COUNTRY PROJECT Presentations

Mauritius

Integrated Assessment of Trade-Related Policies in the Agriculture Sector and Biological Diversity

Geneva, 18-20 March 2009

FOCUS OF THE ASSESSMENT

- The dismantling of Sugar Protocol
  - Cut (36%) in sugar prices over a period of 4 years
- price reduction fully implemented by 2009
  - Decrease in price from 523.7 Euro/tonne in July 2006 to 335.2 Euro in 2009/2010.
- Mauritius will be severely affected as sugar account to 25% of foreign exchange earnings and up to 4.5% of GDP.
- Mauritius is expected to lose 895 M Euro with the implementation of the new Sugar Regime.

FOCUS OF THE ASSESSMENT

Mauritius has developed a Multi-Annual Adaptation Strategy (MAAS) 2006-2015, which includes 8 main policy options:

- Regrouping of small farmers;
- Sustaining difficult areas under sugar cane;
- Moving out of sugar cane;
- Centralization;
- Right sizing of labour force;
- Increase contribution to national electricity production;
- Shift to ethanol production;
- Optimising the use of sugarcane lands.

FOCUS OF THE ASSESSMENT

Objectives of the plan

- Conversion of the sugar industry into a **sugar cane cluster** (produce several types of sugar, electricity from bagasse and ethanol)
- Establishment of a competitive, viable and sustainable sector
- Reduction of the dependency on the import of fossil fuels
- Continuation of the multifunctional role of sugar (support to national, environment and social objectives)

METHODOLOGY

An assessment of some of the policy options of the MAAS **(2006-2015)**

- Identification of the policy context and purpose of the country study.
- Identification of relevant stakeholders
- An audit of existing national environmental/biodiversity oriented policies and relevant international trade policies
- Setting of a National Steering Committee/ Technical Committee/ Core team
- 'Launching workshop' for awareness of the IA study
- 'Capacity Building Workshop' to train relevant stakeholders on the IA methodology
- Assessment of the MAAS 2006-2015 on the agricultural sector, for the development of a conceptual framework based on the cause effect chains.

METHODOLOGY

- **Expert consultation /Focus group meetings:** to decide on the policy options, identify the indicators related to sustainability, biodiversity issues and ecosystem services.
- **Expert consultations:** to gather information on current issues & changes happening under the MASS initiatives
- **Survey** of impacts of regrouping small / medium planters
- **Focus group meetings:** to validate findings of survey
- **Scenario building:** involvement of subject specialist, stakeholders to identify the most likely response.

METHODOLOGY

Scenario 1

Sustaining sugar production under current or modified conditions (Centralisation/ Refined sugar, Regrouping, Energy / Ethanol production , Increasing competitiveness)

Scenario 2

Moving out of sugarcane for other activities (agricultural /non agricultural or abandonment)

- Expertise of area specialists and resource persons was sought to gather information, to qualify likely changes, characterised ecosystem services, social component to be affected specially on issues related to the corporate sector, the biodiversity associated with sugarcane aspects.
- Appropriate indicators were developed to measure changes.
- National stakeholders workshop was conducted to validate findings and recommendations of the country study

Results of the Integrated Assessment

Scenario		ECONOMIC IMPACTS
Sustaining sugar production	+	- S/I contributes 4-5 % to the GDP, 25 % to the national export earnings in terms of sugar/molasses export /coal import savings
	+	- Cogeneration of energy from bagasse : 20 % of the country energy requirement and offset the import of 255,000 t of coal
	+	- Employs 4 % of the national labour force/ Source of livelihood for some 40,000 persons depended directly or indirectly (28,000 small planters)
	+	-Milling and growing companies contribute to government revenue in form of tax
		-Ethanol production and blend with gasoline / save on fuel import
		- Increase efficiency / economies of scale and reduce cost of production
		SOCIAL IMPACTS
	+	-Job loss through VRS : compensated in cash and kind + Training
	+	-Provide logistic and support services for rural development
	+	-Workers benefiting from shares in electricity and ethanol production
		-Regrouping encourage sharing of skills/ community cohesion
	-	-7254 VRS workers : loss of regular income / anxiety / social problems
	-	-Re-employment on seasonal basis /adverse impact on family
	-	-Aged female workers most vulnerable - Conflict with other water users

Results of the Integrated Assessment (cont.)

