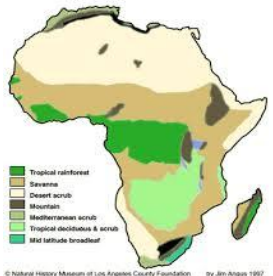
Assessment of resource base or feedstock options

The assessment of bioenergy resource base and feedstock options entails identifying



Natural resource management structure

Other biodegradable wastes



Planted forests

Agricultural residues

Forest residues

Agro-energy crops

Municipal solid and liquid wastes, etc.

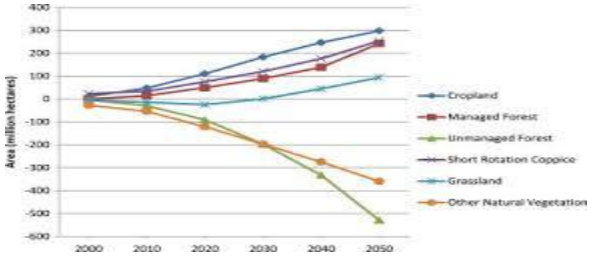
Stakeholder mobilization and involvement

Critical that stakeholder processes are carried out the right way

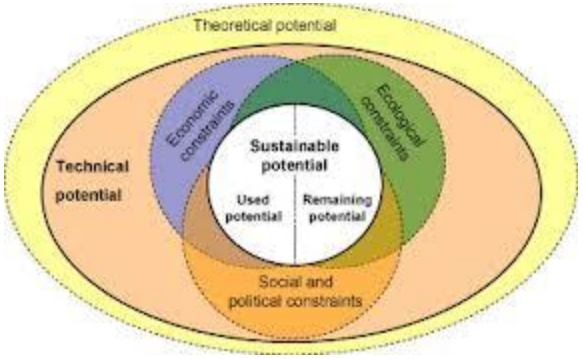
key stakeholders may include central government authorities, representatives of regions/local government, agricultural extension services/organizations, energy-related parastatals (energy utilities and regulatory bodies), NGOs for environment and development, labour, trade and farmers' organizations, CBOs, private sector (producers, distributors of biomass, providers of bioenergy facilities, producers of bioenergy technologies, research agencies, providers of advisory services and private utilities), financial institutions (banks and finance institutions and small-scale finance providers), as well as bilateral and multilateral organizations

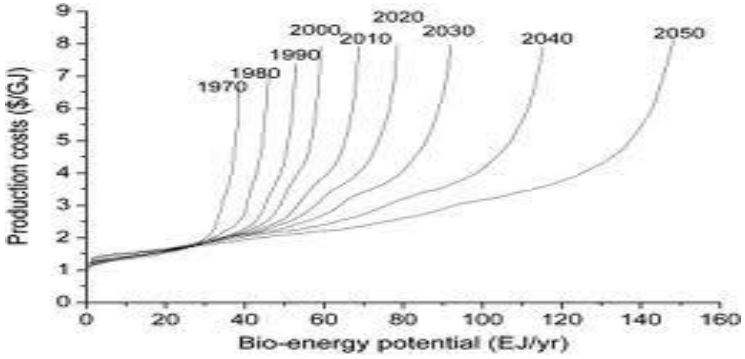
Set regional or national targets with timeframes

- ✓ Set **targets** for bioenergy development that are based on **needs**, **possibilities** and available implementation **capacities**



- ✓ Targets should be **built bottom up**, based on science and assessment of the sustainably feasible bioenergy potential.





- ✓ **Sustainability criteria** should be used, including mapping and zoning

Identify appropriate technologies

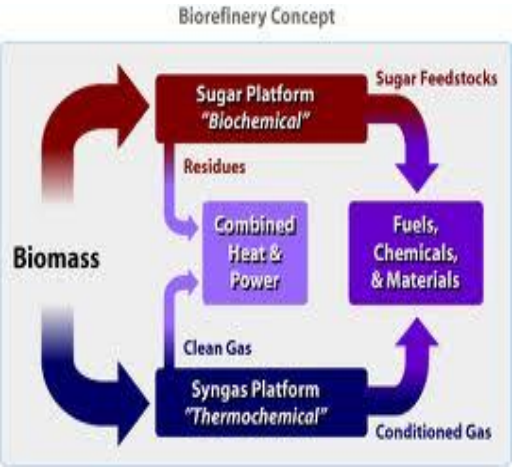
The conversion of bioenergy resources to usable energy requires technologies.

