

December 15 & 16, 2008
Kingston, Jamaica

“FORMULATING PUBLIC POLICIES FOR BIOFUELS”

Report of the Biofuels Workshop



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1. About the Workshop

Jamaica has decided to define a public policy for Biofuels which would take into account all sectors and aspects in an integral and comprehensive way. The Economic Commission of Latin America and the Caribbean (ECLAC) is leading the Programme "Environment Policies and Integral Management for sustainable development". The programme is financed by the German technical cooperation agency GTZ. The intention is to contribute to the application of new concepts and instruments for sustainable environment policies and natural resources management of its member countries, offering training programmes and technical assistance missions for energetic efficiency and the development of bioenergetics, especially biofuels.

ECLAC's Division of Sustainable Development and Infrastructure has been cooperating with the Ministry of Energy for several years. The workshop on Biofuels Policy was conducted on 15th and 16th of December in Kingston. It was organized by the Ministry of Energy with the Petroleum Company of Jamaica (PCJ) and is part of ECLAC's long-term support to Jamaica.

1.1. Participants

Though developing biofuels attracts and also requires the involvement of a great variety of actors, the participative working method made it necessary to restrict the number of participants. Nevertheless, twenty six (26) policy makers participated in the workshop, though not all of them could be present all the time (see List of Participants and List of Presenters in annexes 9 & 10). There was a strong representation of the energy sector with eight representatives of the Ministry of Energy, including the Minister of Jamaica and six of PCJ. Also present were the Minister of Agriculture and Lands and representatives from the Ministry of Transport and Works, the Office of the Prime Minister and Jamaica Trade and Invest. On the second day of the workshop, the Ministry of Agriculture and Lands sent one representative, whose input to the policy formulation was extremely relevant.

The biofuels policy implementation faces many challenges and the active integration and participation of the agricultural sector is of the utmost importance.

The international interest and support towards the Jamaican biofuels projects was demonstrated by the ECLAC team which included the Chief of the Energy Unit – who is the coordinator of the Environment Policies and Integral Management for Sustainable Development Programme, the Chief of the Sustainable Energy Unit, an international expert and a specialist in ZOPP facilitation. CARICOM's Energy Unit and the GTZ were also represented.

- The progressive construction of the policy considering its many aspects and building it up step by step, each one based on the previous analysis made by the participants. The contents dealt with are specially adapted to the case of biofuels.
- A participative working method that incentivizes an active exchange of ideas and a permanent negotiation of interests by the represented actors.

Its main characteristics are:

The method applied for the design of the biofuels policy is intended to consider the great complexity of this multi-sectoral cause that involves such a variety of actors and interests. It was originally developed by ECLAC, together with OLADE and the German Cooperation Agency GTZ as an adaptation of the ZOPP project planning method, and has been improved and complemented with the instrument "table of command", a kind of balanced scorecard especially designed for biofuels. The method is still being adapted to the different situations and needs of Latin American and the Caribbean.

1.4. ECLAC's planning method

The workshop's title "Formulating Public Policies for Biofuels" indicated its aim to be a milestone in beginning the Jamaican formulation of the biofuels policy, with emphasis on bioethanol. It also was part of ECLAC's training in the formulation of biofuels policies for Latin America, which started for the Caribbean region in 2007, with an international workshop in Trinidad and Tobago.

1.3. Expectations

The workshop lasted for two days. In the morning of the first day, participants observed a very interesting and supportive Opening Ceremony and two technical presentations about biofuels. The time to develop the policy formulation was restricted to one and a half days. The participants made the most of it working in a very productive way; nevertheless, and as foreseen by the organizers, the contents had to be prioritized and the method could not be displayed as a whole. As a result, the completion of the Jamaican Biofuels Policy is one of the first tasks to be completed after the workshop. According to the participant's evaluation at the end of the meeting, the short time to develop methodology was one of the aspects to be improved. The workshop programme can be found in annex 11.

1.2. Programme

He said that the environment to attract private investment has to be created, as it is not possible to rely on government investment only. He acknowledged ECLAC's support and Professor Horta's expertise as a valuable contribution to a challenging task. He asserted his belief in Jamaica's capacity to become the Caribbean pioneer in the efficient production of bioethanol.

- assess carbon reduction potentials, under the CDM methodology.
 - develop impact indicators to measure performance and
 - define process and logistics;
 - provide adequate regulations, that enhance the energy mix and production prices;
- actual situation and the needs of the Jamaican biofuels sector he stated the need to:

half years, it would not affect the decision to introduce biofuels. In his extensive analysis of the prices of petroleum to be a temporary situation; and if this does not last for more than one and a purpose. His ministry's aim is to promote sustainable energy. He considered the actual low

Hon. Clive Mullings, MP, Minister of Energy, declared the importance of the meeting and its

Hon. Christopher Tufton, MP, Minister of Agriculture, affirmed his ministry's interest in the transformation of the sugar cane industry, always ensuring and protecting food security. He expressed his support for the substitution of petroleum by ethanol, aiming at 10% of the energy needs met with alternative energy in 2010 and 15% in 2015. He offered the Centre of Excellence for Advanced Agriculture to be a part of the Biofuels thrust from 2009 onwards. The research should have a dual objective: the protection of the environment and the identification of productivity enhancing factors like appropriate crops and harvesting methods. He welcomed the opportunity to build a partnership between agriculture and energy in the global move towards energy from plant resources.

The opening ceremony and the presentations on the morning of the first day gave an optimistic setting to the work to be done.

2. Openings and Presentations

The workshop was well organized by Mrs. Denise Tuilloch of PCJ and Mrs. Yvonne Barrett-Edwards of the Ministry of Energy who were strongly supported by the Ministry of Energy's authorities and ECLAC's Energy Unit and relied on the efficient assistance of Miss Felicia Whyte and Ms. Marcia Browne.

1.5. Organisational Aspects

- The participants' documentation of the ideas, arguments and decisions taken is set up by themselves by writing their opinions on cards reproduced textually in the annexes of the present report.
- The conduction by a neutral and expert facilitator.

