The Regional Workshop for Asia and the Pacific on Ways and Means to Promote the Sustainable Production and Use of Biofuels

Cambodia Jatropha Biofuel Project for Sustainable Development

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Project Background

- The pilot project is based on domestic Jatropha crops and small oil expellers, rather than commercial energy crops and central oil production.
- Andrew Williamson's feasibility study it might be financially viable.
- A 83 ha waste land [Kg Chhang] Province acquired for the project. Project started in mid-2006, initial 35 ha have been planted.
Appropriate Business model

- Different business models could be used as the basis for a new business producing biofuel in Cambodia.

- Businesses based on processing of agricultural products included:
  - The proportion of crop area owned and managed by the business, or contracted to private farmers, or purchased at a market;
  - The ownership and location of the processing plant;
  - Security of supply of the feed stock; and
  - Ownership and management of distribution chain.
The Project Business Model

Phase 1: Village participation [Hedges]
- Sell seeds

Phase 2: Village participation [own waste land]
- Sell seeds

Phase 1 (Core Plantation & central oil production)
- $ for seed
  - Expertise
  - Sell seeds

Phase 3: JV with Provincial/central Government
- Develop small Lots and Lease to villagers
Business model

- A 83-hectare plantation with a central oil processing facility - "Symbol" of long term commitment by investors - instill confidence in villagers to participate in project

- Villagers to harvest jatropha seeds - from existing jatropha trees planted as hedges [and also from wild]

- Villagers with waste land to grow jatropha under contract farming method. Green Acres provides expertise, cuttings and fertilizers

- Work with provincial/central government to allocate waste land for project
  - Green Acres provides expertise, cuttings and fertilizers
  - Lease small planted plots to individual farmers on behalf of government
  - New owners sell seeds to Green Acres and part proceeds go to pay government for land.
  - Win-win-win for all 3 parties
Benefits to the community

- **Immediate benefits**
  - Jobs for villagers [current 20, increasing to 80] in the plantation / oil mill/ marketing etc.
  - Increase their income [at least US$1 a day]
    - A new cash crop from their own trees [hedges]
- **Future benefits**
  - Convert unused land to income generation [Phase 2]
  - Potential ownership of additional land [Phase 3 with government]
- **Community contributions**
  - Green Acres intends to plough its "profits" into the community via improvements in village schools, water and electricity etc.
Jatropha Biofuel and Power Generator Project

- Proposed biofuel supply chain development maximizes the local benefits and provides a competitive biofuel for electric power generation.
- Contribution to Cambodia sustainable development
  - *Broad-based economic growth*
  - *Social and cultural development, and*
  - *Sustainable use of natural resources*
- Proposed project aims to supply Jatropha biofuel for additional heavy fuel oil (HFO) generators in PPSEZ with total capacity of 13 MW.
- Project requires 140,000 tons of Jatropha seeds and 59,000 ha plantation to contract farming schemes:
  - *Relatively large scale plantation*,
  - *Small scale fencing and intercropping*
Implication for the environment

- This project will provide a new 100% renewable energy source for rural Cambodia.
- Biofuel is also non-toxic and biodegradable so there will be less human and environmental health issues from its transport.
- Increased planting of Jatropha Curcas as fencing will help reduce soil erosion, provide shading etc.

Poverty Reduction

- Reduce poverty by introducing a viable, replicable new rural enterprise with two levels of income and job creation (nut-collection, and Biofuel production).
- Providing a cheaper and more secure source of fuel in the long term, as diesel prices rise.
Economic Sustainability

- The sustainability of the business model is enhanced by the possibility for diversifying into other post-harvest seed products.
- Business sustainability may be further advanced in the future by possible income from ‘Carbon Financing’ under the Clean Development Mechanism of the Kyoto Protocol.
- This is an interesting option because the use of a 100% renewable Biofuel.