



REPUBLIC OF MOÇAMBIQUE
MINISTRY OF ENERGY

' Bioenergy in a globalized world: perspectives and barriers on the bioenergy emerging market '

Presentation
by

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Viterbo - Italy

14 of February, 2008



INTRODUCTION

- The challenge of energy security and sustainability around the world today calls for concerted efforts at all levels (national, regional and international) with a view to identifying and developing alternative options for energy supply;
- African countries, whether oil importers or exporters, are severely affected by the volatility of the international oil prices;
- Both the developed and developing countries are equally affected by the negative impact of the GHG emissions;
- It is imperative and urgent to accelerate the diversification of the energy matrix, with impact on energy security.



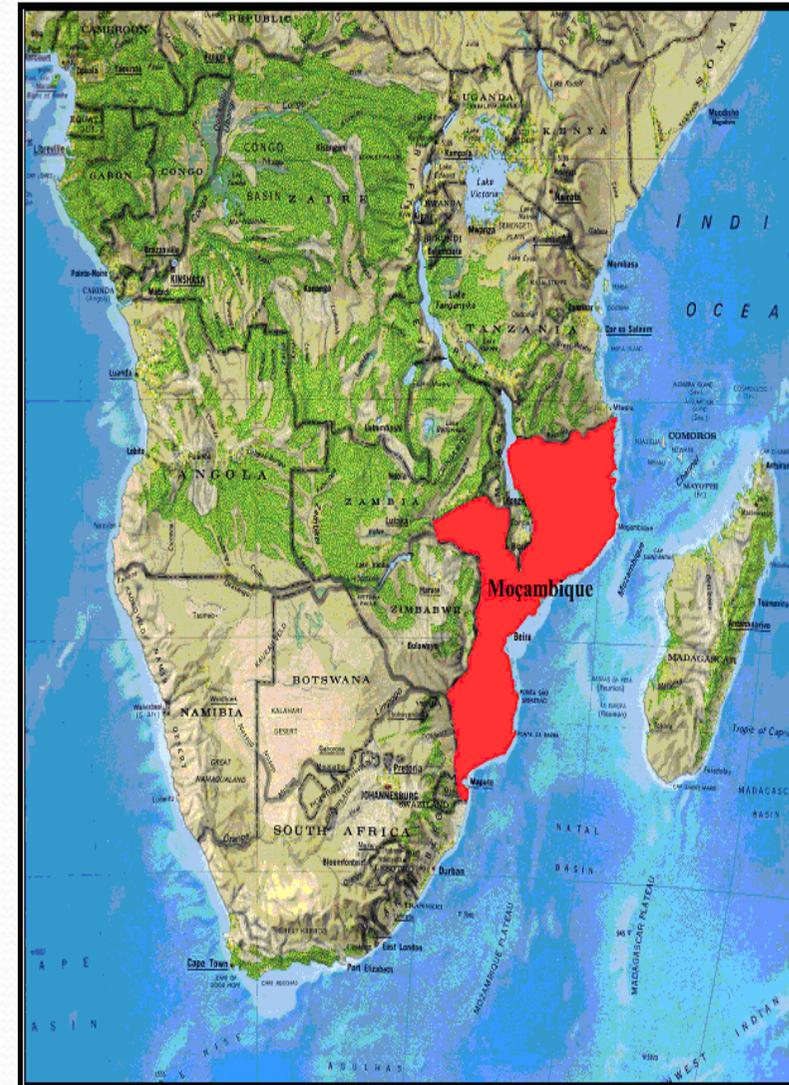
INTRODUCTION (cont)

- In Africa there is abundance of energy resources. However, most of these resources are currently either under-exploited or exported without benefiting the vast majority of Africa's citizens;
- Many African countries become vulnerable, facing the dilemma of importing petroleum products at higher prices, and even the shortage of fuels;
- Mozambique as a net oil importing country, with an annual consumption of 700 000 m³ of petroleum products, is highly dependent on the international oil market conditions and has been severely hit in global economic terms, as well as in terms of the negative impact on the poor;

MOZAMBIQUE



- Location: South-Eastern Africa;
- Total area: 800,000 km² and common border with 6 countries;
- Coastline: 2,500 Km;
- Population: 19 million (2006);
- Privileged location within SADC regional market, a free trade area from 2008;
- The existence of a significant number of infrastructures and facilities suited to serve neighbouring countries such as deep water ports, railways, roads and pipelines.