Dr. Jean Dixon, Permanent Secretary, Ministry of Energy, reminded of the advances already made in the biofuels regulatory sector, especially with the launching of ten percent ethanol in gasoline (E-10). The cooperation between the Jamaican Government and ECLAC in sustainable energy started in 2005 with the publication "Renewable Energies Potential in Jamaica"; a new research "Energy Efficiency Potential in Jamaica" is to be published in 2009. There also has been collaboration with the Centre of Excellence for Renewable Energy (CERE). She informed that a regular working group has been created, looking for synergy of ministries, other sectorial public institutions and the private sector. In her opinion, the Brazilian experience can be followed, as the international demand has been created and, provided that Jamaica manage potential production costs, biofuels can reduce the dependence on imported oil. She stated that the support given by both the Minister of Agriculture and the Minister of Energy represented an opportunity for the biofuels programme.

Professor Luiz Alberto Horta, international biofuel specialist and Professor at the University of Itajuba invited by ECLAC, emphasized in his presentation the impressive productivity improvement of Brazil's sugar cane sector, achieving an extremely efficient and low cost bioethanol production both in agricultural and industrial terms. In his opinion, Jamaica is in a very favourable position, having the chance to become a successful example for other countries in the region. Professor Horta's presentation was made available to the workshop organisers in the Ministry of Energy and PCL.

Manlio Coviello, Chief of ECLAC's Energy Unit, remembered the biofuels cooperation with Jamaica from 2003 onwards. It is part of ECLAC's mission to "Support the Region in designing and implementing "integrated" public policies for the sustainable development of indigenous energy resources", including biofuels. He made a brief presentation of ECLAC's methodological approach. Priority subjects for the regional energy policy agenda are:

- the access of the poor population to essential energy requirements,
- the difficulties in financing investments in energy infrastructure and in guaranteeing supply,
- the increase in energy efficiency within the scenario of conversion centers and of final consumption,
- the use of local energy to diversify the energy matrix and
- the energy integration.

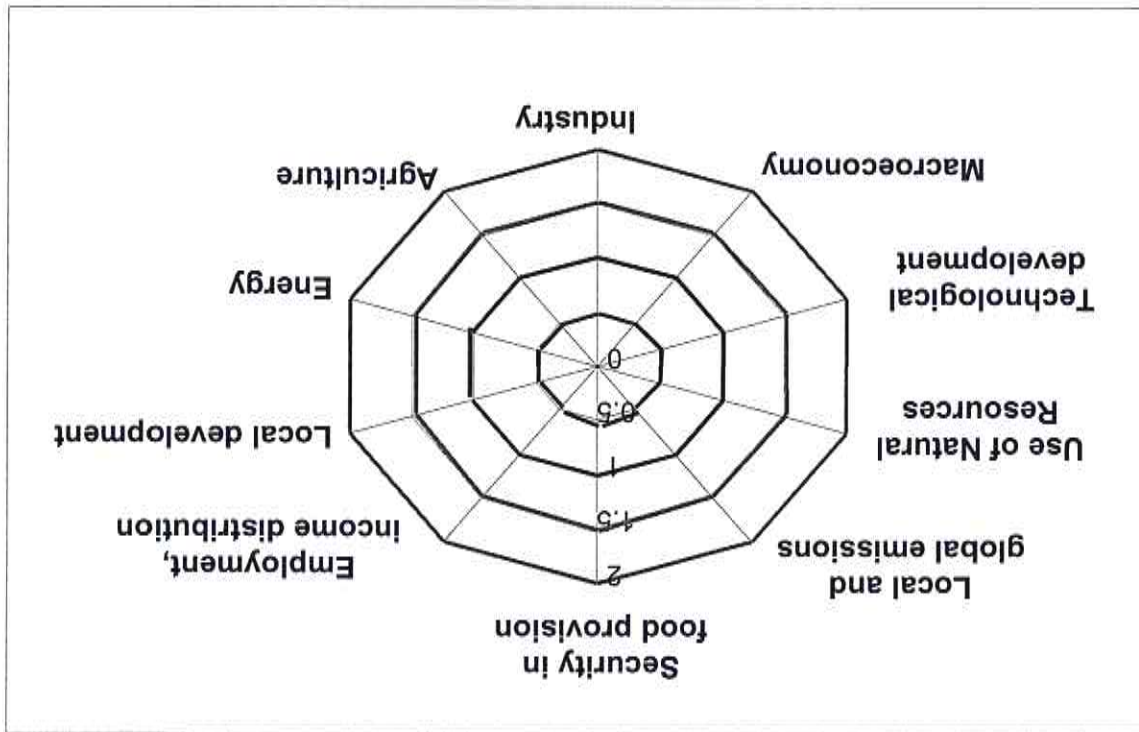
Government has a role in defining the process, the goals and the logistics for the adoption of biofuels. Important governmental tasks are to: (a) establish the regulatory framework, (b) analyze the compatibility between the proposed mix and the potential production of biofuels and (c) analyze the relation between demand and the impact on relative prices of raw materials.

Mr. Coviello stressed the importance of establishing performance indicators for biofuels and capturing possible environmental externalities. A biofuels policy has to consider different dimensions, represented in the spider web shown on the following page. In his final remarks, Mr. Coviello showed the energy efficiency improvement opportunities given by the high Jamaican energy consumption per capita, which in Latin America and the Caribbean is surpassed only by three petroleum producing countries: Venezuela, Mexico and Trinidad and Tobago.

The literal transcription of the perceived challenges can be read in annex 2. The analysis of challenges is a very convenient step to repeat in further conversations with each sector, and

now by continuous production. The existing sugar cane plantations should not be more environmentally affected than they are factors have to be considered, though the more efficient technologies include this dimension and to work on technical capacity building, both in agriculture and in the sugar sector. Environmental biofuels development viable, and therefore have to be strengthened further. It will be necessary institutional coordination and cooperation among different sectors are the basis which will make to the agricultural and the business dimensions, as well as to the socio-cultural dimension. brainstorming, the analysis of the participants' contributions showed that the main concerns refer more time is available, this characterization can be done in a more complex way, distinguishing between the definition of the main problem, its causes and its main manifestations. After a characterizing the actual situation in which to intervene and the elements to consider. When the first step of the participative policy formulation is a diagnosis of challenges and concerns,

3. Main Challenges to implement the Biofuels Policy in Jamaica



Policy Dimensions for Biofuels

its main weaknesses are: that some independent retailers were unable and/or unwilling to fund infrastructure changes for the E10 product, as there is scepticism of financiers lending for

Business main strengths are: for the internal market, the E10 Rollout Project and its political consensus, as well as the existence of three well-established firms in ethanol dehydration. For the external market, the proximity to US market and the European Union incentives and the technical assistance from regional institutions (ECLAC, CARICOM).