Scenario		ENVIRONMENTAL IMPACTS
Sustaining sugar production	+	- Erosion control even on sloping land , improved soil and water conservation practices
	+	- Aggregate from derocking used in the construction thus reducing pressure on coral sand/marine ecosystem
	+	- Limited amount of pesticides used (mainly weedicides) /Quality of ground water sustained
	+	-Rational use of fertiliser (soil analysis for sugar estates). No surface / ground water pollution or eutrophication
	+	--Adoption of a code of practice for burning of cane reduces impact on air quality. Green cane harvesting is increasingly being adopted with mechanization
	+	- Investment in equipment to reduce pollution effect of CO_2 gas emission from bagasse combustion, a potential source of pollutant

Results of the Integrated Assessment (cont.)

Scenario		ENVIRONMENTAL IMPACTS
Sustaining sugar production	–	-Intensification likely to lead to : increase use of fertiliser and agrochemicals, soil compaction, affect bird population, disturb habitat , increase air pollution due to dust /exposed fields
	–	-Factory effluents discharge add high organic load in watercourses /affect aquatic biodiversity
	–	-Wastes (effluents and coal ash) from cogeneration plant may affect water quality due to presence of heavy metals and other contaminants
	–	- Heaps of bagasse, filter cake and fly ash exposed to wind lead to air pollution in the vicinity of factories and cogeneration plant
	–	-Vinasse produced by distillation process is polluting and lume its disposal is a challenge
	–	-Due to high demand for water risk of depletion of aquifers and saline intrusion by overexploitation of ground water source

Results of the Integrated Assessment (cont.)

Scenario		BIODIVERSITY IMPACTS
Sustaining sugar production	+	-Sugar cane is an efficient sequester of CO2 and its extensive cultivation can provide net global environmental benefits
	+	-Generation of energy from bagasse/ coal : to reduce import of fossil fuel. / (CBM) financing for net CO_2 emission reduction
	+	- Closure of factories will eliminate odour problems experienced by residents in vicinity of mills
	–	-Mono-crop system of sugar cane cultivation occupying 45 % of the cultivated areas has influenced biodiversity which quite limited.
	–	-Discharge of effluents from sugar mills and cogeneration plant significantly pollute the watercourses and the nearby lagoon during the milling season
	–	-Intensification in cane production leading to increase use of agrochemicals may present a risk of nutrient leaching and ground water pollution and off site hazards -Mechanisation will affect bird population and disturb habitat during night–time harvesting

Results of the Integrated Assessment

Scenario		ECONOMIC IMPACTS
Moving out of sugar cane	+	-Conversion to more profitable activities (IRS, Ecotourism, high value crop, livestock) / creation of jobs
	+	- Exploitation to meet 70 % self sufficiency / reducing reliance on imports
	+	-Growing of energy crop can help to reduce reliance on fossil fuel
	–	-Shortfall of 32,500t sugar (5 %), 16 %electricity, 7 % ethanol with 4642 ha of S/cane going out of production
	–	-Metayers and small planters going out of business/ loss of revenue
		--High investment cost (water , electricity)
		SOCIAL IMPACTS
	+	- IRS projects likely to provide jobs and leisure / require re-skilling
	–	-Workers particularly female mostly affected/ impacts on rural livelihood in nearby villages / loss of indirect jobs
	–	-Adverse impact on livelihood of artisanal fisherman and water based economic activities

Results of the Integrated Assessment

Scenario		ENVIRONMENTAL IMPACTS
Moving out of sugar cane	+	-Shifting to agro-forestry: positive impact on control of soil erosion
	–	-Shifting to foodcrop production : risk of soil erosion and eutrophication / sedimentation in nearby lagoon(affecting tourism)
	–	-Risk of increase use of pesticides and fertiliser: increase of nutrient leaching and runoff / ground and surface water pollution (food crop/ Golf courses)
		- Risk of environmental pollution in case of poor management of livestock waste
		-Increasing pressure on water demand with diversification, IRS…
		BIODIVERSITY IMPACTS
	+	-Abandonment or shifting to agroforestry: increase biodiversity (insects, birds, bees, hares, boar, …) /beneficial to aquatic freshwater biodiversity
	–	- Shifting to food crop production: increase in use of pesticides will affect the population of natural enemies usually associated with cane
		-Risk of spread of invasive alien spp. if poorly managed
		- Green backdrop scenery (aesthetic value of the landscape)

POLICY RECOMMENDATIONS

Problem addressed	Policy recommendations
Fierce competition of EU market , requiring shift from export of raw sugar to \direct consumption sugar	- Accelerate the adoption of Good Management Practices (GMPs) - Empower relevant institutions to develop, implement and enforce quality standards - Capacity building of growers and millers for compliance to these quality standard
Change in land use in environmentally sensitive areas	- Provide incentives to encourage environmentally sustainable production system through research, training, certification - develop mechanism of legal framework to enforce and regulate certification and eco-labelling
Small sugar cane growers production becoming uneconomical may move to unsustainable land use	- Encourage regrouping of small fields in larger block with creation/rehabilitation and maintenance of ecological corridors / conservation area - Monitor and assess the implications of the development of Integrated Resorts on the local biodiversity and ecosystem services

POLICY RECOMMENDATIONS (cont.)

