



Tomato Processing Prioritization for Global Competence

Environmental and Social Safeguards Management

A. Basic Information

1. Project Statics

- Component Code** : 02
- Name of Consortium Leader / Principal Investigator** : Mr. Pradeep Hukmichand Chordia
- Mailing Address** : Agri Food Park (India) Ltd
399/400, Village Shirwal Sangvi, Tal- Khandala,
Dist – Satara, (Maharashtra)
PIN Code: 412 801
- Telephone Number (With STD Code)** : 02169 244338 / Fax No. 02169 245079
(H. O. - 02113 252751/52 Fax No. 02113252753)
Email :pradeep@chordia.com
- Consortium Partners** : 1. Mahatma Phule Krishi Vidyapeeth, Rahuri
2. Krishi Vidnayan Kendra ,Baramati Dist Pune
- 2. Date of Start** : 14th September 2008
- 3. Planned duration** : 4 years
- 4. Project cost** : Rs. 6.68 Crores

5. Project objectives:

- To standardize cultivation practices of processing tomatoes for high productivity ,TSS, pectin and lycopene by varietal selection, integrated crop production (ICM,IPM,IPNM), micro irrigation etc.
- To develop centralized large scale nursery management system & farm equipments for tomato cultivation (transplanters, harvester, plant protection devices etc.)
- To develop protocols of food safety management system and product traceability from ‘farm to fork’ based on GAP(production) and HACCP(processing) standards.
- To apply electronics & IT based systems in value chain (Farm, logistic & processing) for accurate and faster data communication.
- To design the model for Collaborative farming linked with holistic extension services based on cluster development between farmers and processors with buyback system.
- To improve demand of tomato products through development of novel products and processes.



6. Brief project description:

Status of Tomato Processing in the World

Tomato is the world's largest vegetable crop and known as protective food both because of its special nutritive value and also because of its wide spread production. Tomato is considered as an important commercial and dietary vegetable crop. Tomato is a rich source of minerals, vitamins and organic acid, essential amino acids and dietary fibres. As it is short duration crop and gives high yield, it is important from an economic point of view. Hence, the area under its cultivation is increasing day by day. Tomato is used in preserved products like ketch-up, sauce, chutney, soup, paste, puree, etc. The world trade of processed tomatoes, such as puree, paste, sauce and tinned tomatoes, has intensified in recent years as world exports of tomato products continue to increase.

China is one of the largest exporters of tomato products in the world and accounting for 25 per cent of tomato paste exports by volume. Other key countries that supply tomato paste include the EU15, the United States, China, Turkey, and Chile. India produces 7.6 million tons of tomato products a year but due to the lack of proper processing its export potential is limited, because of the large requirement of raw tomatoes, the processing model is very much cluster based in the World. Tomatoes are delivered to factory in open truck for short distances to avoid more transport and packing cost. At one side in India, farmers are throwing tomatoes on street during glut, and on other hand tomato paste is been imported by ketchup manufacturers from China.

Farm Producer to Consumer Value Chain on Tomato

At present there is no systematic link between farmers (producer) and consumers. The procurement of raw material (tomatoes) in open market is in the hand of agents and middle men in APMC market. The farmers and the processors are exploited by these agents. In this chain, missing links of backward integration can very well address by creating clusters of farmers. The latest technologies of cultivation, Pre-post harvest, socio-economic benefits like crop insurance, IT , improved logistic etc. can be transferred to them in seamless manner.

In the project, all the stakeholders will be benefited. Farmers will be benefited by higher yields, economical returns, assured market linkage with price, new technology for cultivation, and improved social life in clusters. Women, self help groups, rural youths will be participating in these programmes. There will be huge scope for rural employment generation. At present, single processor can not do backward linkages alone because of the scale involved and socio-economic pattern of business. Food Park, BAIF, KVK and Tomato Growers Association could be the good platform for positive linkages between farmers and processors.

7. Environmental category issues in the subproject

- Social
- Environmental



8. Safeguard policies triggered (World Bank policies)

Safeguard Policies Triggered (World Bank Policies)		
	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 Resettlement (OP/BP 4.12)	[]	[]
Indigenous Peoples (OD 4.20)	[]	[]
Forests (OP/BP 4.36)	[]	[]
Safety of Dams (OP/BP 4.37)	[]	[]
Projects in Disputed Areas (OP/BP 7.60)	[]	[]
Projects on International Waterways (OP/BP 7.50)	[]	[]

B. Risk analysis and related issues

- Improved package of practices for the tomato cultivation for better yield may increase the cost of cultivation and farmers may not get motivated for it.
- Cost fluctuations in the tomato in every season is very high normally, if the trend remains same then for processing industry threat of nonavailability is there.
- Awareness on tomato consumption for its nutraceutical and nutritional values may not work out and consumption may increase marginally and not drastically.
- Cost competitiveness of Indian tomato paste and other tomato based products against China made seems difficult due to high technology and GAP in China.
- Apart from China , major players of tomatoes from other countries are entering into market.
- Identification of processing variety of tomatoes for Indian environment and practices is not yet done hence traditional methods and varieties with IPNS / IPM applications are the only available data. May be better option get missed out.