Careful selection of appropriate technologies and capacities (both technical and human):

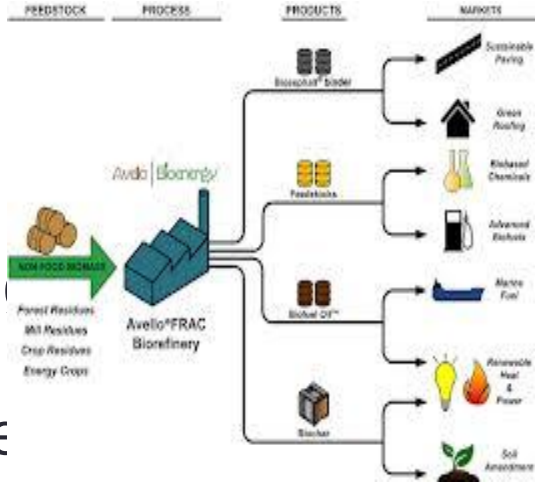
- Improved woodstoves, gasification (biomass combustion for heat and power), bio-digesters, etc.

Assess bioenergy conversion platforms or methods

Choice of appropriate technology depends on the conversion platforms to be adopted



- Combustion
- Fermentation
- pressing or crushing, refinin
- pyrolysis,
- bio-refinery set up options, e

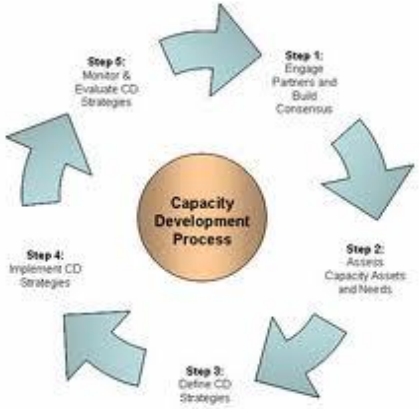


Identify institutional and technical capacities

Africa has strong regional organizations that are fully committed to promote a modern bioenergy sector as part of the overall energy policy development

- Encourages and promotes regional exchanges
- UNECA has developed a Knowledge Management Platform (KMP)

Capacity development and enhancement



- Strengthen local enterprises to source, integrate, install, operate, maintain, & service bioenergy systems; & provide business training and incubation.
- Train policymakers on policies & programmes for accelerating adoption of bioenergy by small landholders.
- Train the finance & banking sectors (especially senior management/loan officers) on the risks/rewards of financing bioenergy projects
- Provide training & technical assistance on standards for bioenergy development, drawing on international examples in this area.
- Provide training to governments & private

Sensitization and awareness raising

Potential for modern bioenergy is less known

- Agric & agro-processing residues & urban wastes not recognized as sources of energy
- Little bioenergy mobilized or available at household level is wasted through inefficient appliances such as traditional kilns

Raising awareness of producers, users, investors & policymakers through regional or national consultation processes, workshops & discussions, dissemination of relevant publications, media campaigns, etc. is critical.

Information and knowledge sharing

- Strengthen local data availability
- Gather case studies highlighting best practices & e.gs. of successes and failures
- Establish/implement Regional Bioenergy Centres with info on policies, markets, technologies, costs, business models, applications, financial sources, STDs & certification, etc.
- Encourage use of bioenergy & biomass assessment tools (FAO's BEFS, WISDOM & GBEP sustainability indicators)
- Facilitate South-South collaboration and eration on sustainable bioene opment

Research & Development and standards

R&D in technology development & demonstration

R&D in deployment strategies and innovative policies

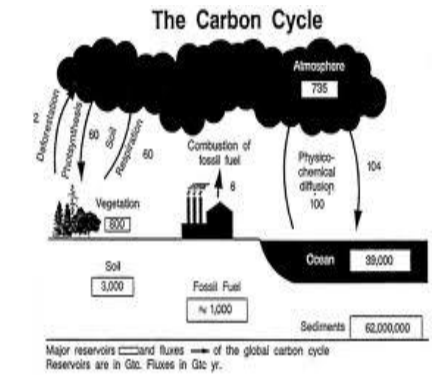
R&D in innovative financing schemes and negotiation

Localization of international standards & innovative new STDs

BIOENERGY BYTE

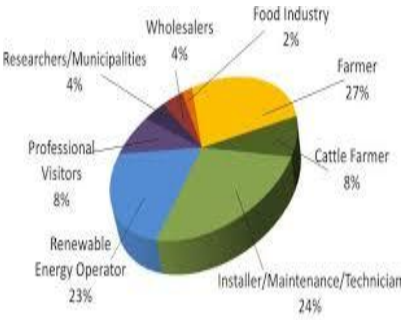
SABS
South African Bureau of Standards

Implementation capacities and incentives



- Identification and development of pragmatic policy instruments that promote rural development, gender equity and sustainable agriculture.
- The establishment of national/regional targets and timetables for bioenergy development, to include issues of small farmers.
- Development and implementation of regulatory frameworks at the national level to accelerate bioenergy development.
- Link bioenergy to agricultural and industrial priorities.

