

# VALUE CHAIN IN COCONUT

## Environmental and Social Safeguards Management

### A. Basic information

#### 1. Project Statistics

Component code	2
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Consortium PI	K. MADHAVAN Principal Scientist Central Plantation Crops Research Institute, Kasaragod- 671 124 Phone 04994-232894 Fax: 04994-232322 E-mail madhavanpcpri@gmail.com
Consortium partners	1. Defence Food Research Laboratory, Mysore; (Government of India) 2. Kerala Forest Research Institute, Peechi; (Government of Kerala)
2. Date of start	01-04-2008
3. Planned Duration	4 years & 3 months
4. Project cost	<b>Rs. 444.6795 lakhs</b>

#### 5. Project Objectives

1. Technology integration for enhancing production and community level processing of coconut facilitated through stakeholder participation for strengthening of value chain.
2. Developing viable processing technologies and machineries to produce high value products such as Virgin Coconut Oil (VCO), and activated shell charcoal, packing of tendernut water and kernel, packing of matured coconut water and evolving technologies for byproduct utilization
3. Facilitating market development through promotional activities, consumer preference studies and demand forecasting of coconut value added products

#### 6. Brief Project Description

Coconut is cultivated in an area of over 1.92 million hectares in India with an annual production of 14.00 billion nuts and it contributes over 70,000 million rupees to the country's

GDP. Owing to price fluctuations and increase in cost of production, farmers in the sector has become non-competitive in the recent years. Enterprise diversification and community level value addition are suggested to overcome this situation. To strengthen the value chain involving production, community level processing of coconut, and marketing, a consortium of three research institutes are formed under the proposed project. The project will be implemented in Kasaragod district in Kerala.

The proposed project “Value Chain in Coconut” was undertaken by Central Plantation Crops Research Institute, Kasaragod, to strengthen the value chain involving production, community level processing of coconut, and marketing, a consortium of three research institutions viz., Plantation Crops Research Institute, Kasaragod, Kerala Forest Research Institute (KFRI), Peechi; and Defence Food Research Laboratory (DFRL), Mysore, is formed under the proposed project. The project will be implemented in Kasaragod district of Kerala. Effective linkages will be established with agencies such as Coconut Development Board, State departments of Agriculture, and women SHGs to implement the project.

Broadly the project consists of three components with different objectives and activities under them. The first objectives aims to develop the value chain in coconut through technology development, technology integration and stakeholder participation for production and marketing of value added products, Community Based Organizations (CBOs) of coconut growers will be formed by the lead Institute in collaboration with Department of Agriculture and Coconut Development Board in the clusters. Interventions related to enhancing productivity and profitability from coconut based cropping systems through higher resource use efficiency will be implemented through the CBOs. Similarly Self Help Groups (SHGs) of rural women will be formed in the clusters to implement production and marketing of value added products. Capacity development programmes will be organized for the members of farmer CBOs and women SHGs by the lead Institute. The incubation support will be provided to the SHGs for the effective management of the production units by the respective consortium partners. For assured and adequate supply of quality raw material to the SHGs, technology interventions will be planned and implemented in the selected clusters. To overcome the problems encountered by farmers in harvesting the coconut, climbing devices will be popularized. The available devices will be evaluated for technical merits, user friendliness by taking account the perspectives of skilled labourers on the use of such devices.

Under the second objective, it is proposed to develop improved processing technologies and machineries for the production of Virgin Coconut Oil (VCO), dietary fibre from defatted coconut gratings, coconut water vinegar, coconut shell charcoal, and novel food items.

CPCRI will develop viable processing technologies to produce virgin coconut oil. The Institute would also design and fabricate machineries required for the cost effective production of VCO using (a) fermentation, (b) expelling from dried coconut gratings, and (c) indirect heating. Quality parameters, shelf life and packaging of VCO produced by different methods and value added products VCO byproduct (partially defatted coconut gratings, and dietary fibre) will be studied by DFRL.

DFRL will standardize processing technologies for the production of new products from coconut such as packaged tender coconut water along with kernel; marmalade type jam. Design, development and process optimization of pollution free coconut shell charcoal and activated carbon plant that can be operated at community level will be undertaken by KFRI. Community level operation of the plant will be assured by CPCRI.

