

**THE BIOFEUELS OPTION:
THE WAY AHEAD
SOME THOUGHTS**

BIOFUELS OPTION SEMINAR

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What is Partnership for African Environmental Sustainability (PAES)

- PAES - an NGO established to promote environmentally and socially sustainable development in Africa based on **best practices**
- Primary focus - **policy studies, policy development and strategic planning**
- Recently completed, inter alia, environmental and energy security assessment of Uganda in collaboration with the Foundation for Environmental Security and Sustainability (FESS)

A possible strategic framework /approach for mapping the way forward

- Understand the **context** (global, regional, national and local)
- Build on **strengths**
- Remove **constraints**
- Harness **opportunities**
- Consider possible **risks / threats**
- Take **actions** (short, medium and long term) on sustained basis

Biofuels options: the global context

- High oil prices
- Promotion of democratization, decentralization and community empowerment
- Agricultural and trade policy reforms
- Technological advances and new more efficient conversion technologies
- Internet technology for faster information flow

Biofuels: the national context

- In many African countries, agriculture is the source of livelihood for over 80% of the population
- Rural livelihoods are increasingly being threatened by land and water scarcity
- Over 90% of the energy is derived from biomass (fuel wood, charcoal, animal waste). Energy wastage is high too.
- Only 7% of the hydropower and 0.6% of the geothermal energy of Africa's potential is exploited

Biofuels: the national context

Understanding national and household level perceptions of energy

- Economic good – tradable, livelihood source
- Social good – basic human right (access to light)
- Political good – factor for political stability
- Cultural good – nature of energy source determines division of labor in society
- Energy is both private and social good, leader and follower – e.g., rural electrification as prerequisite for industrialization

Biofuels: the national context

impact of high energy costs

High energy costs

- breed social grievances, increase political tensions, and create conditions for political instability
- hamper efforts to reduce poverty, widen income disparity and halt the transition from subsistence to commercial economy
- hinder trade volume and efficiency
- accelerate the pace of environmental degradation as households increase use of charcoal and fuel wood
- force women to spend more time gathering wood, less time to participate in social programs and be economically productive

Why biofuels: opportunities / benefits

Biofuels

- offer exciting opportunities and have the potential to transform rural sector and national economies
- substitute expensive petroleum and are biodegradable and non-toxic
- replace lead to enhance octane rating (Of a total of 49 countries in SS, 22 countries use leaded fuel only, 14 dual system and 13 unleaded)
- Help augment farm income, creates jobs and offers least cost way of attaining energy security

Why Biofuels? Benefits / opportunities

- Provide cleaner burning and reduced emissions compared to carbon stored in fossil fuels
- Biofuels help curtail environmental degradation and mitigate climate change through expanding carbon sequestration
- Greater biomass density broadens choices and lays the foundation for export growth in biofuels

Biofuels: challenges / constraints

- Economic challenges
 - Affordable and adaptable biofuel technologies both at the community and commercial levels.
 - Avoiding competition and strengthening complementarity with the food sector.
 - Balancing large scale and peasant based (out growers scheme) production
- Environmental challenges
 - Diversifying and expanding crops and plant sources of biofuels suited for different agro-ecological zones
- Technology challenges
 - Basing biofuel technology on soil enriching and less water requiring plants
 - Raising the biofuel production efficiency

Crop biotech on biofuels – the need to continue the research

“Carbohydrates have proven an expensive source of fuel in the past. Glucose, for example, can be fermented into ethanol and then added to gasoline. But this process is very inefficient, largely because of the energy it takes to boil ethanol away from water at the end of the fermentation.

Dumesic's team at the University of Wisconsin reasoned that this energy-intensive process could be avoided if plant carbohydrates were converted directly to the long-chain hydrocarbons that make up diesel fuel. Because oil and water do not mix, these hydrocarbons float to the top of the reaction mixture, where they are easily siphoned off.”

(Source: Crop biotech news on biofuels 2June 2005)

What can be done? The guiding principles:

- Pursue a multi-pronged, cross sectoral and multilevel intervention within a sustainable development strategy framework
- Accord priority to policy level intervention as it has huge multiplier effects, ensures political commitment, sectoral coordination and integration of local and national level processes.
- Put in place nationally owned sustained process thus avoiding quick fixes, short cuts
- Create biofuels national constituency as well as champions at various levels

What can be done?- national level actions

1. Developing a comprehensive strategy, policy, plan and investment program for **transition to sustainable energy system**. This involves:
 - Making the biofuels strategy an integral part of the comprehensive energy policy, which in turn is an integral part of a sustainable development strategy and policy
 - Elevating poverty reduction strategies to sustainable development strategies and bring on board trade, economic growth, energy issues
 - Developing such policies and strategies based on existing knowledge, institutions and nationally owned processes

What can be done? National level actions (cont.)

Within the comprehensive national energy policy:

2. Increase investment in biomass – according it highest priority. Crop and tree planting is cheap, offers quick and high investment returns, but many countries need to promote **enabling land ownership, tenure and use policies**
3. Promote the use and adaptation of existing ethanol based technologies where appropriate

What can be done? (cont.)

4. Evolve regional approaches to biofuels development through sub-regional institutional mechanisms already created. For example, in Africa – SADC, IGAD, ECOWAS and anchor global trade in regional and national markets.
5. Develop biofuels regional markets (extension of national markets)
6. Promote biofuels, for example, at the level of NEPAD, AU, UNECA

What can be done at the global level?

- Promote dialogue between developed and developing countries, between private and public institutions
- Enhance the sharing of experiences and technology among different regions
- Encourage and support biofuels research
- Promote biofuels in the World Bank CAS
- Make biofuels one of the key agenda items, say at CSD – organize an event, UNEP governing Council, GEF Council
- Develop private and public partnership

Epilogue

- Investment in biofuels is a development imperative
- Multi pronged, multi level (policy and program/project as well as national and local) and continuous intervention is needed. Policy development and increased investment in biomass are priority steps to be taken immediately.
- The biofuels strategy need to be nationally owned and be based on existing processes, capacities and institutions

Epilogue (cont.)

- Promote the use and adaptation of existing ethanol technologies in areas where natural factor endowments permit and at the same time expand research in technologies that use crops and other plants dry and semi dry areas.
- Balance between large scale (commercial) and peasant based agriculture
- Integrate production and marketing, domestic and international trade