POLICY ISSUES



The decision to embark on the promotion of the production and use of bio-fuels was based upon our perception of the benefits to be derived from them, such as:

- i. Their use in gradual blending with fossil fuels, with minimal or no technological adaptation of the equipment, allowing for:**
 - a. Gradual replacement of fossil fuels;**
 - b. Positive effects in reduction of imports and Balance of Payment improvement (annual fuel import bill represents 14% of total exports and 11% of total imports);**
 - c. Reduction of dependency on imported fossil fuels;**
- ii. They are labour intensive, and can generate agricultural and agro-industrial employment, self-employment, and income, particularly in rural areas where the incidence of poverty is highest;**



POLICY ISSUES (cont)

- iii. They provide a response to our National Agenda of Poverty Alleviation (PARPA II), particularly in rural areas, at the same time that they give response to high, unpredictable and unstable oil prices on the international market;

- iv. They provide an opportunity for taking advantage of the large and fast growing regional market for liquid fuels, including bio-fuels; it is worth noting the high level of consumption of liquid fuels in the SADC region (in South Africa alone 10.4 million m³/annum);

POLICY ISSUES (cont)



- v. Also take advantage of the identified bio-fuels markets in certain European countries, particularly for bio-ethanol;
- vi. They provide an opportunity to employ our abundant and highly disciplined labour, mainly in production of bio-fuels raw materials, in particular *Jatropha Curcas*;
- vii. Make use of our enormous water resources for the production of bio-fuels raw materials (specially ethanol);

POLICY ISSUES (cont)



- viii. Make use of the 41.2 million hectares of marginal land to produce crops like *Jatropha Curcas*, providing our rural population with an opportunity to generate income out of a land that did not produce anything at all, without threatening food production and food security;

- ix. Take advantage of our extremely favourable climatic conditions to develop a sound bio-fuels programme in the country. We are endowed with climatic conditions that are similar to Brazil, one of the largest bio-fuels producing countries in the world;



POLICY ISSUES (cont)

- x. They represent an opportunity to promote the development and use of our existing infrastructures and facilities, including deep water ports, railways, roads and pipelines, which are adequate for the supply of liquid fuels, including bio-fuels to the neighboring countries which represents a market of more than 250 million inhabitants;

- xi. They provide an opportunity to make use of the existing storage capacity for domestic and export markets, as well as making the new investments which are taking place in this area more viable, namely the construction of a new pipeline to link the Maputo harbour to Witbank in South Africa;

DEVELOPMENT APPROACH



Our approach to the development of the bio-fuels programme in Mozambique is based on the following four pillars:

- i. The involvement of the private sector alone or in public-private partnerships (PPP);
- ii. The encouragement of cross-sectoral cooperation in Mozambique through the strengthening of the existing inter-institutional framework comprising ME (coordinator), MINAG, MCT, MIC, MICOA, Universities, Banks, NGOs and the civil society at large; the inter-institutional mechanism operates at both Ministerial and technical levels;



DEVELOPMENT APPROACH (cont)

- iii. The cooperation with development partners from whom we expect the assistance in:
 - a. Attracting investments, including through the support to their own companies willing to invest in bio-fuels in Mozambique;
 - b. Developing the required legal and regulatory framework for a sound bio-fuels production programme in Mozambique;
 - c. Institutional capacity-building in order to meet the challenges of the implementation of a programme of this magnitude;



DEVELOPMENT APPROACH (cont)

- iv. The deployment of the Kyoto Protocol mechanisms and other instruments, with a view to stimulating a rapid development of bio-fuels in terms of both production and use, and contribute to the effective reduction of Green House Gas (GHG) emissions in the world, being bio-fuels a clean source of energy;

The Government of Mozambique has already adopted preliminary regulation to foster large-scale production of bio-fuels for domestic consumption and exports, including the gradual introduction of blending of gasoline with ethanol and bio-diesel with fossil diesel, initially, at 5 - 10%.