4.2. Business

Among the opportunities mentioned are: Idle lands and the declining sugar market; improved and new technologies and developments – the capacity for increased productivity assisted by regional expertise and breeding stations; the possibility of gaining energy efficiency at the factories and selling excess electricity to the grid. The volatility in oil prices is an opportunity but can also be considered a threat.

Some of the detected threats are: the potential loss of unskilled jobs because of mechanization; the existence of possible antagonists – Lobby groups; the food security challenge and severe climate changes e.g. hurricanes.

Its main weaknesses are the depletion of soil due to cultivation of land; and a general need to improve land use policy and enhance its actual method of harvesting crop; the lack of adequate infrastructure and efficient sugar production facilities; as well as the shortage of skilled labour.

Agriculture's main strengths are resources and climate, the over 300 years of know-how on sugar cultivation; the availability of plantation workers and the existing institutions and agencies.

4.1. Agriculture

To allow a deeper approach by the participants, each dimension should undergo an analysis of its strengths and weaknesses (internal aspects) and its opportunities and threats (external aspects). The classical SWOT brings up relevant information which helps to identify main strategic lines of the policy. The analysis made in the workshop can be found in annex 3.

4. Coming closer: SWOT Analysis of two Sectors

After the analysis of challenges, taking into account their relevance and need to make progress, the participants chose two dimensions - agriculture and business - to continue the methodological development. The definitive formulation of the biofuels policy will require the application of the same methodological steps in all dimensions.

especially with agriculture, as a starting point to identify their concerns and establish prioritized collaboration agreements.

projects which have not been fully proven; the capital costs of biofuels production are relatively high; there is a lack of appropriate public-private partnerships and resistance from some of the large marketing (oil) companies.

Some of the detected threats are: the privatization of sugar assets; potential interference from petroleum suppliers; the lack of Public "buy-in"; the potential inability to meet market demand and the complaints from users of E-10.

Among the opportunities mentioned are: Possible financial resources via CDM; CBI market access; the carbon trading incentives to boost infrastructure; and the possibility to create a new regulatory framework and fiscal incentives. Other opportunities are a potential new local market for sugarcane, the tri-lateral agreement (Brazil-Jamaica-USA), social partnerships and also the possible privatization of sugar assets to improve productivity and profitability.

5. Relevant Actors for the Jamaican Biofuels Policy

Biofuels is a very complex subject that needs the synergic performance of many different organisations, public and private, often with antagonizing interests. All stakeholders should be involved in the process, as the policy has to include a feasible strategy.

In the workshop, the participants were invited to list the main actors related to the studied sector (see annex 4). The orthodox method includes two further actors' analysis. However, the time to develop the policy formulation was restricted to one and a half days. The participants made the most of the time working in a very productive way; nevertheless, and as foreseen by the organizers, the contents had to be prioritized and the method could not be displayed as a whole. First, a Reaction Matrix intended to forecast the different actors' reaction to the pretended policy objectives and instruments. Second, a Conflictivity Matrix, which estimates the attitude among the actors – alliance, conflict, indifference. Both steps allow policy makers to prevent difficulties amending the proposed strategy before public launching.

6. Formulating the Jamaican Biofuels Policy

Following the steps, the participants produced an element of the biofuels policy. The results of their work clearly show strategic orientation and main lines to continue developing. The draft of the Biofuels Policy element discussed can be found in annex 5.

6.1. Bioethanol and Biodiesel

Obviously, Jamaica's biofuels policy intends to include both biodiesel and bioethanol, however there is an emphasis on bioethanol regulation, legislation and production, which has more comparative advantages than biodiesel.

6.2. Goal of the Bioethanol Policy

The goal of the bioethanol policy element was defined as

To satisfy the E-10 demand in the transport sector by 2012 through the production of ethanol from locally grown sugarcane and the modernization of the sugarcane agro-industry.

The goal indicates important strategic decisions: First, bioethanol production is directed towards petroleum substitution in the national market, and specifically in the transport sector. Secondly, it shall give new impulse to locally grown sugarcane and on the other hand help to modernize the sugarcane agro-industry. These decisions set out the strategic lines and the instruments used to implement the policy.

As defined by the participants, the Jamaican Bioethanol Policy shall contribute to:

- Improved environmental sustainability via reduction in greenhouse gas emissions.
- Reduced imports of petroleum products, diminishing foreign exchange committed for oil imports.
- Diversified the energy mix.
- Converted sugar companies into power companies –Cogeneration (MW) for electricity sector, and litres of ethanol for transport.
- Increased agricultural earnings from ethanol.
- Modernized agricultural engineering, to include the mechanization of the harvesting process, thereby probably reducing employment of the sugar cane workers.

The policy is intended to focus on improving the quality of life in rural communities through improved income generation.

In the close future, policy impact indicators must be established to stir the implementation process and capture intended positive or nonintended negative externalities.

For further design of the biofuels policy, the information of the SWOT analysis in each dimension is channelled into a few main strategic lines. The strategic lines are implemented by policy instruments identified to accomplish them. As facilitator and coordinator of the whole process, developing and putting into practice proper policy instruments is the main work of the public sector. A detailed work plan with the main tasks, responsibilities and timetable, as well as the definition of coordination mechanisms for the whole process, set out the following steps of policy formulation.

6.3. Agricultural Sector

The agricultural sector is extremely important for the biofuels programme, its active involvement is essential for success. With the participation of the Ministry of Agriculture representative, five necessary strategic lines were identified:

- Increase investment to support minimum production of 3.5 million tones of cane.
- Foster research and development into new cane varieties and production systems.
- Modify and promote more efficient irrigation and fertilization systems.
- Promote green cane harvesting and mechanization.
- Develop pool of skilled labour

The Bioethanol Policy goal and these strategic lines need to be validated with the Minister of Agriculture and shared eventually with all the agencies involved in the agricultural sector. An agreed action plan with clear responsibilities will pave the way to reach the defined policy goal.