The Third objective involves marketing research on coconut value added products: This will include scaling up of production, consumer preference studies, demand forecasting etc. The major items chosen for market studies are: (a) Coconut chips, a value added product developed by CPCRI (b) Demand forecasting will be made for the products viz., virgin coconut oil, coconut chips, tender coconut and its value added products, and activated shell charcoal.

## 7. Environmental Category: Issues in the subproject

### i. Social

- a) Because of the predominance of small and marginal holdings, farmers are unable to utilize the technologies for higher productivity. By the formation of Community Based Organization (CBO) of farmers, pooling of resources can be made and management of technologies can be made more effective to make the farming more economically viable.
- b) Currently farm level/community level processing for value addition of coconut is very low and unemployment of rural women is a social issue to be addressed. By organizing rural women to form self help groups, and strengthening of women SHGs, more number of coconut product diversification units can be initiated and marketing efficiency of such units can be enhanced.
- c) Low level of awareness/knowledge of farmers/farm women about improved production/processing technologies is a social issue that can be tackled through training and demonstration.

### ii. Environmental

Indiscriminate use of chemical fertilizers and plant protection chemicals is a matter of concern and a way out is the practice of integrated approaches on nutrition management and pest/disease control.

In the wake of changes in climate experienced in the regions, soil and water conservation measures are to be practiced for sustained production of crops. Scientific methods evolved in the Institute to conserve soil moisture and prevent soil erosion in the coconut gardens will be popularized in this project.

## 8. A. Safeguard Policies Triggered (World Bank Policies)

Safeguard Policies	YES	NO
Environmental Assessment (OP/BP 4.01)	<input type="checkbox"/>	<input type="checkbox"/>
Natural Habitats (OP/BP 4.04)		<input type="checkbox"/>
Pest Management (OP 4.09)		<input type="checkbox"/>
Cultural Property (draft OP 4.11-OPN 11.03 -)		<input type="checkbox"/>
Involuntary Resettlement (OP/BP 4.12)		<input type="checkbox"/>
Indigenous Peoples (OD 4.20)		<input type="checkbox"/>
Forests (OP/BP 4.36)		<input type="checkbox"/>
Safety of Dams (OP/BP 4.37)		<input type="checkbox"/>

Projects in Disputed Areas (OP/BP 7.60)		<input type="checkbox"/>
Projects on International Waterways (OP/BP 7.50)		<input type="checkbox"/>

**B. Risk analysis and related Issues (not covered under 3 above but perceived to be important in the sub project)**

- Integration of technologies for maximizing the profit depends on availability of credit and price stability of produces.
- The status of economy will have a direct influence on the consumption of novel coconut products.
- The false propaganda on health issues on consumption of coconut oil may affect the marketing of coconut value added products.

**9. Impact Assessment; given (Annexure –I and II) and adequately addressed**

**10. Potential indirect and / or long-term Impacts due to anticipated future activities in the project areas (Assessment of conflict / complimentary with the likely anticipated activities current as well as proposed in the next five years)**

- Large share of coconut produced in the country will be used for value addition and thereby the farmers will get stable price.
- The pilot scale plants installed under the project will be run by the CBOs with technical support from the consortium partners and with agreement on profit sharing.
- The economic status of coconut farmers will be improved on integration of technologies and enterprise diversification.

**11. Identify the key stakeholders and describe mechanisms for consultation/ disclosure so far done (widely sharing the documents on the subproject, other mechanisms to get a buy-in with the stakeholders including the farmers).**

- Department of Agriculture, Government of Kerala
- Local Self Governments
- Coconut Development Board
- Women Self Help Groups
- National Institute of Nutrition Management
- Government project on SHG-federation (Subicsha)
- Kerala Agricultural University
- Central Tuber Crops Research Institute
- Krishi Vigyan Kendras

**12. Chronology of meetings/ activities held in connection with preparation of the concept note & full proposal**

S. No	Date & Location	Programme	Participants	Remarks
1	28 Feb. 2007	Brainstorming session on NAIP consortium on coconut	KFRI, DFRL, CDB, Coir Board, Coimbatore Aryavaidya Pharmacy, CPCRI	to evolve broad contours of coconut value chain . Coir products removed from coconut products

S. No	Date & Location	Programme	Participants	Remarks
2	3 June, 2007	Meeting on coconut product diversification	DFRL, CPCRI & SUBSCHA, Perambra	Products on byproducts
3	July, 2007	Discussions on non food products from coconut	CPCRI, KFRI, Industry Rep.s from activated carbon industry	Good possibility for value chain for activated carbon
4	17 Aug. 2007	Meeting to decide on objectives and technical programme	KFRI, DFRL and CPCRI	Discussion about technical programme,

### 13. Measures to Address the Issues:

A document on Safeguard Matrix has been prepared. Farmers' Education and Training on the use of IPM and IPNS will be conducted for the participating Farmers in the sub-project.