WORK IN PROGRESS



- The GoM has launched study on bio-fuels to be under taken in two phases namely:
Phase I - Technical Assessment of Economic, Social and Environmental Sustainability, which include:
 - i. The evaluation of the market potential for liquid bio-fuels (both domestic and export);
 - ii. The identification of key different feedstock for the production of bio-fuels;
 - iii. The estimation of comparative production costs and environmental sustainability of different liquid bio-fuels in relation to liquid fossil fuels and LPG;
 - iv. The identification of the key issues to be resolved in order to promote a sound bio-fuels production programme in Mozambique.



WORK IN PROGRESS (cont)

Phase II - Design of a National Bio-fuels Policy and Implementation Strategy, which includes:

- i. The design of a National Bio-fuels (bio-ethanol and bio-diesel) Policy proposal for Mozambique, covering all the issues identified in the previous phase;
- ii. The design of the National Bio-fuels Strategy, with the emphasis on social and environmental dimensions;
- iii. Assist the GoM in bio-fuels policy implementation, with the involvement of all relevant stakeholders.

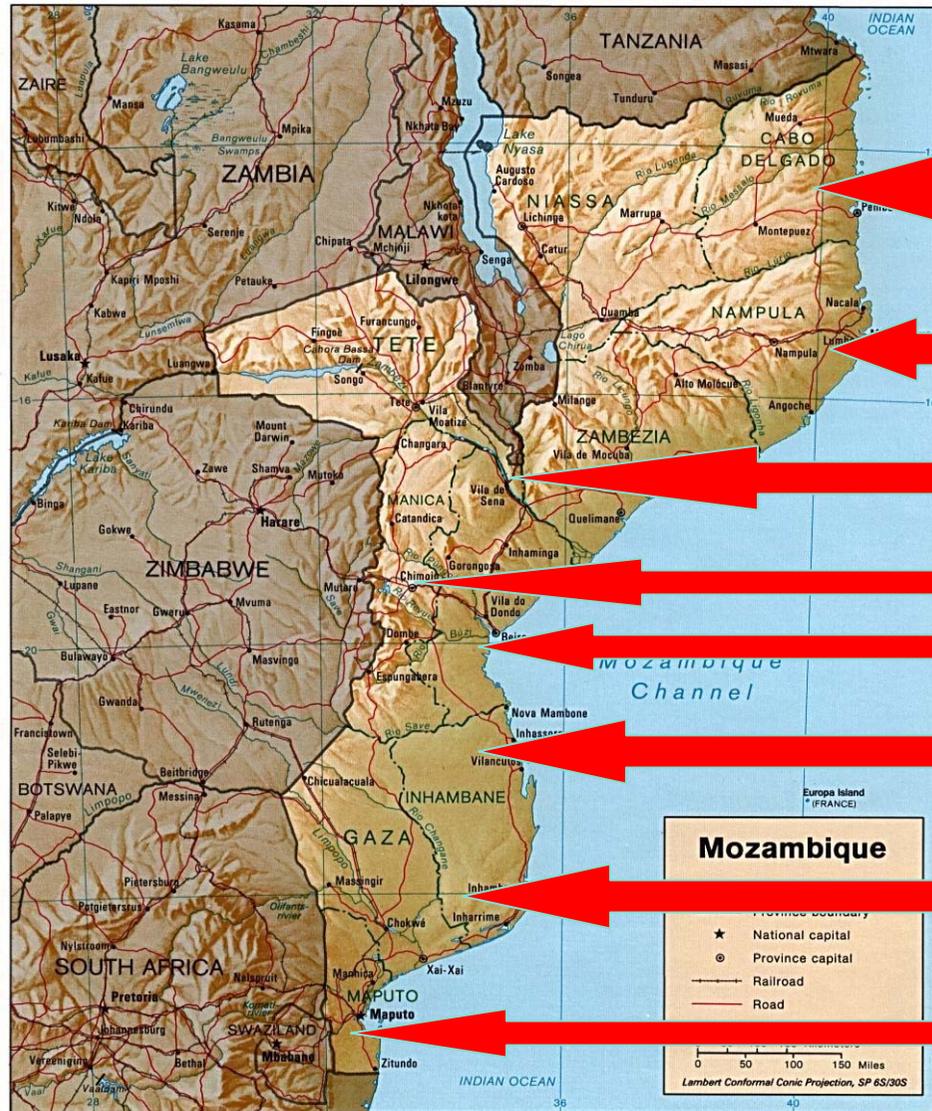


WORK IN PROGRESS (cont)

- Land mapping is ongoing to provide the GoM the right picture on the availability of land for different purpose;
- A regulation for land allocation for big project on biofuels is under development to be submitted soon to the Cabinet;
- Sustainable criteria is under discussion.



WORK IN PROGRESS (cont)



Some Projects Location

Sugar cane production(100,000 ha)

Soya bean, Sunflower, Jatropha, Biodiesel plant

Sweet sorgan & Sugar cane production

Jatropha Cultivation

Jatropha Cultivation

Coconut & Jatropha Cultivation, Biodiesel plant

Sugar cane production & bioethanol plant(120m l/year)

Biodiesel plant (40m l/year)

WORK IN PROGRESS (cont)



The experience so far is very encouraging as we see a number of activities already taking place, namely:

- i. 11 (eleven) raw material production commercial projects are underway (excluding the family-size and small farms);
- ii. 7 (seven) bio-diesel production commercial pilot projects underway;
- iii. 4 (four) bio-ethanol production commercial pilot projects;
- iv. 8 (eight) project requests awaiting approval;