Implementation capacities and incentives

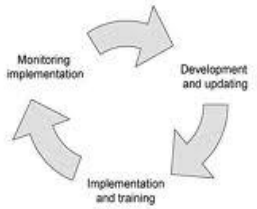


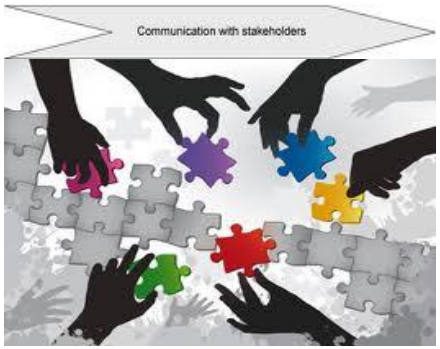
- Establishment of a lead organization in each national government to coordinate bioenergy activities across the interested ministries (e.g. agriculture, energy, rural development, finance, commerce/trade &environment).
- Establish guiding principles for land-use development.
- Foster a regional market for sustainable bioenergy, to include cross-border trade.
- Engage the private sector in policy/regulatory development, including producer organizations, SMEs, cooperatives, etc.
- Monitor and evaluate the impact and performance of bioenergy activities at the national and regional levels

Finance and market development

- Engaging local financial institutions and micro-credit agencies on bioenergy.
- Establishing risk mitigation facilities to spur local financing for bioenergy projects, esp. small-scale level.
- Fostering development of "bankable" project portfolios in bioenergy by offering assistance to entrepreneurs in areas such as R&D, seed capital funding, pre-feasibility and feasibility studies, reim-bursable grants, etc.
- Exploring opportunities for carbon finance at the national/regional levels.
- Engaging the private sector in project identification and development, and understand its issues or requirements with respect to financing projects in developing countries.

Harmonization with other sectoral policies & global processes



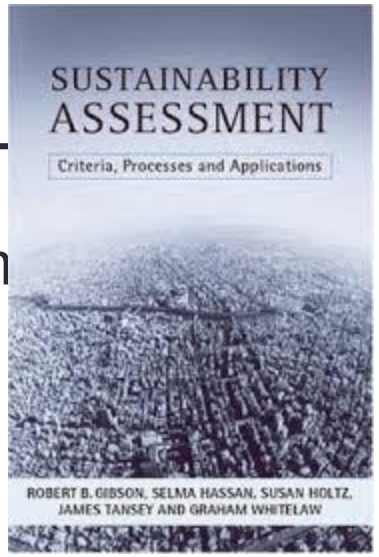


- Embed bioenergy within the poverty reduction strategy policies
- Integrate bioenergy into national development strategies in energy, & rural electrification, sustainable use and poverty alleviation.
- Integrate bioenergy development into natural resource management strategies.
- Integrate policies and regulations (standards) on a regional level
- Develop cooperation with industrialized countries to benefit from knowledge and technology transfer and facilitate South-South collaboration.
- Adapt sustainability criteria

Developing sustainability criteria

Develop and adopt sustainable criteria based

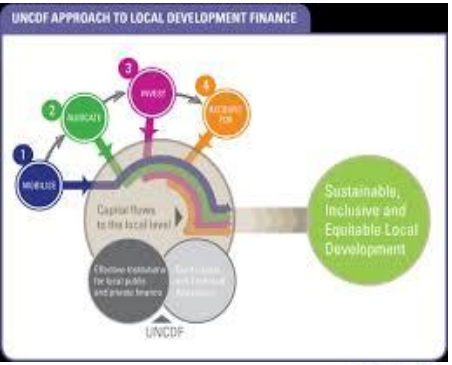
- GHG emissions
- Competition with food or other local application
- Biodiversity
- Environment
- Prosperity
- Social well being

