

## OUTCOME

### AREA / WFC conference on

### Access to Sustainable Renewable Energy in Africa as Prerequisite for the MDGs

May 22 - 26, 2012 – Rockefeller Bellagio Center, Italy

#### The future developments/ general observations, predictions:

- Arab spring will change the whole continent. Justice will be more relevant to more people and this will be also related to energy access. There will be also a broader acknowledgement of the potential and the resources of the continent
- Communication technologies will play an increasing role in education
- Remoteness will disappear – people will be closer to each other through communication technologies
- There will be more cross country partnerships
- Political systems will be more under observation of the people – and people will react more quickly
- The interference with the international community will increase
- Private sector will take the lead
- Farmers will discover the renewable energy market for their purposes
- Africa will become the powerhouse of the world – it will be number one country to make business
- In 2030 the electrification rate will be at nearly 90%
- We will witness more political stability
- Just as the majority of African citizens directly become telecommunication users with mobile devices without coming from a landline connection, Africans will be leapfrogging to new energy technologies
- Good governance is key for attracting investment in renewable energy, two examples:
  - Cape Verde will be investing the avoided cost of fossil fuel import into renewable energy infrastructure with the aim to become a 100% renewable powered society
  - Ghana aims to invest revenue from their fossil fuel export into the upgrading and building of renewable energy infrastructure

#### Thoughts on AREA:

- AREA stands for a multi stakeholder dialogue aiming to accelerate the deployment of decentralised renewable energy on the African continent by running advocacy campaigns & knowledge exchange.
- We should be developing our campaigns in the spirit of **leading by example**, meaning that we have to be able to refer to best practices of our policy packages.
- AREA needs to provide communication tools for bringing across the message, e.g. this report
- We also ought to identify key countries to bring about change and demonstrate success of our work, e.g. Cameroon, Zambia, Malawi taking into account our connections and the political and economical environment.

The institutional/ political, financial, technological, research & development (R&D) and human resource (HR) frameworks were highlighted, evaluated and condensed into these widely replicable mechanisms for the deployment of sustainable, renewable energy access in Africa.

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## **SESSION 1: Access to renewable energy through microfinance**

### **Bangladesh's renewable energy, micro-finance and capacity building schemes for off-grid areas**

*These integrated approaches not only focuses on the technical and capacity-building sides of renewable energy but on women welfare, income generation, child education, capacity building of local entrepreneurs and after sales service. Their innovative financial schemes involving the community at grass root level have helped rural people to procure renewable energy systems for their livelihood activities and income generation. Bangladesh has proven that renewable energy applications can be scaled up massively and rapidly to provide an affordable and climate-friendly energy option for the rural poor.*

#### **Institutional/ political:**

1. Problems of 'microfinance' lead to too strict regulations - we should therefore top talking about micro financing but about micro leasing or simply **inclusive financing**
2. Politicians and governments need to establish an "Enabling environment for business"  
This would mean:
  - a) Ambitious RE targets by the governments
  - b) Tax reductions
  - c) Help with currency fluctuation
3. For the Renewable Energy Development we need 'all inclusive solutions' for customers.
4. We need integrated systems that coordinate between the three parties: bank, the customer and the Energy Service Companies (ESCOs). This integrated systems would be also the focal point for international institutions and NGOs
5. This would require a national department for renewable energy development in the rural areas that would also accommodate a fund for loans etc. The fund would have to distribute via a 'result oriented support mechanism.
6. Bangladesh SREDA as an example ("We hope, SREDA will play a role to successfully coordinate and monitor the renewable energy activities," said a senior official at the Power Division of Power and Energy Ministry.)
7. In a future system (or department) we would need to
  - a) improve the collection of income (costs are still too high)
  - b) install local operators that can easily exchange parts of the appliance and ensure an efficient operation of the RE facility
8. Such a department would also help to improve the cooperation between the various state authorities. It could be also accompanied by a consultation committee

#### Financial:

1. MFIs on RE should be 'included' into the 'all inclusive' service
2. Tax incentives
  - a) Result based mechanisms
  - b) Consider international funding
  - c) Make sure that the funding is also embedded in the country itself

#### Research:

1. The criteria of the World Bank Body for micro finance CGAP should be looked into.
2. WFC/AREA must have a concrete position on micro-financing.