- v. If all land requests for bio-fuels production had been authorized so far, we would be at the level of more than 5 million hectares of land allocation for this purpose alone, in less than two years! It is important to recall that out the 36 million hectares of arable land in Mozambique, only 5 million were being used until two years ago!



Existing Infrastructure and Facilities



Infrastructure already in place

Nacala Corridor (roads, railway, natural depth sea port)

Beira Corridor (roads, railway, pipeline, port)

Maputo Corridor (roads, railway, pipeline under construction, port)

CHALLENGES



The major challenges in terms of land allocation can be summarised as follows:

- i. How to monitor the process in order to make sure that all the land allocated is being used in accordance with the purpose it was requested for;
- ii. How ensure an adequate balance between bio-fuels production and food production, with a view to preventing the excessive development of single crops (monocultures), and the occurrence of systemic food shortage and chronic food insecurity;
- iii. How to ensure the correct allocation of land for bio-fuels production when certain requests coincide with entire geographical areas or administrative territorial units (ex: entire district or set of districts);
- iv. How to secure the sources and availability of fertilizers at affordable prices, especially for the small and family-sized farmers, which is where this issue entirely relates to the African Green Revolution; in essence, the challenge is how to implement, in the letter and spirit, our Heads of State and Government's decision taken in Abuja in this regard.

CONCLUSION



- The “work in progress” approach provides the Govt a open room for a continuous improvement and consolidation of the programme;
- The potential for large scale bio-fuel production in Mozambique is enormous and needs to be exploited;
- The GoM is strongly committed to the success of this programme at the highest political leadership;
- Excellent investment climate, with adequate incentives and guaranties;



CONCLUSION

- Peace, political and macro-economic stability and democracy prevail and are strengthening;
- Excellent natural climatic conditions for the production of bio-fuels raw materials;
- Large and fast growing regional markets for liquid fuels, including bio-fuels.



THANK YOU!

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