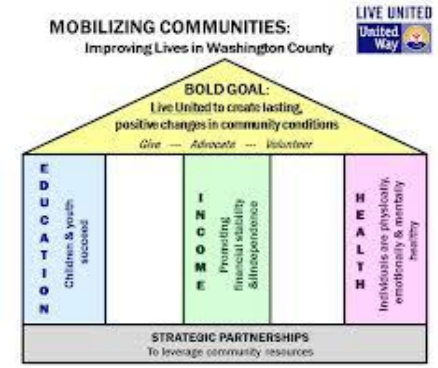


Mechanisms should be based on

- Addressing certification
- Encourage small producers
- Monitoring and planning of land use at regional and national levels

Mobilizing investment resources



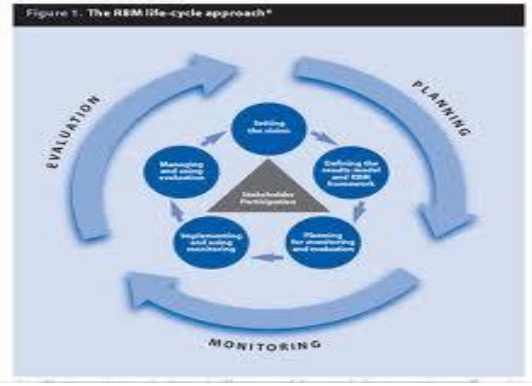


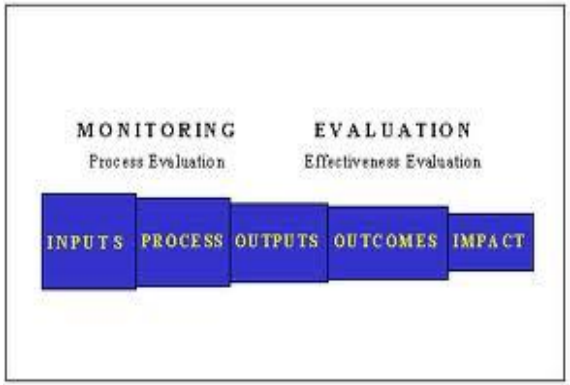
- Address the concerns of investors regarding bioenergy (FIT, tax exemptions, PPPs).
- Facilitate investments by providing a long-term stable market.
- Develop appropriate and specific financial incentives for the prioritized bioenergy options.
- Work primarily with local investors, entrepreneurs and diaspora finance as drivers to face declining ODA finance.
- Target donor finance for improved biomass cooking stoves, biogas for domestic use, MFP, LFG & use
- Target private investors for industrial biogas, cogeneration and liquid biofuel production.
- Avoid mistakes by learning from countries or regions ahead on the implementation of

Assessing outcomes of the implementation of bioenergy policy

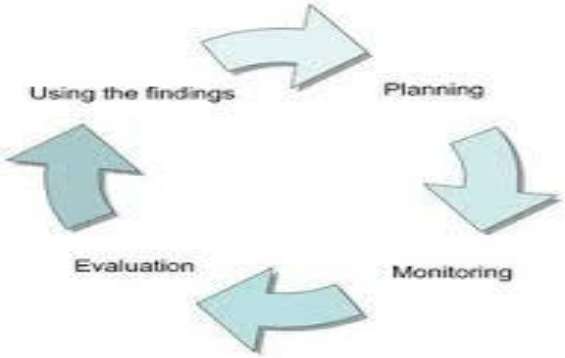
Assessing the outcomes of the implementation of the bioenergy policy should be done at micro and macro level. At the macro level, the monitoring of the following data is of great importance:

- Increased access to energy and impacts on the poor
- Land prices
- Food prices
- Property relations
- The availability of food
- Relocation of food production & cattle breeding
- Deforestation &
- Change in the type of vegetation



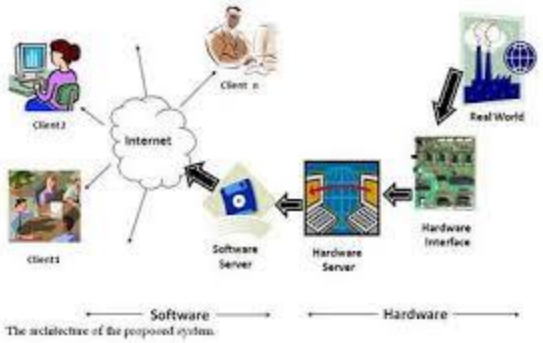


Monitoring and Evaluating Implementation

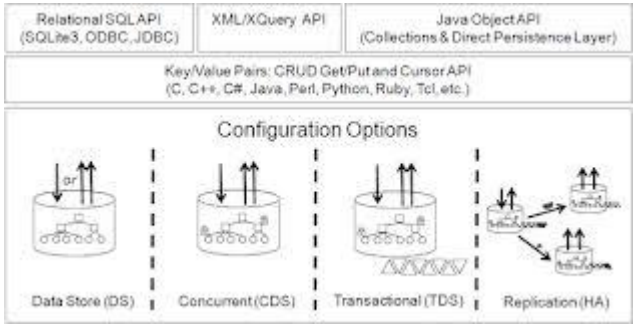


Development of monitoring systems

Proper management of bioenergy policies and programmes requires clear monitoring system based on a consistent, balanced and long-term approach instead of single one-time measures.



