

Value Chain on Value Added Products Derived from *Prosopis juliflora*

Environmental and Social Safeguards Management in NAIP

A. Basic information

1. Project Statistics:

Component Code ¹	:	2
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Principal Investigator	:	Dr.L.N.Harsh
Institution	:	Central Arid Zone Research Institute
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Consortium Partners ²	:	National Food Products (India), Jodhpur NGO (DECO)
2. Date of Start	:	15-08-2008
3. Planned Duration	:	3.11 years
4. Project cost	:	Rs. 194.04 Lacs

5. Project objective:

- Standardization of silvicultural and tree stand management practices for high pod production.

- Development of cheaper concentrate ratios by inclusion of *Prosopis* pods and reducing cost of livestock production.
- Development of food products of high and low sugar pods and physico- chemical analysis of various food products for safe human consumption.
- Study of the present use of *Prosopis* pods and impact of various developed feed and food products on the economy of rural people and also Pricing, marketing and social aspects of *Prosopis* products value chain

6. Brief project description:

The proposed project entitled, “**Value Chain on Value Added Products Derived from *Prosopis juliflora*:**” will be undertaken by CAZRI, Jodhpur (Lead Centre) and partner, collaborative National Food Products (India), Jodhpur as business partners, who will take the technology developed during the project period and NGO (DECO), Jodhpur has an important role to sensitize the local people for the importance of the project will work as bondage links between Panchayat, Govt. agencies, farmer’s and project implementing agencies. Besides, outsourcing facilities will be used from CFTRI, Mysore, NIN, Hyderabad and NAFARI, Bangalore and other authorized laboratories for testing of products and market assessment of *Prosopis* products.

The main objective of this project is to develop the technology for the utilization of waste available *Prosopis juliflora* resource by developing different products from it and to improve the livelihood security. Though this plant was introduced in 1913 from Mexico in Marwar State by then Ruler of Jodhpur State, for greening of desert. But since then it has spread in larger area even in the fallow lands, wastelands and grass lands and caters 70-90% fuel wood requirement of rural people. But due to its aggressive nature of spread in the past few years it is considered to be obnoxious weed. Whereas, the same species in Latin America and South America many products have been developed from it and being used for human and livestock. However, in India people are not aware of its multiple uses except as fuel wood. Therefore, the proposed project will help in development of various products for its optimum utilization through value chain to improve the economy of the rural people.

Broadly the project consists of objectives with many activities under them. The objectives are aim to apply developed silvicultural practices for optimum production of pods for various uses. The identified genotype for high pod production with high sugar

contents will facilitate in preparation of different products for human food as well as livestock feed. The seed gum can be substitute for guar gum as its properties are similar to guar gum.

The bio-chemical, toxicological physico-chemical properties of products developed from *Prosopis* pods flour (Coffee, Biscuits, Tonic etc.) for human health will be studied. Similarly, pod ration on animal health will be studied. The quality of gum for human food will be studied. Once the products developed in the laboratories, than their large scale production and marketing will be taken up through entrepreneurship development. For that different industries involved. If the technology is economically viable and products are acceptable to the end users, than Industries will immediately accept the farmers will supply them and raw materials or local people and which ultimately improve the lively hood security. Once industrialization started than Govt. policy will support planting of this species.

To sensitize the people and Government Institutions about its multiple uses suitable trainings will be provided to self help groups, farmers, and small entrepreneurs by the NGO's. The electronic media, popular articles, pamphlets, videos will be developed about the products to popularize them.

To achieve all the goals, the consortium partners, each has very important role. One missing link can collapse the project. Therefore, timely interactions, meetings, workshops will be organized and reports will be published.

7. Environmental category issues in the subproject

A. Social:

- Interventions planned in the project have direct bearing on the socio-economic conditions as the project beneficiaries are rural, poorest of the poor people, small scale entrepreneurs, women and other social groups.
- Economic empowerment of local people through collection, threshing and marketing will generate the revenue resources and will improve their economic condition.
- The processed pods will be fully utilized by the animal otherwise all seeds, having 32% crude proteins, go waste through fiscal matter.

- The pure extracted seeds from hard endocarp will be used for extraction of endo-sperm gum and korma (cotyledons) will be again used in cattle feed which contains 40% crude protein. This in turn improves economy of the people.(Annexure-1).

