BIOENERGY FOR SUSTAINABLE DEVELOPMENT

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Sustainable Bioenergy High-Impact Opportunity
Sustainable Energy For All
Overview

• Energy poverty is widespread and prevents economic development

• The international development community is beginning to act

• The Sustainable Bioenergy HIO aims to catalyze deployment of sustainable bioenergy

• Integrated Energy-Agricultural systems are a powerful opportunity for developing countries
Energy Poverty: Statistics

• 1.2 Billion people lack access to modern energy services w/ 0.5 Billion in sub-Saharan Africa

• 2.7 Billion people lack sufficient energy to cook with anything but charcoal or biomass

• Universal energy access cannot be achieved solely with donations & government programs
Energy Poverty: Sub-Saharan Africa

IRENA-DBFZ: BIOMASS POTENTIALS IN AFRICA, 2013
Energy Poverty: History

Urban FAST – Rural SLOW
International Efforts to end Energy Poverty

Energy is the golden thread that connects economic growth, increased social equity and an environment that allows the world to thrive.

-- UN Secretary-General Ban Ki-moon

Ending poverty and ensuring sustainability are the defining challenges of our time. Energy is central to both.

-- Jim Yong Kim - World Bank Group President
### Achieving the three objectives of Sustainable Energy for All...

- **Ensuring universal Energy Access**
  - Improved health
  - Improved agricultural productivity
  - Empowerment of women
  - Business and employment creation
  - Economic development
  - Achievement of the Millennium Development Goals

- **Doubling the share of Renewable Energy**
  - Affordable energy even where grid does not reach
  - New opportunities for small entrepreneurs
  - Decreased variability in energy costs
  - Energy security and reduced import bills
  - Reduced environmental impacts

- **Doubling the rate of improvement in Energy Efficiency**
  - Lighting / appliances that require less power
  - Fossil fuel resources used more effectively
  - Reduced energy costs for consumers
  - Redistribution of electricity that now is wasted or lost
  - More reliable electricity systems

... makes many development goals possible
Ghana Leads on Sustainable Energy for All

As the first developing country to engage with Sustainable Energy for All, Ghana is developing a national action plan to increase its renewable energy capacity and extend reliable energy access to all of its citizens.
Recognizing national needs & opportunities

- Action 1: Develop a system of feed-in tariffs for electricity generated by RE technologies
- Action 2: Evaluate the cost of energy generation from wind energy in Mozambique
- Action 3: Support the development of large & small-scale hydroelectricity project
- Action 4: Include potential sites for hydroelectric projects in grid extension planning
- Action 5: Encourage private sector involvement in rural electrification and decentralised energy
- Action 6: Scaling up deployment of rural electrification and decentralised
- **Action 7: Promote development of sustainable biofuels projects**
- **Action 8: Clarify the requirements of biofuels producers to supply biofuels to the local market**
SE4ALL High Impact Opportunities

UNIVERSAL ADOPTION OF CLEAN COOKING SOLUTIONS
ENERGY AND WOMEN’S HEALTH
INNOVATIVE FINANCE
PHASE-OUT OF GAS FLARING FROM OIL PRODUCTION

Sustainable Bioenergy HIO

- Clean Cooking Solutions
- Increased Agricultural Productivity
- Energy from Municipal Solid Waste
- Sustainable Aviation Biofuels
- Cellulosic Ethanol

Linking the private sector to national needs and opportunities
HIO Leadership Structure

Co-Chairs

Steering Committee (tentative)

HIO Secretariat

High Impact Initiatives

PROJECTS
Sustainable Bioenergy High-Impact Regional Initiatives will align with the SE4ALL regional hubs.
We seek to reduce the transaction costs to Sustainable Bioenergy development & deployment

- UN FAO
- IUCN
- UN Foundation
- Accenture Development Partnerships
- Bloomberg New Energy Finance
- Carbon War Room
- Roundtable Sustainable Biomaterials
- IDB
- Addax Bioenergy
- Boeing
- KLM/SKYNRG
- Novozymes
- PANGEA
- Shell
Reducing transaction costs

Barriers to deployment in developing countries
- National, local policy
- Culture
- Finance
- Technology capacity

The Sustainable Bioenergy HIO will facilitate deployment by reducing transaction costs
Sustainable Bioenergy Projects and High Impact Initiatives

• **Bioenergy and Food Security (UN FAO)**
  – Promoting Best Practices (UN FAO) & Policy Tool Development (UN FAO)

• **Bioports for Sustainable Aviation (KLM & SKYNRG)**
  – Australia & Brazil & Canada & Netherlands

• **Policy Tools Promoting Sustainable Bioenergy (International Energy Agency & UN FAO)**
  – How2Guide for Bioenergy (IEA)
  – Bioenergy and Food Security Rapid Appraisal

• **Smallholder Sustainability Certification (RSB & Boeing)**
  – Latin America (Solidaridad, Inter-American Institute for Cooperation in Agriculture)
  – Africa (PANGEA)
  – Southeast Asia

• **Sustainable Aviation Biofuels (UN ICAO, Carbon War Room & Boeing)**
  – Halophyte Plants for Sustainable Aviation Biofuel (Masdar Institute, Etihad & Boeing)
  – Municipal Solid Waste for Aviation Biofuels (British Airways and Solena)
Sustainable Bioenergy Projects and High Impact Initiatives (continued)

• **Sustainable Bioenergy in Africa (PANGEA & NEPAD)**
  – Ethanol for Clean Cooking in Nigeria (SMEFunds)
  – Ethanol for Clean Cooking in Cote d’Ivoire (COTRAME, SAPHIR HM, Green Social & Project Gaia)
  – Sustainable Woodfuels and Charcoal (The Charcoal Project, International Center for Research in Agro-Forestry)
  – Sustainable Ethanol for Cooking and Transport in Sierra Leone (Addax Bioenergy)
  – Sustainable Aviation Biofuels in South Africa (Boeing and South African Airways)
  – Sustainable Supply Chains for Clean Cooking Solutions (Accenture Development Partnerships)
  – Biogas for on-site uses (Selectra, Harmony, etc)

• **Sustainable Bioenergy in Latin America (IDB & Novozymes)**
  – Climatescope (IDB and Bloomberg New Energy Finance)
  – Workshops promoting sustainable bioenergy (IDB and Novozymes)
  – Financing of Next Generation Biorefineries (IDB and Novozymes)

• **Sustainable Biofuels for Maritime and Heavy Trucking (Carbon War Room)**
Platform for Bioenergy Deployment
Africa has diverse renewable carbon resources
Energy access improves the yield of each step in the food supply value chain.

Preventable post-harvest losses steal 30 – 70% of food from rural smallholders.