The architecture of the proposed system



Set up a national monitoring system in accordance with the minimum requirements of a possible African or region-wide monitoring

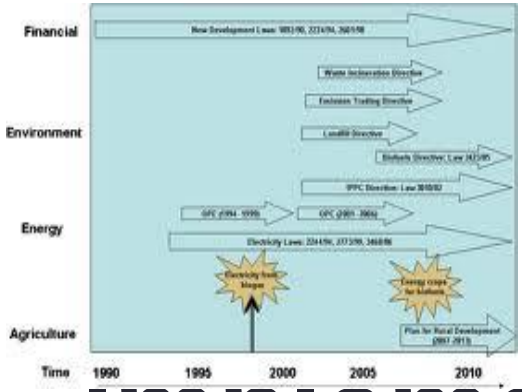
Linkages to existing monitoring mechanisms

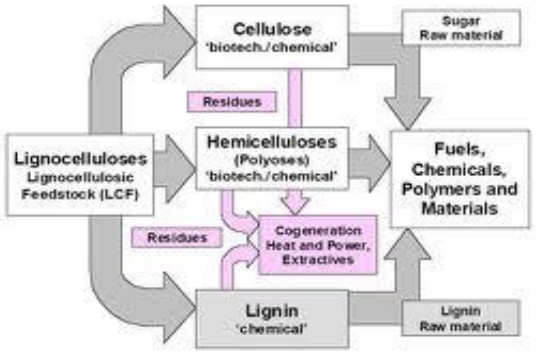
Several African countries have successfully established **Energy Information System** over the last decade with assistance from AFREC, EU and other development partners

- Monitors the production, importation, exportation and consumption at national level
- Monitors system annually, summarizing all relevant info

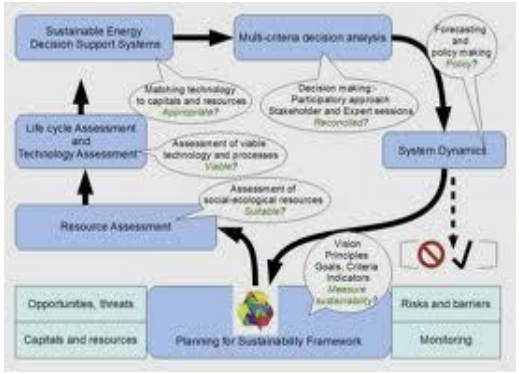
On international level, references can be made to the Global Bioenergy Partnership.