B. Environmental:

Presently the uneven distribution of this species has negative effect on grass production and biodiversity conservation. But its proper use i.e. pods as cattle feed and human food will not allow the plants for uneven spread. The pruning and thinning of 50,000 growing on 500ha tree will reduce the competition with the companion vegetation and this help in improvement in biodiversity of the region. Therefore, Silviculture management of tree will improve the environment. (Annexure-2)

8 . Safeguard policies triggered (World Bank policies)

Items	Yes	No
Environmental Assessment (OP/BP 4.01)	[X]	[]
Natural Habitats (OP/BP 4.04)	[]	[]
Pest Management(OP 4.09)	[]	[]
Cultural Property (draft OP 4.11 –OPN 11.03	[]	[]
Involuntary Resettlements (OP/BP 4.12)	[]	[]
Indigenous People (OP/BP 4.36)	[]	[]
Forest (OP/BP 4.36)	[]	[]
Safety of Dams (OP/BP 4.37)	[]	[]
Project in disputed areas (OP/BP 7.60)	[]	[]
Project on International waterways (OP/BP 7.5)	[]	[]

B. Risk analysis and related issues

- Adaptation of improved package of practices in a holistic way will improve the economy but may be a problem if funds are not adequate.
- Collection of Prosopis pods is entirely new job, because presently fallen pods are being eaten by stray animals, therefore, initially continuous efforts required to develop interest in collection of pods.

- Supply chain for all the products are important, if at any time, short supply than it may have negative effect on marketing.
- The products coffee, biscuits, cattlefeed from *Prosopis* are new, it may take some time for their acceptance to society.
- Availability of partners to carry out the programme on a large scale for commercialization.
- Training programme among un- organized and low educated farmers may have some problem.

9. Impact assessment

Given below and adequately addressed

10. Potential indirect or long term impacts due to anticipated future activities in the project areas (assessment of anticipated conflict/ complimentarily with current as well as these proposed for the next five years in the areas in activities of sub-project.

- It is first time through this project people of India will come across various products from *Prosopis* species.
- Once the product becomes popular and accepted, than *Prosopis* plantation will be protected rather than uprooting.
- Successful model will be automatically replicated in other part of country.
- The economy of rural people will increase, as they will collect the pods and in return they will get money.
- The education of the village may increase.
- The rural entrepreneurship will help in regarding migration to urban areas through enhanced employment and income generation.
- The nutrient block prepared from *Prosopis* pod will increase livestock production and by sale of the animal products will improve the economy of the people.

11. Identify the key stakeholders and describe mechanisms for consultations with and to them done/ disclosure so far done including pre- project consultations with stakeholder's workshop before formulating the full proposal, discussing the full proposal with some stakeholders before submission to PIU.

Public Institutions:

NIN , Hyderabad
 Panchayati Raj Institution, Govt. of Rajasthan
 Forest Department of Rajasthan

Rajasthan Cooperative Dairy Federation

Private Institutions:

Shree Ram Gums and Chemicals, Jodhpur
National Food Products
Cattle Feed Industries, Rajasthan
DECO (NGO), Jodhpur

Preliminary discussions were held with villagers of identified area, NGO, industries, SHG's, various bodies of Panchayati Raj institutions before organizing stakeholder's workshop. They were made aware of NAIP project, objectives and expected outcomes and impact. The final modalities with all the stakeholders will be worked out after the project approval for formulation of final project document.

12. Chronology of meetings/ activity held in connection with preparation of the concept note and full proposal

S. N.	Date & Location	Programme	Participants	Remarks
1	4.10.2007	Brain Storming meeting for preparation of concept note with CAZRI, Scientists	Scientists of different disciplines Forestry, Animal Scientist,	How to prepare the CN and what components included. After discussion, it was decided to submit concept note on "under-exploited trees/shrubs spp. For rewarding economic use for livelihood and social security of Desert Folk.
2.	8.10.07	Identification of consortium partners	Identified Scientist for the NAIP project	Identified Food processing industries, gum industries, wood processing industries, Forest Department, DESCOM, Department of small scale industries, dairy department, NGO's. Food technology Institutes etc.
3.	10.10.2007 Jodhpur	Meeting with Industries to appraise about NAIP objectives	1. Officials of small scale industries, Food processing Industries, National Food Products (India) and Laxmi Panel and doors.	M/s Laxmi Paned Doors and National Food Products (India) agreed to be partner of NAIP project.

4.	11.10.2007	Meeting with NGO's	Appraise the objective of NAIP to NGO's. (DECO Jodhpur and Maru Amrit Anusandhan Va Jankalyan Sansthan, Bikaner	Both the agreed to work in NAIP project.
5.	28.11.2007	Stakeholder workshop at NAARM Hyderabad to brief about how to prepare the full proposal by ND, NAIP, NC, NAIP and Help Desk NAIP	All CPI's component – 2 & 3 (about 50 delegates)	Qualities for preparation of full proposal suggestion for change in title objectives, activities and budget etc.
6.	6 of Dec. 2007 at Jaipur	Meeting with PCCF forest Govt. of Rajasthan and small scale industries.	PCCF & some officials of Forest Department Small scale Industries Inspector	I explained about CN of NAIP and requested their logiest support & they have agreed.
7.	20.12.2007 at CAZRI, Jodhpur	Stakeholders meetings, for preparation of full project	CoPI's from IINRG, NGO, National food Products (India), Shree Ram Gum India & all cooperating scientist of CAZRI, Workshop was chaired by Director, CAZRI.	CPI presented the project after revision which was suggested in the workshop of NAARM Hyderabad. "Development of technologies for utilization and promotion of Prosopis juliflora products through production in consumption system value chain. All has agreed to become consortium partners.
8.	28.12.2007	Stakeholders workshop at NAS, ICAR Conference Hall	All the CPI's of NAIP Component 2&3. TAG members, experts DG	DG chaired the workshop and have given the valuable suggestions in each of CN of component 2 & 3.
9.	2.1.2007	Meeting in context of DG's briefing	All CAZRI's Co-PI, Jodhpur	Discussed the suggestion given by DG