#### Human resources:

1. Make use of existing infrastructure to link with micro-finance services, e.g. corner shops, telecom booths, bars, gas stations, etc. Certain delivery companies and taxis might be considered as well.
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## **SESSION 2: Sustainable and efficient cooking solutions**

### **Sustainable & efficient cooking solutions using improved cookstoves and biogas – CDM and Micro-finance as an enabler**

*Improved cook stoves can reduce indoor air pollution and emissions up to 80%. Besides saving greenhouse gases, one major objective is to bring wood consumption down to a sustainable level in Africa. Many good examples exist all over the continent. However, financing improved cook stove programmes by the Clean Development Mechanism (CDM) would greatly accelerate dissemination. Another sustainable cooking solution, often overseen, is the utilization of biogas.*

#### Institutional/ political:

1. Regulation is needed to provide an enabling rather than a constraining environment for microfinance institutions working in this space. Such regulation is especially important in protecting consumers from unscrupulous lenders.
2. Where financing is through community or family based loan schemes such as group lending and "merry go rounds", the government should stay out of these as its bureaucracy would be more of a stumbling block.
3. Government programs should focus on supporting the industry through initiatives such as consumer awareness. Focused and well-resourced awareness campaigns similar to those seen in HIV and TB are very useful in driving the adoption of efficient cooking. This is clearly illustrated by the scale up of the Toyola cook stove program in Ghana following such an awareness campaign by the Ghanaian government.
4. Other programs that the government should be involved in include creation of testing centers and eco - villages that serve the growth of the industry.

5. Government, through the National Designated Authority (DNA) has the opportunity plays a critical role in the CDM registration process for projects. Many governments have failed in empowering this role resulting in lengthy delays and canceled projects. The DNA should report to the executive or have a similar high level reporting structure. They should also sign a performance contract that measures them on how many letters of no objection they issue and how many projects succeed in being registered.
6. The government must also play a leading role in creating “sustainability criteria” for cooking energy. This should be done through clear definition of what is sustainable and through policies that regulate the production, distribution and transportation of wood fuels.
7. In oil producing countries, government should allocate a percentage of oil revenue to the expansion of efficient and sustainable cooking fuels.

#### **Financial:**

1. While MFIs are somewhat involved in the distribution and financing of efficient cooking solutions, they can do should be incentivized to do more through provision of energy dedicated loans for them to on-lend as well as training.
2. Different solutions in the cooking space lend themselves to different business models. It is therefore critical to support the appropriate business models. For instance, ceramic jikos work best when locally manufactured at smaller scale and for local dissemination while LPG solutions require massive infrastructure and therefore require significant volumes in order to be cost effective.

#### **Technological:**

1. Both government and private sector should have the opportunity to develop technology as long as it meets basic criteria including affordability, efficiency and suitability.
2. Industry wide technical standards must be established and monitored. The development and NGO community should provide objective testing capability. This testing should in addition to efficiency, also ascertain appropriateness for specific communities.
3. There should be an emphasis on the local production capacity for local cookstoves. Besides production, there should be capacity for repair and maintenance of the same on the local level.
4. Wherever possible and as is the case with Rwanda, the government and other stakeholders should develop a locally appropriate cookstove design that can then be built and disseminated by local artisans. This will ensure affordability as well as appropriateness. An example is given of an imported cook stove that quickly falls into disuse because it is designed for simmering while the community requires a boiling stove.
5. Technology should include substitutes for wood fuel stoves including kerosene, LPG and electricity.