9. Impact assessment

Given below, and adequately addressed

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

- a. On production front of tomatoes there is low risk of any adverse effect on soil, water as the fertilizer doses will be balanced and well managed with low concentrations.
- b. The study of pesticides / fertilizers on the soil , water at field level will be done when mass production will be done.
- c. At processing site the impact of waste generated will be of solid and effluent water which will be managed internally by the solid waste earthworm bed formation and effluent treatment plant for water treatment. Study will be done after starting production at mass scale.



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

Public institutes:

1. CFTRI, Hyderabad
2. Department of Agriculture & Department of Horticulture Maharashtra State, Pune

Private participation:

1. Deepak Fertilizers & Petrochemicals Pune
2. Syngenta seeds
3. Beejo Sheetal Seeds

NGOs:

1. Maharashtra Tomato Growers Association, Shindewadi (Pune)

Preliminary discussions were held with few stakeholders and NGOs & they were made aware of NAIP project, objectives and expected outputs and impact. Role of each one mentioned above is been brainstormed and will be finalised in stages as per the requirements.

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

Sr. No.	Date	Location	Program	Participant	Remark
1	08.06.2004	Chordia Food Park Shirwal	Development of agritech center	Agri Commisioner Pune	Appointment of technical officers
2	12.04.2006	Dhanep, Tal Velha, Dist Pune	Vegetable collection center	Pradeep Chordia, Chandrakant Mahale, TOA and 25 farmers	Information about collection centre
3	09.06.2006	Chordia Food Park Shirwal	Finance for the crop loan	Zonal Manager Corporation bank	Information on crop loan and repayment
4	25.08.2006	Deepak Fertilizer	Seed company's connectivity with farmers	Pradeep Chordia, Commisioner of Agriculture, Pune & 25 farmers	Seed company of TIUAN , connectivity of farmers of Wai and Khandala
5	23.11.2006	Deepak Fertilizers	Tomato cultivation for yield improvement	Deepak fertilizer representative, 25 farmers	Improved cultivation practices with high yielding varieties
6	27.12.2006	Shirwal	Agri production and its marketing	Deepak fertilizer representative and 13 farmers	Agriculture production of good quality and yield and its marketing strategies



7	04.01.2007	Le Meridian Hotel	Backward and forward linkages	Dr. Magar, Vice chancellor KKV, Dapoli, Aappasaheb Bhujbal, Director, Agri processing – MS, 19 participants from Bank, SIDBI, IL & FS, NAFARI, MCCIA, bank, Deepak fertilizer etc	Govt support to food industry, various technical and commercial aspects of fruits and vegetables
8	13.02.2007	Panchagani	Fruits & Vegetables availability for processing	Superintant of Agri Dept, Satara, IL&FS representative, about 40 farmers of Bhilar, Chordia Food representative	Discussion on cultivation area, farmers expectations, processing unit's expectations, joint hand for better returns , field visit etc
9	23.02.2007	Kelawade	Tomato farmers meeting	IL&FS representative, about 40 farmers of Bhilar, Chordia Food representative	Discussion on cultivation area, farmers expectations, processing unit's expectations, joint hand for better returns , field visit etc
10	31.03.2007	Chordia Food Park	Backward linkage from producer to manufacturer	Mr. Ahluwalia Deputy Chairman Planning commission, 10 farmers	Mutual benefit of farmers and manufacturer by strategic backward integration
11	05.07.2007	District Agriculture office, Satara	Formation of vegetable grower association	Divisional agriculture officers, Tahsil Agri assistant, Director, Baliraja Krishi Vidyanan mandal, Secretary flower grower association etc	Infrastructure, functioning of veg grower association.
12	16.11.2007	Agriculture College , Pune	Potential for food processing in India	Pradeep Chordia Dr. Shirke, Agri college Head, Farmers and MPKV faculty	Presentation on potential of food processing business in India
13	06.12.2007	Chordia Food Park Shirwal	Food Processing industry	Mr. Joshi, Deputy collector, Tal Agri officers (36nos) and Pradeep Chordia	Farmers direct linkages with Food Park.
14	05.01.2008	Mahatma Phule Krishi Vidyapeeth, Rahuri	Tomato cultivation , varieties, mechanization	Dr. Rajendra Patil, HOD, Horticulture Dept and Mr. Rode – Agriculture officer of AFPL	For improvement of yield different varieties of tomatoes developed, mechanization and irrigation practices, organic farming etc
15	10.01.2008	BAIF, Warje, Pune	Tomato project preparation	BAIF – Team of 4 members including Mr. Kakade, Vice President, Deepak Fertilizers and AFPL team members	Role of all partners and inputs for the project work of tomato cultivation and processing best practices
16	15.02.08	Agri Food Park India Ltd	Interaction meeting with CoPIs after TAG 2 presentation	All Partners	Various issues were discussed and interactions were noted.
17	07.03.08	Agri Food Park India Ltd	Interaction meeting with CoPIs for	All Partners	Suggestions discussed and modifications and improvements



			suggestions on Project implementation by National co-ordinator, NAIP – Project Implementation Unit		incorporated.
18	21.04.08	Agri Food Park India Ltd	Interaction meeting with CoPIs – Review of progress	All Partners	Proposal modifications as per NAIP (ICAR) directives in TAG 2.