6.4. Business Sector

Provided the adequate context for investment can be created, the business sector might become one of the main motor of the biofuels policy.

Inspired by the Brazilian experience shared by Professor Horta, two main strategic lines were established:

- Promote more efficient processing plants and attract significant investment through Public-Private partnerships.
 - Promote the use of efficient conversion technologies to reduce production costs
 - Promote re-use of by-products.
 - Promote cogeneration (electricity)
- Provide an appropriate pricing regime/policy for sugarcane to act as an incentive for a multi-product industry.

Several instruments will allow these strategic lines to be realized:

- A Plant Privatization Programme
- Energy Audits in the existing sugarcane industry
- A benchmarking exercise of the industry
- Financial instruments like low interest loans
- Tax credits tied to efficiency targets.
- The trilateral agreements with USA-Brazil can supply several inputs, like know-how and technical assistance
- Investors promotion by a report and the organisation of an investors fair
- A new Pricing Agreement in the context of the already existing Social Partnership among government, private sector and labour representatives (MOU)

The business sector also needs a deeper analysis of the means to implement its strategic lines as well as a shared work plan to organize the active participation of its actors.

6.5. Other Sectors

Strategic lines were also defined for other dimensions as follows:

Regarding the **Socio-cultural Dimension**, the need to counteract the spread of misleading information about biofuels and to inform public opinion and specialized agents led to define the strategic line to "Prepare marketing materials to highlight strengths and opportunities".

Another idea was to "Develop the heritage tourism potential of the sugar industry", building up a sugar cane museum and a sugar cane tour, directed both to Jamaican people and to tourists.

As participants pointed out, the challenges of the **Technical Dimension** are set out in both the Business Dimension for the sugar cane agro-industry and the Agricultural Dimension for the improvement of crops, harvesting techniques, fertilization etc. The complementary strategic line to "promote multidisciplinary research into biofuels" was defined.

The **Institutional Dimension**, setting the ground for coordination of the Biofuels Programme in which two extremely relevant strategic lines were defined:

"Establish a new Governance Structure:

- Design/Adapt modernized sugarcane industry.

- Framework/Institutions".

"Implement a monitoring and evaluation system for the ethanol programme". The completion of the work plan and the development of indicators and Performance targets (2010 – 2020) are part of this strategic line.

7. Next Steps

As the workshop is only the beginning – or continuation – of the formulation of the Biofuels Policy, the opportunity of having participants of different institutions had to be taken to define the next steps. The immediate work plan can be seen in annex 6.

7.1. Immediate Work Plan

The focus of the short term work plan is to finish the Biofuels Policy document. After some discussion, it was decided to gather momentum and make an effort to prepare the first draft of the document for the end of January, thus sending the final draft to Cabinet at the end of April. The elaboration process will require much inter-institutional work; the coordinating team was promised support both in technical and in administrative aspects.

7.2. Implementation

As Permanent Secretary, Dr. Jean Dixon stated at the end of the workshop, the work target is not the Biofuels Policy Paper in itself, but the effective performing of the measures it contains in order to accomplish the goal and contribute to the positive impact intended. To avoid the danger of concentrating all efforts on a long and possibly unproductive formulation process, inter-institutional coordination teams at different levels – Ministerial, Technical, Senior professional, others – should be established. For general coordination of the implementation programme, low profile, efficient and inclusive leadership is required to assist both the level of policy decision taking and the executing level and its many agents. First steps should be put into action immediately and clear and feasible short term results must be shown to incentivize the process. Effective communication at all levels will play an integral role in the development of the policy.

The different sectoral or dimensional works should be covered by specific teams (Research Team, Business Team etc.). It is always constructive to include representatives of all the stakeholders in planning initiatives.

The task is complex and challenging, support will be needed. In its permanent aim to support the Jamaican Government in the design and implementation of a national biofuels policy, ECLAC proposed a technical assistance mission in March or April to contribute with technical standards and regulatory matters. CARICOM also offered its collaboration.

8. Workshop Evaluation

Asked for feedback about the workshop, the participants mentioned as positives the active interaction and the participatory process. Also the goal-oriented methodology and its structured approach to policy formulation were enhanced as an asset to be incorporated at various workplaces. The involvement of the Ministers was emphasized.

As to areas for improvement, it was underlined that key persons should be at the entire workshop. More participation of the Ministry of Agriculture would have been needed. The lack of time was also mentioned, as it was felt that two days were insufficient to address the methodology and cover all the elements. The organizers had considered this from the beginning and decided that in spite of the reduced time it would be good to start the formulation process.

The general evaluation was very positive; the workshop results were considered an important step towards the formulation of an integral and comprehensive Biofuels Policy where different involved sectors can join forces for improved environmental sustainability and agricultural and industrial modernization.

Annex 1: Expectations

Expectations of the Biofuels Policy Workshop.