#### **R&D:**

1. R&D resources should be dedicated towards evaluating alternative designs and technology that emphasis more affordable materials such as replacing sheet metal for the ceramic jikos.
2. R&D resources should also be dedicated towards identifying and developing substitutes for wood fuel in addition to making them more efficient.
3. Electricity can be an efficient cooking solution and should be explored even in rural areas were the possibility for mini-grids exists.

4. Since modern energy stoves such as LPG are designed for Western cooking habits (such as cooking while standing), R&D should be carried out to design new stoves using modern fuels that leverage the cooking habits of local populations

**HR:**

1. At the moment, very limited initiatives in institutions of higher learning exist that provide education in the cooking space. There needs to be focused programs at universities, polytechnics and colleges that develop cook stove engineers similar to programs currently developing petroleum engineers.
2. There needs to be emphasis on developing women's capacity to work on building of cookstoves. As primary users, they should play a key role in design of these solutions as they are best placed to know their needs. In exchange, men should then be trained to take on more domestic chores to free up the women's time for this new engagement.

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### **SESSION 3: Mini-grid with telecommunication infrastructure**

#### **Rural electrification with mini-grid solutions: Examining the Rockefeller Foundation Smart Power for Environmentally-sound Economic Development (SPEED) programme in India for adaptation in Africa**

*The Rockefeller Foundation is exploring whether the power needs of the massive and rapidly-growing infrastructure of cell phone towers in India - many of which are far from the electricity grid and powered by expensive diesel fuel - can be harnessed as an anchor demand and source of revenue to help provide clean energy services and universal electrification in poor communities.*

**Institutional/ political:**

1. Construct a National Target for RE and EE and a National RE & EE Development Plan with policies that incentivize Telecom to invest in RE
2. Reduce and ultimately remove VAT/tax for RE and EE products
3. Incentivise the establishment and growth of a domestic manufacturing sector for RE products:
  - a) Eliminate VAT on RE and EE products
  - b) Subsidise construction of PPP enterprise zone/technology park, including an incubation facility for innovation and training facilities
4. Implement a feed-in-tariff for mini-grids to input excess power to national power grids, and allow for transmission of power through the national grid to other private consumers (like mining industry)
5. Strengthen established agencies, like Rural Electrification Agencies, to facilitate dialogue between ESCOs and telecom industry
6. RE waste management policies
7. National standards authority for RE products
8. Reduce and ultimately eliminate kerosene subsidy where there are other efficient and affordable energy sources
9. Provide RE-related information available to public and easily accessible (like grid expansion plan, RE deployment tracker, map telecom towers to communities/economic development and ground water supplies)
10. Other countries should copy Cameroon's policy called:

*National Programme of Participative Development* – The Government simply offers to match 50% of the cost of a development project initiated by a community.

## Financial:

1. Financial Institutions:
  - a) Increase awareness for financial institutions of the opportunities in RE and rural electrification
  - b) Baseline data collection and dissemination on energy consumption, access and expenditure for investor access (and ESCOs) to improve and reduce cost of due diligence
  - c) Create RE fund with innovative financing mechanisms such as soft loans, credit guarantee loans and output-based disbursements
2. Community: explore the most appropriate payment models/systems:
  - a) Power payment system that utilises bartering via cooperatives
  - b) Metering: pay-as-you-go and pay-to-own models incorporating mobile payments and scratch cards
3. ESCO:
  - a) Carbon credits: “icing on the cake” from displacing kerosene use
  - b) Cost-reflective tariffs designed to suit all customers
  - c) Aggregate demand
  - d) Target committed anchor loads from credible customers

## Technological:

1. Analysis of smart grid and smart metering technologies for most appropriate and cost-effective application
2. Develop suitable RE products/equipment that are appropriate to the context (eg size, raw materials) and create a process for replication across geographies
3. Integrate power technology for different end-usages and support the integration of hybrid technologies
4. Transfer of technology and knowledge in to a local maintenance facility/service
5. Create a network of RE enterprises for information-sharing on best practices and co-operative pricing power