13. Measures to Address the Issues:

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

A document on the disease management, brochures, trainings on farms will be done to educate the farmers.

14. Consultation/ 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 workshops wherever feasible.

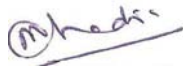
The consultation/ disclosures will be done as per NAIP guidelines depending on the progress of the project. Participating farmers will be trained through demonstration programmes and workshops on various themes relevant to farming including use of IPM & IPNS, primary processing, post-harvest product preparations, packing, labelling, retrofitting, nutritional benefits awareness, recipe making, marketing aspects *etc.*

The project findings (brochures/ CDs/ videos/ literatures) will be disclosed time to time and necessary feedback will be collected for further improvement and better implementation. Assistance of different related organizations will be taken.

1. Dissemination of holistic crop management and extension services to participating farmers specifically IPM & IPNS through training & education programmes.
2. Demonstration of new products preparations to stakeholders
3. Transfer of technology of value-added health foods to stakeholders



4. Dissemination of information and sensitization of line departments of state and central governments to policy makers, planners and project partners for enhancement of millets consumption
5. Popularisation through information dissemination on safety of developed products to the consumers.
6. Information dissemination through mass and print media on health and nutritional benefits to stakeholders, targeted groups especially diabetic and obese urban consumers.
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.



Consortium PI

National Coordinator

National Director



Annexure I

Environmental Safeguard: Activities, Issues, Impact and Mitigation Measures

Activities	Issues	Anticipated level of Impacts		Mitigation measures (Negative Impact)
		Positive	Negative	Remark
Baseline Survey				
On farm production for specific end users – use of HYV's/crop diversification	Yield increase	2		
	Positive effect on use & availability of water resources	2		
	Positive effects of change in cropping pattern on soil, water and environment	2		
	Effect on agro biodiversity-fodder availability increased			NA
Integrated farm extension services with buy-back	Crop management is in place	3		
Procurement, aggregation, and storage function in target regions. (harvest & storage of produce)	Shelf-life enhance , No problem of storage , pests	2		
Transport & processing of produce	Plastic crates as primary storage, transportation in trucks	4		
Activities	Issues	Anticipated level of Impacts		Mitigation measures (Negative Impact)
Packing and marketing	Aseptic packaging in bulk pack	2		
By-product value addition	Byproduct utilization	2		
Evaluation of semi-processed tomato products like puree, paste for different value added products	Nutritive and medicinal benefit to the human being	3		
Assessment of nutrient composition in tomato processed food	Rich in Vitamin A, C and also B complex vitamins.	3		
Nutritional evaluation of the tomato processed foods for heart and cancer patients.	Tomato is rich in Lycopene which is effective for cancer and heart treatment	3		
Implementation of HACCP	Food Safety management system will be in place for the tomato processing unit.	4		
Sensitizing line departments of governments for enhancing tomato consumption	Wide benefits of tomatoes for human health , awareness to be improved.	2		
Entrepreneurship development of	In order to fulfill the requirement of consumers	2		



stakeholders for intensive cultivation, product development, mechanization	world wide, cultivation area, mechanization to be improved by giving technical inputs.			
Value-addition through branding of tomato as health foods by training and popularization.	Special focus on nutritional values	3		
Assess socio-economic and environmental impacts of the interventions for uptake plan.	Environmental impacts information will be in place	2		



Annexure II

Social safeguard : Activities, Issues, Impact and Mitigation Measures

Activities	Issues	Anticipated level of Impacts		Mitigation measures (Negative Impact)
		Positive	Negative	Remark
Base-line survey	Availability of accurate bench mark information	3		
On farm production for specific end uses use of HYV's/crop diversification	1. Change in occupational patterns		2	Technical knowledge is the prime benefit for farmers.
	2. Unequal access to inputs		2	Inspite of technical production training chance of dispute in accepting by farmers.
	3. Selection of clusters-social conflicts		2	Cluster location and cluster management will take care locally.
	4. Hike in income	2		
Integrated farm extension services	Effective crop management practices in place	2		
Buyback assurance	Market assurance is in place	3		
Aggregation & storage function in target regions (harvest & storage of produce)	Supply-chain management is in place for commercialization	2		
Transport and processing of produce	Will be taken care by processing unit	3		
Development of convenient and ready to eat tomato processed foods	Gender issue- Women's time is saved due to avoid drudgery in preparation	2		
Packing and marketing	Good packaging offer for best shelf life as well as aesthetics.	3		
Product(s) for wide-spread markets & niche markets	Clear market segmentation of different products	3		
Pricing of developed food products	Value added processed products of tomatoes as per the consumer choice to be developed and competitive pricing will be done.	3		