Problem addressed	Policy recommendations
Introduction of invasive alien spp. affecting local biodiversity	- Capacity building in methodologies to assess impact of introduced biological agents, bio-control agents and exotic organism on the local biodiversity /E. services
Lack of information of local biodiversity and their value leading to gradual erosion of indigenous crop varieties	- Conduct an inventory of existing local biodiversity and develop an effective information system to enable sharing of information with scientific community - Capacity building in biodiversity valuations techniques
Weak integration between strategies for conservation of biodiversity and economic development activities	- Development of a coordinated approach for management of local biodiversity - Integrate biodiversity in EIA for all development projects - Integration of strategies for sustainable use and conservation of biodiversity in relevant sectoral or cross-sectoral plans, programmes and policies - Sensitize the public in general on the value, management and conservation of local biodiversity

ACTION PLAN

Adoption of Good manufacturing Practices to meet EU market requirements

Actions required	Partners to be involved	Time frame	Urgency of actions
Empower relevant institutions to develop, implement and enforce quality standards	-Cane Planters and Millers Arbitration & Control Board (CPMACB) -MSIRI -Farmers Service Corporation - The Mauritius Standard Bureau	2 years	High Priority
Capacity building of growers and millers for compliance to these quality standard	-MSIRI -Farmers Service Corporation (FSC)	1 year	High priority and the MSIRI training Centre to be funded for this activity
Encourage environmentally sustainable production system	-Ministry of Agro Industry, -Minsitry of Environment -MSIRI, FSC, CPMACB -Mauritius Sugar Producers' Association	1 year	High Priority

ACTION PLAN (cont.)

Encourage environmentally sustainable production

Actions required	Partners to be involved	Time frame	Urgency of actions
Develop legal framework to enforce and regulate certification and eco-labelling	-State Law Office -MSIRI -CPMACB -MAURITA Mauritius Standard Bureau	2 Years	High
Creation/rehabilitation and maintenance of ecological corridors and conservation area in areas where FORIP is implemented	-NPCS, FSC -Forestry Service -Min of Environment -Mauritius Wildlife Foundation (MWF)	2 years	Very High
Conduct an inventory of existing local biodiversity and develop a data system to facilitate access to biodiversity related information for scientific community & policy maker	-NPCS -Forestry Service -Min of Environment -FSC -MWF	2 years	Very high

ACTION PLAN (cont.)

Development of a coordinated approach for management of biodiversity

Capacity building in assessment of biodiversity

Actions required	Partners to be involved	Time frame	Urgency of actions
Capacity building in biodiversity valuations techniques	-AREU -Min of Agro Industry -Forestry Services -NPCS -Min of Environment -MSIRI, FSC, MWF	1 year	High
Integration of strategies for sustainable use and conservation of biodiversity in relevant sectoral or cross-sectoral plan, programmes and policies	-Min of Finance -Min of Agro Industry -Min of Environment -Min of Tourism - Board of Investment	Continuous process	High and the process need to be initiated urgently
Sensitize the public in general on the value, management and conservation of local biodiversity	-Min of Agro Industry - AREU, NPCS, MWF, Forestry Service, Min of Environment, Ministry of Education	1 year	High (workshop, Pamphlet, video clip)

Achievements

Capacity building of stakeholders in

- IA methodology particularly in assessing impacts on biodiversity,
- Development of conceptual framework (linkages between trade policy and biodiversity)
- Project management

Sensitisation of key stakeholders and policy makers on the need to integrate biodiveristy issues in development projects and policy formulation

This project has helped to **enhance inter-institutional cooperation** between Ministry of Trade, Environment, Agriculture including Conservation Services, Forestry, Fisheries)

Setting up of a website http:www.areu.mu/biodiv for sharing of information on the UNEP Trade /Biodiversity Initiative and the country study

Constraints

- Lack of expert support in application of the methodology in the local context;
- Limited access to related documents and previous studies;
- Absence of baseline data on biodiversity and ecosystem services for use and benchmark;
- Lack of expertise in valuation techniques;
- Limited participation of relevant stakeholders due to absence of an effective networking
- The implementation of MAAS policies being still at its infancy stage and given the complexity to assess potential long term impacts of the numerous policies under MAAS on biodiversity, the time allocated of the IA study (2 years) was not adequate;
- Dynamic changes in International trade policy (world food crisis, economic crisis, drastic fall in fuel price, evolving market situation) led to confounding effect in the assessment.

Thank You