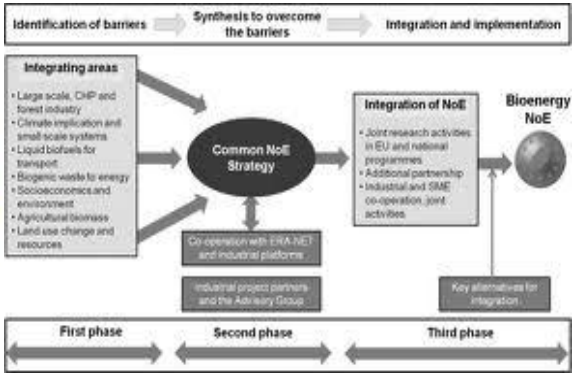
GBEP
Global Bioenergy Partnership



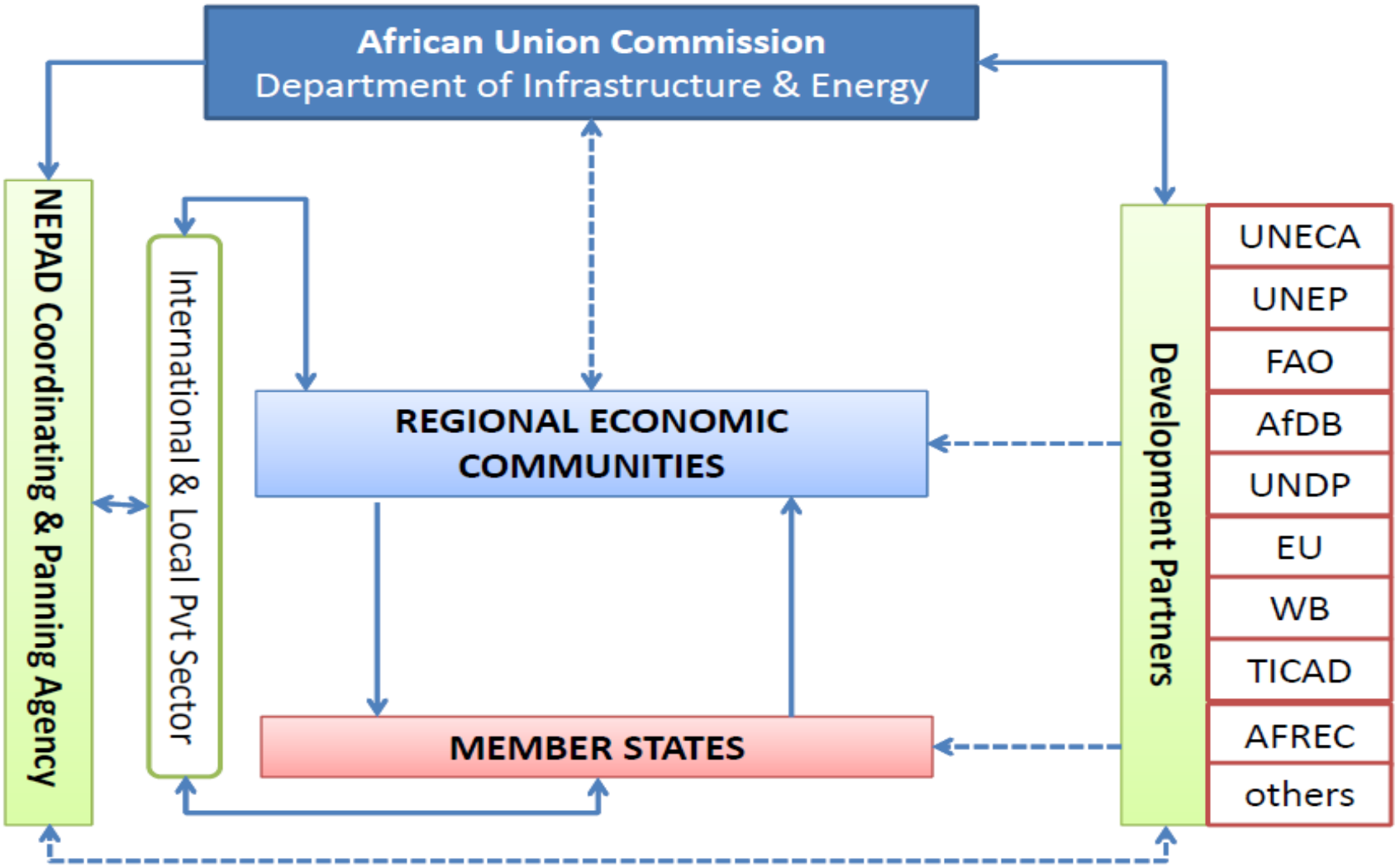


Implementing the Bioenergy Framework and Policy Guidelines

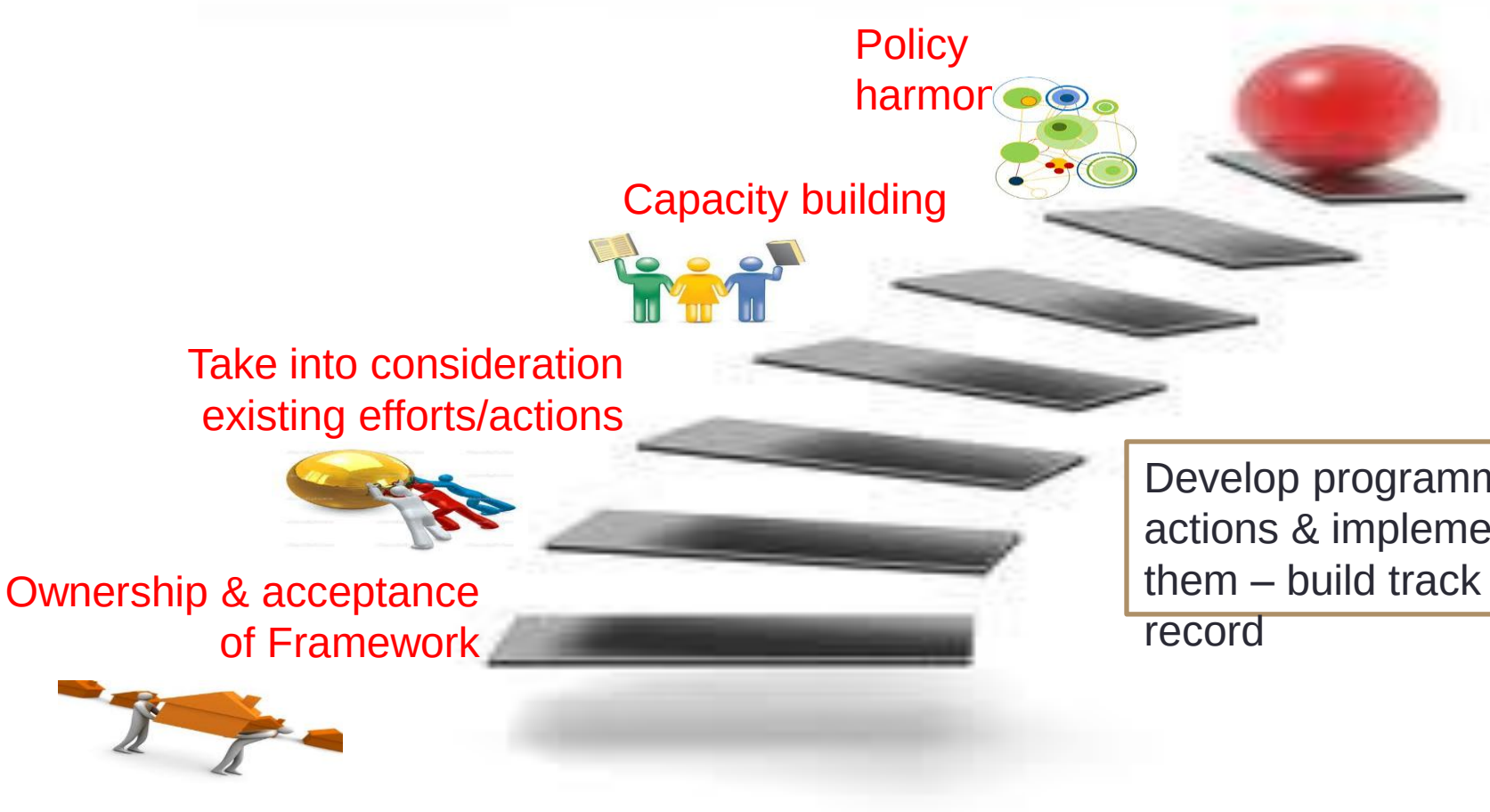




Implementation architecture



Mainstreaming the framework to the RECs



Linkages with existing initiatives

CHAMPION FOR WORKING PARNERSHIPS

Membe
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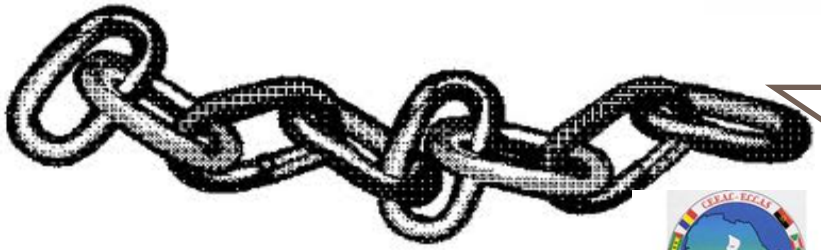

GBEP
Global Bioenergy Partnership

SUSTAINABLE
ENERGY FOR ALL

The Africa-EU
Energy Partnership

euei pdf
energy for development

UN-Energy
knowledge network

What is the way forward?