Name	Expectations of Workshop
Paulette Kolbusch	<ul style="list-style-type: none"> • Policy issues within a workable framework on biofuels for Jamaica. • Linkages identified in agriculture, land use, risks and impacts on the environment.
Clive Mullings	<ul style="list-style-type: none"> • Policy solutions.
Monifa Blake	<ul style="list-style-type: none"> • The identification of the policy issues and a look at how we will move towards making Jamaica fossil fuel free.
Sandra Braimbridge	<ul style="list-style-type: none"> • Effective policies on biofuels in Jamaica. (Biofuels and conservation).
Denise Tulloch	<ul style="list-style-type: none"> • Look at land use planning and environmental sustainability. • To clarify the performance goals of Jamaica's biofuels programme.
Kemorine Myers	<ul style="list-style-type: none"> • Strategies that are being implemented to facilitate the incorporation of biofuels in Jamaica. • Feasibility of biofuels in Jamaica.
Hopeton Fraser	<ul style="list-style-type: none"> • Develop biofuels industry using locally produced feedstock.
Robert Kerr	<ul style="list-style-type: none"> • Development of new biofuels policy favouring agricultural sector growth and energy diversification.
Yvonne Barrett-Edwards	<ul style="list-style-type: none"> • Making the biofuels policy sustainable in nature, particularly as it relates to the agricultural sector and the environment.
Maxine Nestor	<ul style="list-style-type: none"> • Arrive at strategies for promoting sustainable development of alternative energy, especially biofuels.
Constance Tyson-Young	<ul style="list-style-type: none"> • To have a workable formula for biofuel generation from local crop production.
Jean Dixon	<ul style="list-style-type: none"> • Characterize local environment with respect to energy demand and supply within the transportation sector. • Identify critical policy issues to support biofuels industry. • Agree on the role of biofuels in the energy mix.
Fitzroy Vidal	<ul style="list-style-type: none"> • Best practices for biofuel (pitfalls to avoid – policy issues).
Charmaine Gomes	<ul style="list-style-type: none"> • Build capacity in policy formulation.
Leighton Waterman	<ul style="list-style-type: none"> • To learn a new way of thinking.

Annex 2: Main Challenges to implement the biofuels policy within Jamaica.

** Participants were asked to vote on the 2 dimensions that they thought the workshop should be focused on. The agricultural and business dimensions had the most votes.

Agricultural Dimension	
9 votes	<ul style="list-style-type: none"> • Food Security • Availability of Land (for production) • Availability of arable land, in terms on crops, for biofuel productions. • Land use; land being converted from sugarcane to housing, roads etc. • No clear direction on land usage – land use policy. • Land productivity improvements • Suitable cane cultivars. • Intercropping with other plants. • Loss of income. • Unemployment in agriculture.

Business Dimension	
9 votes	<ul style="list-style-type: none"> • Appropriate Public Private Partnerships along the "chain". • Buy-in from Private Sector. • Consumption pattern for energy for at least the 5 previous years. • Fiscal incentives. • Pricing formulae for biodiesel and ethanol. • Price relative to fossil fuel on the world market. • Low interest rates. • Correct incentives for farmers. (Do people want to stay in agriculture?). • Storage tanks. • Transport infrastructure. • Packaged Business Opportunities • Private Sector resource and infrastructure. • Low cost capital for equipment. • Investments. • Financial Support. • Impact on Power Sector. • Cost of new plant machinery. • Logistics and coordination not properly thought out. • Benefits from Carbon Trading.

Socio-Cultural Dimension 5 votes	<ul style="list-style-type: none"> • Fear of change • Convincing the public that biofuel is the way forward. • Cultural shift – fuel instead of sugar. • Myths crowding out facts in public debates. • Blinkers on alternative to fossil fuel. • Labour force training and sensitization. • Education – What is Energy/Fuel? • Challenges of competing interests. • Establish Feasibility / Research to convince “Late Adoptors”.
Institutional Dimension 3 votes	<ul style="list-style-type: none"> • Coordination between relevant government ministries – agriculture, energy etc. • Lack of support from key stakeholders. • Government-Government Unity and Government-Private Sector Unity. • Political Consensus of biofuels. • Long-term planning and continuity. • Data/Information not clearly defined. • Lack of holistic approach to energy diversification.
Technical, Capacity - Building Dimension 1 vote	<ul style="list-style-type: none"> • Technical Support. • Technical capacity. • Available and appropriate technology for transformation of crop to biofuel. • Waste minimization strategies implemented. • Labour force not adequately trained/educated. • Motor Vehicle Stock for greater than E10. • Increase % of diesel vehicles in stock in Jamaica. • Production facilities. • To increase energy efficiency in the sugar factories.
Environmental Dimension 1 vote	<ul style="list-style-type: none"> • Opportunities for reuse and recycling. • Loss of endemic species.
Risks	<ul style="list-style-type: none"> • Hurricane impact on local feedstock. • Continued CBI market access.

Biodiesel
<ul style="list-style-type: none">• Information on biodiesel.• Crops for biodiesel.• Production facilities for biodiesel.• Assessment for biodiesel.• Indecision on crops for biodiesel feedstock.

Annex 3: SWOT Analyses

Agricultural Dimension SWOT

STRENGTHS

- Land exists for crop cultivation; land already used for sugarcane production.
- Over 300 years of know-how on sugar cultivation.
- Availability of labour (farmer etc.) .
- Existing acreage for sugarcane can generate ethanol.
- Rattooning allows for planting once in 5-6 years.
- Climate is wet –tropical.
- Existing ethanol dehydration facilities.
- Land Policy/Agency.
- Government Energy Policy.
- Structured Ministry of Agriculture that can be improved.

WEAKNESSES

- Over cultivation of land depletes soil.
- Low self esteem among sugar plantation workers (plantation –slavery link and also low wages received by sugar workers
- Not an all-year crop.
- Land use Policy needs to be improved.
- Shortage of skilled labour.
- Method of harvesting crop.
- Lack of long-term planning for continuity.
- Sugar production facilities are currently operating inefficiently.
- Lack of adequate infrastructure (road etc.)

OPPORTUNITIES

- Idle lands.
- New technologies and developments – improved technology and capacity for increased productivity.
- Skilled labour force.
- Declining market of sugar.
- Regional expansion of bio-energy – Regional expertise and breeding station.
- Volatility in oil prices.
- Possibility for intercropping.
- Energy Efficiency at the factories.
- High unemployment among youth.
- Growth of other industries from sugarcane e.g. tiles.
- Sale of excess electricity to the grid.
- Sound educational system and agricultural research institution.

Business Dimension SWOT

STRENGTHS

- Have resources – 3 well-established firms in ethanol dehydration.
- Pool of engineers and other technical staff.
- Proximity to US market.
- Technical assistance from regional institutions (ECLAC, CARICOM).
- E-10 Rollout Project. Political Consensus on E10.
- Ministry of Finance Buy-in.
- European Union Incentives.
- Hedge against rising fuel costs (gasoline).