## R&D:

1. Support and facilitate the R&D process for enterprises within a PPP, e.g. the Technopark in Casablanca, Morocco
2. Map opportunities at intersection of telecom tower locations, community demand and economic activities
3. Enable proof of concept in the field utilising innovative financing where required

## HR:

1. RE training in schools with local operators and NGOs/youth groups
  2. Encourage rural community development through cooperative business models
  3. E-learning and mobile/outreach training programs
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## **SESSION 4: Affordable energy through Renewables**

### **Access to affordable energy by switching from fossil fuel to renewable energy production as demonstrated by the Cape Verde Islands**

*The Cape Verde Islands are defined by energy poverty since electricity is unaffordable to many due to an extremely high cost of importation of diesel for electricity production. The Cape Verdean government introduced a set of measures to achieve a ratio of 50 % renewable energy production in ten years (wind and solar PV). The aim is to become independent of fossil fuel imports, to enable affordable access to electricity to their citizens and to become a knowledge hub for West Africa.*

#### **Institutional/ political:**

1. Develop social tariffs to benefit the poor;
2. Create rural electrification funds with clear guidelines for accessing funds, including investments in grid extensions, mini-grids, remote systems and tariff regimes;
3. National governments should be encouraged to pass RE laws that include minimum targets for RE&EE and a broad range of measures and incentives, e.g. import and duty waivers, net metering;
4. National governments should be encouraged to develop detailed RE investment plans;
5. The capacity of national energy ministries should be strengthened, particularly in strategic energy planning that is based on local conditions and realities;
6. National policies should make it mandatory for RE&EE measures to be integrated in urban development.
7. National governments should be encouraged to increase budgetary allocation for energy infrastructure projects.
8. Cape Verde produced a thorough renewable energy atlas covering all islands and all technologies. This atlas serves as a valuable entry document for potential project developers.
9. After this mapping process the government reserved the most suitable pieces of land for RE development and prohibited any other construction or development on it.

#### **Financial:**

1. National governments should provide warranty funds to development banks and micro-credit organisations to enable them extend credit lines for stand-alone RE systems;
2. Encourage banks to include RE products in their loan portfolios;
3. Governments should be encouraged to utilise the CDM and other carbon financing to leverage investment costs;
4. Encourage the creation of diaspora funds targetted at RE investment.
5. Promote large scale projects to take advantage of economies of scale.

#### **Technological:**

1. Encourage the use of local energy resources;
2. Ensure the standardization and quality assurance mechanisms for local manufacturing and foreign imports;
3. Promote local participation in RE investments and deployment;

**R&D:**

1. Facilitate interaction between R&D institutions and entrepreneurs/manufacturers to define relevant research needs and secure necessary funding, internships, fellowships;
2. Encourage increased south-south and north-south partnerships, exchange of ideas.
3. Ensure the protection of intellectual property rights to promote innovation.

**HR:**

1. Establish networks of training institutions to cater for diverse groups;
  2. Integrate energy studies with emphasis on RE&EE into the curriculum;
  3. Encourage the participation of Africans in the diaspora in the RE sector;
  4. Ensure industry certifications for technicians in the field, thus creating a competent workforce to install and maintain RE systems;
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## **VOTE OF THANKS**

THE PARTICIPANTS AT THE *ACCESS TO SUSTAINABLE RENEWABLE ENERGY IN AFRICA AS PREREQUISIT FOR THE MDGs* CONFERENCE HEREBY EXPRESS THEIR SINCERE APPRECIATION TO THE GOVERNMENT OF ITALY, THE WORLD FUTURE COUNCIL, AND THE ROCKEFELLER FOUNDATION FOR THE CORDIAL AND WARM HOSPITALITY ACCORDED THEM DURING THEIR STAY AND ESPECIALLY THE EXCELLENT WORKING CONDITIONS THAT FACILITATED THE SUCCESS OF THEIR MEETING.

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