Opportunity to make bioenergy sector & food security mutually supportive

Provide support &

io

Guidance &

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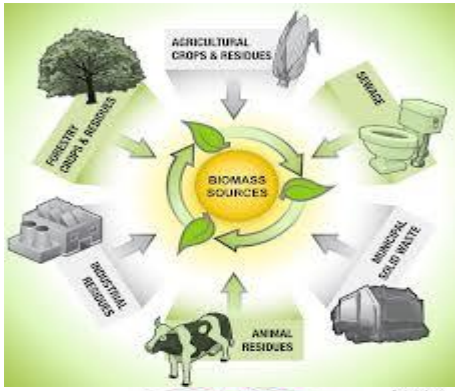
No single African country can make it alone, as bioenergy transcends political borders, with watersheds and landscapes, as well as trade crossing national boundaries

1. Assessing national bioenergy resources



- Assessment of bioenergy resources & uses should be performed or **updated on a periodic basis**
- Inventory should indicate **quantities of bioenergy available** & waste streams that can be valorized.
- Difference between **theoretical & actual availability of feedstock** should be considered & benchmarked.
- **All potential types** of regional bioenergy resources should be considered
- The **national approach** should cover development of existing, & mobilization of new resources & the imports from other countries or regions.
- Adapted **mapping methodology** should be

2. Integrated national and regional approach

- Data used for assessing national bioenergy resources &defining strategies must be **har-monized** between different policy fields (i.e. energy & natural resource endowments, energy needs, competing end uses and different internal and external policy drivers).
- Country/regions face **different conditions** (i.e. natural resource endowments, climate & weather, socio-cultural issues, etc.), which influence the result of the assessment.
- **Local use of bioenergy resources** should be made a priority & business models that support both local and export markets should be prioritized.

3. Formulation of national bioenergy strategies & action plans

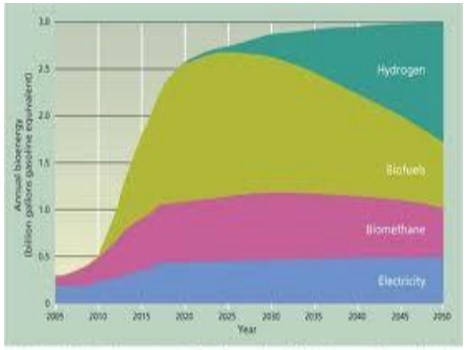
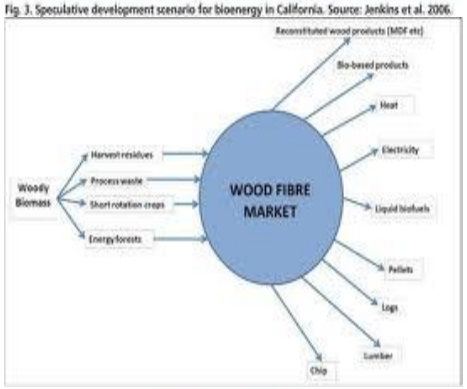
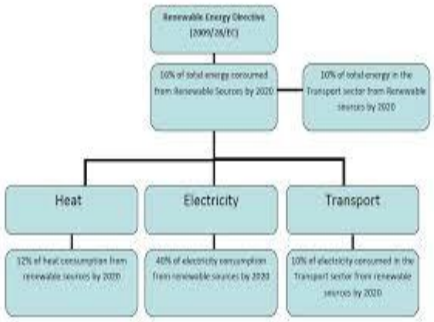


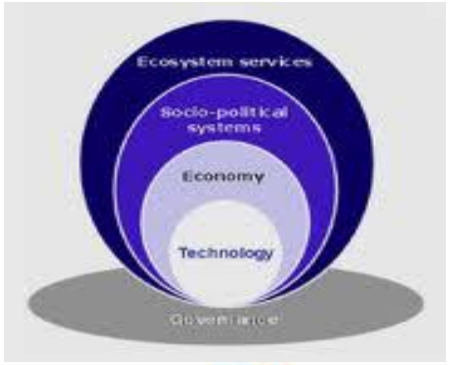
Fig. 3. Speculative development scenario for bioenergy in California. Source: Jenkins et al. 2006.





- Ambitious but realistic targets, grounded on **science & sustainability assessment**
- Key success factors are **long-term security/reliability** of conditions.
- Bioenergy-related mapping and zoning are critical.
- **Involvement of relevant stakeholders** in the policy-definition process and on-going amendment
- Bioenergy **policies at local levels**, so that an effective regionalization of policy processes
- It is NB to enable **development of professional supply chains on local levels**, because they are the “transmission belt” for any successful policy measures.

4. Implementation of national bioenergy policies



- **Close involvement** of and communication with key stakeholders are important
- **Long and costly administrative procedures** major market barriers, especially for small-scale installations.
- Policies are successful when they develop **simultaneously support schemes**
- Policies should **avoid subsidizing environmentally-inefficient technologies**.
- Liberal, market-driven policy frameworks tend to support some **low cost "technology winners"** only, while other technologies are not competitive enough to succeed.

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