WEAKNESSES

- Skepticism of financiers lending for projects which have not been fully proven.
- Financial institutions reluctant to provide loans at concessionary rates.
- Lack of farmer incentives.
- High capital costs (farmers and processing).
- Independent retailers unable to fund infrastructure changes for E10 product.
- Slow pace of marketing companies to come on board.
- Lack of appropriate public-private partnerships.
- Resistance from large marketing (oil) companies.
- Inadequate provisions for supplying E10 to the market.

THREATS

- Severe climate changes e.g. category 5 hurricanes.
- Cheap imports.
- Pests, diseases.
- Compliance with environmental standards.
- Loss of jobs.
- Antagonists – Lobby groups.
- Food security challenge.
- Burning during harvesting which impacts health and environment.
- Competing national interests.
- Conversion of sugarcane lands into roads, highways, and other developments.
- Loss of export market for sugar.
- Improved agricultural practices.
- Opportunities for reuse e.g. filter mud and stillage for fertilizer and irrigation.
- Improvement in quality of life for communities.
- Create a sugar museum of Jamaica (with existing technology, rather than for scrap metal use).

OPPORTUNITIES

- Possible financial resources via CDM.
- CBI market access.
- Privatization of sugar assets to Infinity Bioenergy.
- Carbon trading incentives to boost infrastructure /Plant construction.
- Regional Expansion.
- Create new local market for sugarcane.
- New regulatory framework.
- Cellulosic ethanol development.
- Monitoring and evaluation of fuels use.
- Fiscal incentives.
- Leverage funds from donor partners for further research and development.
- Transformation of skills base.
- Sugar Companies transform to power (IPP) companies.
- Purchase of equipment needed for sector improvements.
- Tri-lateral agreement (Brazil-Jamaica-USA).
- Social Partnerships.
- Establish and Implement environmental programmes that are sound.

THREATS

- Privatization of sugar assets to Infinity Bioenergy.
- Lack of Public "buy-in".
- Direction of US Policy and energy independence.
- Increasing number of persons leaving agricultural sector.
- Removal of US tariffs on ethanol imports from Brazil.
- Strong resistance from car manufacturers and dealers (local).
- Economic meltdown.
- Petro-Caribe supply agreements.
- Complaints from users of E-10 and no redress.
- Inability to meet market demand.
- Effects of climate change.

Annex 4: Actors

<p><i>Agricultural Dimension</i></p> <ul style="list-style-type: none"> • Association of Cane Farmers • Bureau of Standards • College of Agriculture, Science and Education • Development Bank of Jamaica • External Investors from Brazil etc. • Jamaica National Heritage Trust • Labour Unions • Ministry of Agriculture • Ministry of Energy • Ministry of Finance • National Environment and Planning • Northern Caribbean University • Office of the Prime Minister • Pesticides Control Authority • People's Cooperative Bank • Petroleum Corporation of Jamaica • Rural Agricultural Development Authority • Scientific Research Council • Sugar Company of Jamaica • Sugar Industry Research Institute • University of Technology • University of the West Indies • Water Resources Authority 	<p><i>Business Dimension</i></p> <ul style="list-style-type: none"> • Farmers • Financiers/ Investors • Infinity Bioenergy • Jamaica Broilers and other ethanol producers • Jamaica Bureau of Standards • Jamaica Information Service • Large Fleet Operators • Ministry of Agriculture and lands. • Ministry of Education • Ministry of Energy • Ministry of Industry, Investment and Commerce • Ministry of Finance and the Public Service • Ministry of Transport and Works • National Environment and Planning Agency • Opposition Party • Petrojam • Petroleum Corporation of Jamaica • Petroleum Marketing Companies • Planning Institute of Jamaica • Research Institutions • Sugar Industry Authority • Users • Vehicle Dealerships
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Annex 5: Draft of Biofuels Policy

Main Goals of the Biofuels Policy	
Goal 1: Bioethanol	
<p><i>To produce ethanol to satisfy the E-10 demand in the transport sector from locally grown sugarcane by 2012 by modernizing the sugarcane agro-industry.</i></p> <p>Rewording:</p> <p>To satisfy the E-10 demand in the transport sector by 2012 through the production of ethanol from locally grown sugarcane and the modernization of the sugarcane agro-industry.</p>	

Impact : Purposes of the Biofuels Policy	
<ul style="list-style-type: none"> • Cleaner Environment – less pollution. • Improve environmental sustainability via reduction in greenhouse gas emissions. • Cleaner fuel – environment benefits. • To reduce imports of petroleum products. • Reduce foreign exchange committed for oil imports. • Diversify the energy mix. • Increase agricultural earnings from ethanol. • Convert sugar companies into power companies –Cogeneration (MW) for electricity • To improve quality of life through improved income generation in rural communities. 	

Dimension	Strategic Lines	Instruments
Business	<ul style="list-style-type: none"> Promote more efficient processing plants, attracting significant investment through Public-Private partnerships. <ul style="list-style-type: none"> Promote the use of efficient conversion technologies to reduce production costs Promote re-use of by-products. Promote cogeneration. (electricity) 	<ul style="list-style-type: none"> Privatization of Plant. Energy Audits Benchmarking exercise of industry. Low interest loans. Tax credits tied to efficiency targets. Trilateral Agreements – USA-Brazil Investor's Fair & Report.
	<ul style="list-style-type: none"> Provide an appropriate pricing regime/policy for sugarcane to act as an incentive for a multi-product industry. 	<ul style="list-style-type: none"> New Pricing Agreement. Social Partnership (MOU)
Agriculture	<ul style="list-style-type: none"> Increase investment to support minimum production of 3.5 million tones of cane. Long-term access to Land (lease). Foster research and development into new cane varieties and production systems. Modify and promote more efficient irrigation and fertilization systems. Promote green cane harvesting and mechanization. Develop pool of skilled labour. 	
	<ul style="list-style-type: none"> New Governance Structure: <ul style="list-style-type: none"> Design/Adapt modernized sugarcane industry. Framework/Institutions. Implement a monitoring and evaluation system f the ethanol program. Performance targets (2010 – 2020). 	
Socio-cultural	<ul style="list-style-type: none"> Prepare marketing materials to highlight strengths and opportunities. Develop the heritage tourism potential of the sugar industry. 	
Environment	<ul style="list-style-type: none"> Promote multidisciplinary research into biofuels. 	
Technical		