Awareness of risk related factors will be addressed to the stakeholders through orientation sessions on topics such as adoption of improved package of practices in a holistic way. Issues such as packaging interventions will be addressed in the un-organized sector through utilization of biodegradable packaging structures as far as possible so as to take care of environmental safeguards etc.

14. Consultation / disclosures in future (Local disclosure through mechanisms such as launch workshop, interfaces during the implementation stage of the sub-project for sharing the results of the and soliciting the feedback)

Project launching workshop was carried out with the participation of many stakeholders. Interface programmes with farmers and entrepreneurs will be conducted in the project area. Training programmes on various aspects of production and processing technologies will be organized to benefit farmers, extension personnel, entrepreneurs and farm woman. To strengthen the business carried out by the SHGs, entrepreneurship Development Programme will be conducted.

Brochures on the project and achievements in time to time will be published and will also made available in the website. The project findings will be disclosed (brochures/CDs /videos/literatures) will be disclosed time to time and necessary feed back will be collected for further improveemtn and better implementation. Assistance of various related organizations will be taken.

Feed back on technologies, value added products, training programmes etc. will be collected and programmes will be modified if found necessary.

Madhavank

Consortium PI

National Coordinator

National Director

## Annexure 1

**Table 1: Environmental Safeguard: Activities, Issues, Impact and mitigation Measures**

Activities	Issues	Anticipated level of Impacts		Mitigation Measures (Negative Impact)
		Positive	Negative	
Establishing/strengthening of CBOs and	Nil			
Soil & water	Water use efficiency	5		
	Water quality for	5		
	Water quality for	5		
Integrated nutrient management	Soil degradation		1	By organic recycling, requirement of inorganic fertilizers will be
	Soil biological status	4		
	Soil contamination/pollution	4		
	Heavy metals	4		
	Misuse of chemical fertilizer	5		
	Bio-wastes and non-degradable products	4		
Coconut based farming systems	Effects of change in cropping pattern on			
	Soil	5		
	Water	4		
	Environment	5		
	Increase in agricultural wastes		4	Will be converted to
	Effect on beneficial			
	Flora	3		
	Fauna	3		
Integrated plant protection	Pesticides and others		2	Adequate training on IPM/IDM will be provided so as to reduce consumption
Value added products from	Through the food chain	5		
Carbonizing and activation plant using coconut shell	Air quality –pollutants		4	Non-pollutant carbonization plant will be developed; The chimney will have adequate height

**Table 2: Social Safeguard: Activities, Issues, Impact and mitigation Measures**

Activities <sup>1</sup>	Issues <sup>2</sup>	Anticipated level of <sup>3</sup>		Mitigation Measures (Negative Impact) <sup>4</sup>
		Positive	Negative	
Establishing/strengthening of CBOs and capacity building	Unequal access to inputs		2	Sensitization workshops; group approach for procurement of inputs
	Increased poverty and indebtedness	4		
	Effect on community ownership of natural resources and intellectual	4		
	Increased role of middlemen/contractors	3		
Soil & water conservation	Greater competition for natural resources (	3		
Integrated nutrient management	Vulnerability to economic	4		
	Change in income patterns	3		
Coconut based farming systems	Vulnerability to economic	3		
	Change in Land use affecting long term	4		
	Unbalanced displacement of food crops by cash crops	2		
	Change in income patterns	4		
Organic farming	Vulnerability to economic loss	2		
	Change in income patterns	2		
Integrated plant protection	Vulnerability to economic	3		
	Change in income patterns	3		
	Health and safety hazards	2		
Value added products from	Change in income patterns	4		
Carbonizing and activation	Unemployment	3		

1 List the objective wise activities/interventions proposed in the project

2 List the possible issues according to the project interventions

3 State the likely impact (Positive or Negative) of activities/interventions on the level of issues identified. Put in a scale of 0-5 (very low , low, moderate, high, very high)

4 State the mitigation measures planned to be taken to address the negative impact