13. Measures to address the issues:

A document on safe guards matrix has been prepared. Farmers will be trained on silviculture management of trees, pod harvesting, storage, processing and development of various products for human and livestock.

Awareness of the risk related factors would be addressed to the stakeholders through orientation sessions on topics such as adaptation of improved package of practices in holistic way.

14. Consultations/ disclosures to be done in future:

Local disclosure through mechanisms such as launch workshop, interfaces during the implementation stage of the subproject for sharing the results and soliciting feed back, one will circulate project brochures and implementation progress from time to time, putting up annual reports on the web site and annual stakeholder's workshops wherever feasible.

The consultation/ disclosures will be done as per NAIP guidelines depending on the progress of the project. Training, demonstration programme and workshops on various themes relevant to product processing, nutritional analysis, marketing and entrepreneurship development. The project findings (brochures/ CDs/ videos/ literatures) will be disclosed time to time and necessary feed back will be collected for further improvement and better implementation. Assistance of different related organizations will be taken.

1. Dissemination of holistic products of *Prosopis* processing technique and extension services to end users through other partners.
2. Demonstration of new products preparation s to stakeholders
3. Transfer of technology of value-added food and livestock feed to stakeholders.
4. Dissemination of information and sensitization of line departments of state and central governments to policy makers, planners and project partners for value enhancement of *Prosopis* plantations and products
5. Popularization through information dissemination on safety of developed products to the consumers.
6. Information dissemination through mass and print media on benefit of products to the stakeholders.

7. Linkages with financial institutions will be enabled so that as when requested the entrepreneurs are adequately financed for their commercial activities. Both print and other media will be fully utilized to attain the desired goals and objectives.
8. NGOs will play a major role along with the Panchayat Raj institutions in imparting skills to small-scale processors, family run small business units.

L.N. Harsh
Consortium PI

National Coordinator

National Director

Annexure-1

Social safe guard: Activity, issues, impact and mitigation measures

Activity	Issue	Anticipated level of impacts		Mitigation measures (Negative impact)
		Positive	Negative	
Application of silvicultural practices	Management practices for enhancing pod yield in place	5	-	-
	Supply of the germplasm having high sugar content	4	-	-
	Pod collection , storage and densification	4	-	-
	Processing of the produce	4	-	-
		Increased socio economic standard of communities	4	-
Development of alternative concentrate ration using <i>P.juliflora</i> pods	Alternatively livestock feed	4	-	-
	Reduced cost	5	-	-
Value added food products from <i>Prosopis</i> pods	New food products from abundantly available pods	5	-	-
	New market and employment generation	4	-	-
Entrepreneurship development of stakeholders and assessment of socio- economic & environmental impact	Skill development of unskilled village folk, especially women.	4	-	-
	Possibility of export market of new food products	2	-	-

Annexure-2

Environmental safe guard: Activity, issues, impact and mitigation measures

Activity	Issue	Anticipated level of impacts		Mitigation measures (Negative impact)
		Positive	Negative	
Application of silvicultural practices Supply of the germplasm having high sugar content Pod collection, storage and densification Processing of the produce	Pod yield enhancement	5		
	Increased continuous availability of feed for livestock	4		
	Minimize soil erosion (major problem of Arid tract)	5		
	Rationalize use of water/ water saving	4		
	Increased availability of high sugar pods	5		
	Help in the supply chain management	4		
Development of alternative concentrate ration using <i>P.juliflora</i> pods	Low cost value added feed	5		
	Improved health of livestock	4		
	Increased milk, meat and wool production	5		
Value added food products from <i>Prosopis</i> pods	Availability of new food products for human consumption	5		Through analysis will be done to rule out any anti-nutritional factors Safety certification (HACCP) will be obtained from NIN before launching the
	Nutritional supplement as health food	4		
	Assessment of nutritional value of new foods	4		
	Toxicity analysis for safety standards of new foods		3	

				food products in market.
Base line survey	Availability of the accurate bench mark information		2	Participatory approaches for the data collection will be carried out
Entrepreneurship development of stakeholders and assessment of socio- economic & environmental impact	Branded <i>Prosopis</i> feed and food Impact analysis on socio-economic and environmental scale will be in place	5 4		