Annex 6 Immediate Work Plan

What	Who	When
<ul style="list-style-type: none"> • Prepare a framework document (Draft). 	<ul style="list-style-type: none"> • Ministry of Energy. • Ministry of Agriculture. • Ministry of Finance. 	<ul style="list-style-type: none"> • End of January 2009.
<ul style="list-style-type: none"> • Hold a second workshop – submit first draft. 	<ul style="list-style-type: none"> • Working Team led by Ministry of Energy to include the Ministries of Agriculture, Finance and the Office of the Prime Minister. 	<ul style="list-style-type: none"> • March, 2009. (ibid)
<ul style="list-style-type: none"> • Green Paper prepared (Draft). 	<ul style="list-style-type: none"> • Ministry of Energy. • Ministry of Agriculture. • Ministry of Finance. 	<ul style="list-style-type: none"> • End of March 2009.
<ul style="list-style-type: none"> • Stakeholder consultations 	<ul style="list-style-type: none"> • Private and Public Sectors. • Unions. • Non-Governmental Organisations. 	<ul style="list-style-type: none"> • April 2009.
<ul style="list-style-type: none"> • Final draft to Cabinet 	<ul style="list-style-type: none"> • Ministry of Energy. • Ministry of Agriculture. 	<ul style="list-style-type: none"> • End of April 2009.
<ul style="list-style-type: none"> • Send Document to Parliament 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Mid-May
<ul style="list-style-type: none"> • Secure dedicated support – scribe and analysis 	<ul style="list-style-type: none"> • Ministry of Energy. • CREDP 	<ul style="list-style-type: none"> • January – May, 2009
<ul style="list-style-type: none"> • Research and Validation. 	<ul style="list-style-type: none"> • Petroleum Corporation of Jamaica 	<ul style="list-style-type: none"> • January – May, 2009

1. Obtain political orientations
2. Know-how and information
3. Put the main actors together
4. Share vision about concerns and challenges
5. Organize dimensions
6. Define one common goal
7. Go into deeper analysis of each dimension
8. Define/Identify Strategic Lines
9. Choose instruments to implement the strategic lines
10. Analyse actors
11. Develop a work plan – activities, responsible persons and timing.
12. Implement committee and follow-up.

Annex 8: Policy Formulation Process

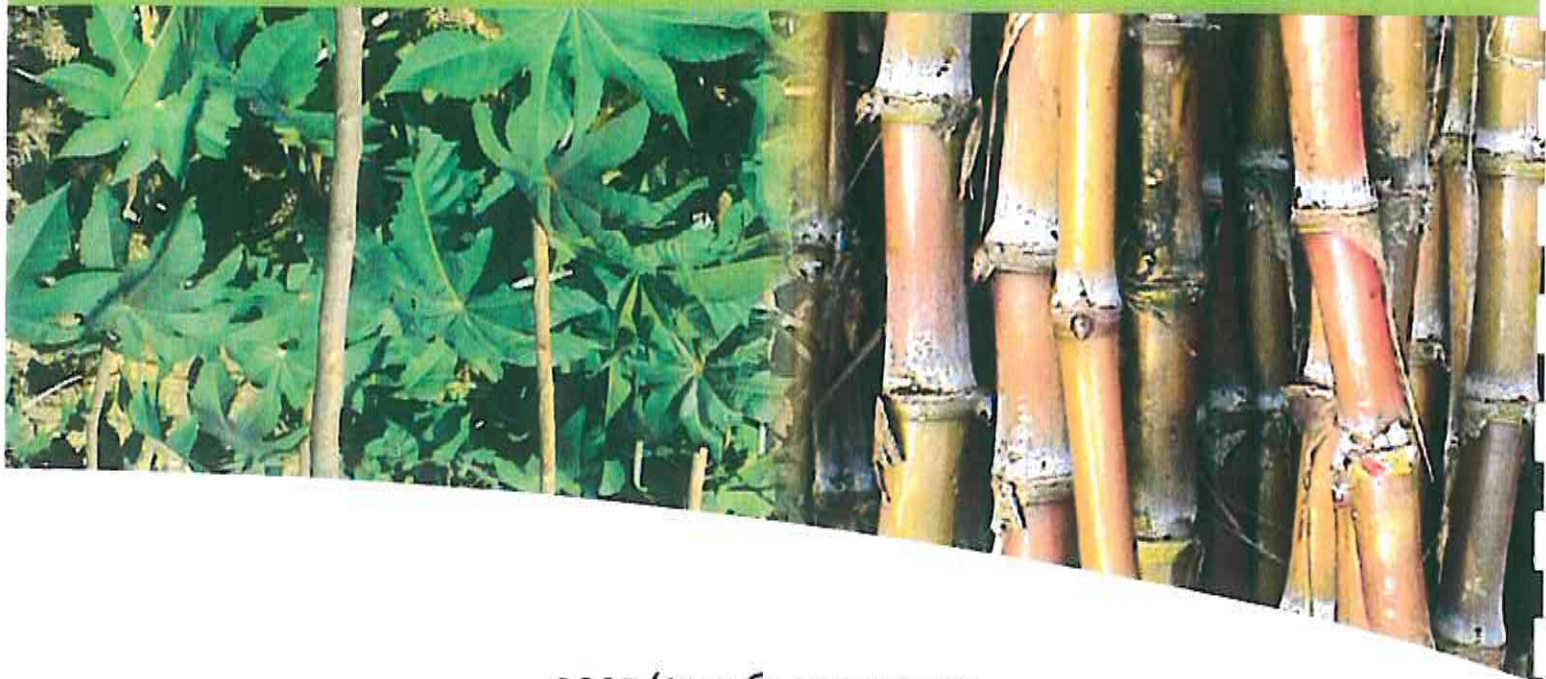
- Key persons should be at the entire workshop.
- Needed to have more participation of the Ministry of Agriculture.
- Two days were inadequate to address the methodology.
- Not enough time to cover all the elements.
- Time inadequate.
- Too short time to develop methodology.
- Too short to cover biofuels.
- Scope of workshop may have been too broad.

Areas for Improvement:

- People's opinions were considered.
- It was interactive.
- Goal-oriented methodology.
- Strong team participation.
- Structured approach to policy formulation.
- Participatory process.
- Proper organisation.
- Competent facilitator.
- Sharing ideas to achieve identified goal using ZOPP Methodology.
- The food was good.
- The involvement of the Ministers.
- A systematic approach to unearthing various policy issues.
- Proactive participation of people.
- New methodology to be incorporated at various workplaces.

Positives of the Workshop:

Annex 7: Feedback



December 15 & 16, 2008

“FORMULATING PUBLIC POLICIES FOR BIOFUELS”

presents
A Biofuels Policy Workshop
titled

**PETROLEUM
CORPORATION
OF JAMAICA**



The United Nations Economic Commission
for Latin America and the Caribbean
in association with
The Ministry of Energy
and the





25

Day 1

Programme

Monday, December 15, 2008, 8:30 A.M. – 5:30 P.M.

8:30 am
Registration

Opening Ceremony

9:00 a.m.

Welcome & Opening Remarks:

Dr. Jean Dixon,
Permanent Secretary, Ministry of Energy

Prayer

Mr. Fitzroy Vidal

Senior Energy Engineer, Ministry Of Energy

Hon Clive Mullings, MP

Minister of Energy

Hon. Christopher Tufton, MP

Minister of Agriculture

Mrs. Charmaine Gomes

Chief, Sustainable Development Unit,

ECLAC -Port of Spain

Mr. Leighston Waterman

Senior Policy Officer, CARICOM Energy Unit

Mr. Manlio Covello

Chief, Energy Unit, ECLAC- Headquarters,

Mission Coordinator

Greetings

"Energizing Agricultural Production"

"Boosting Biofuels Policy & Actions"

Factors to Consider for Biofuels Policy

Development

Greetings

Introduction to Workshop Methodology

10:20 a.m.

Biofuels Production in Latin America
And The Caribbean

10:30 a.m.

Formulating Public Policies

11:20 a.m.

Presentation of National biofuels scenarios and challenges faced
in the development of the Sector

12:00 p.m.

Mr. Manlio Covello
Chief, Energy Unit

Prof. Luiz Augusto Horta
International Biofuel Specialist
University of Itajuba, Brazil

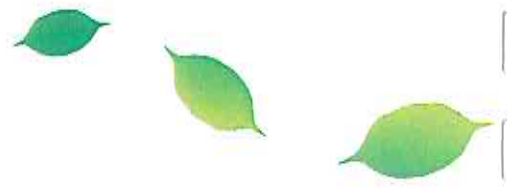
Ms. Carolina de la Lastra
Moderator – ZOPP process for Goal Oriented Planning

COFFEE BREAK

10:05a.m.

12:40 p.m.
LUNCH





Vote of Thanks

Statement

4:30 p.m.
Closing Remarks

Closing Ceremony

1:30pm
Day 2, Wrap-Up, Reflection
& The Way Forward Session

Ms. Carolina de la Lastra
Moderator – ZOPP process

Putting theory into practice – application of the ECLAC methodology at the national level (cont'd)
10:45am
Coffee Break
10:30am
Putting theory into practice – application of the ECLAC methodology at the national level (cont'd)
9:00am

Tuesday, December 16, 2008,
9:00 A.M. – 5:30 P.M.
FORMULATING BIOFUELS POLICIES

Day 2

5:15 p.m.
Day 1, Wrap-Up & Reflection Session
Moderator – ZOPP process

Ms. Carolina de la Lastra

2:00 p.m.
Putting theory into practice –
Application of the ECLAC methodology at the national level (cont'd)
3:30 p.m.
Coffee Break
3:45 p.m.
Putting theory into practice –
Application of the ECLAC methodology at the national level.



Page 1 of 1

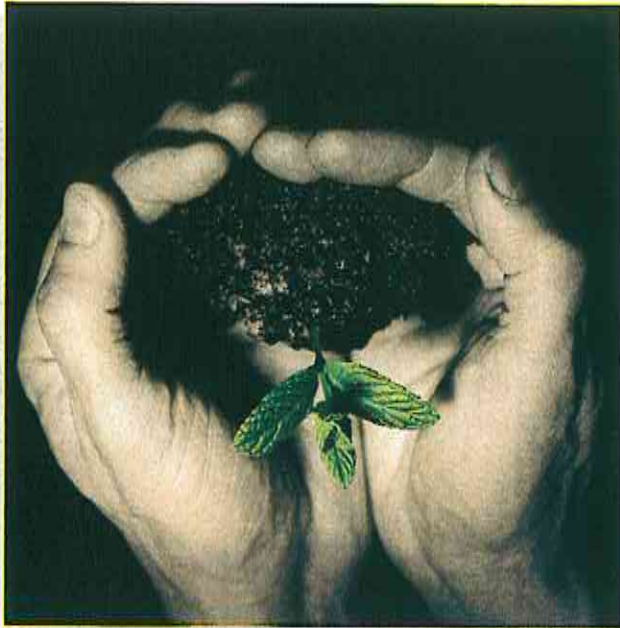
FORMULATING PUBLIC POLICIES FOR THE SUSTAINABLE USE OF NATURAL RESOURCES: THE CASE FOR BIOFUELS

The Workshop will introduce the ZOPP (Zielorientierte projektplanung, or GOPP – Goal Oriented Project Planning) methodology for public policy development. The national biofuels scenarios and challenges faced by various Ministries in the introduction of biofuels will be the building blocks for the new policy. Main and common obstacles faced in formulating biofuels policy will be discussed to gain a better perspective on the national development required.

The national biofuels scenarios and challenges faced by various ministries in the introduction of biofuels will be the building blocks for the development of policies and supporting legislation. Main and common obstacles faced in formulating biofuels policy will be discussed to gain a better perspective on the way forward.

The Workshop's presentations and discussions will address:

- Overview of the ZOPP methodology,
- Perspective on Biofuels in Latin America and the Caribbean,
- Biofuels scenarios and challenges in Jamaica,
- Main and common obstacles in formulating policy,
- The role of ECLAC in strengthening cooperation.



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