

# **CROP POST HARVEST PROGRAMME**

**Integrating Markets, Products & Partners: An Action Research to  
Explore & Develop a Management System for Linking Tribal  
Communities to Markets Through Value Addition**

**R 8266 ( ZBO 336)**

## **PROJECT FINAL REPORT**

**1 February 2003 – 31 December 2004**

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# Project Final Report

## Section A Executive Summary

**A very brief summary of how the outputs of the project contributed to the purpose, the key activities and highlights of dissemination outputs. (Up to 500 words).**

Any intervention for poverty reduction through Income Generating Activities (IGA) necessitates strong linkages at various levels; between markets (both for supply of inputs as well as for receipt of output), intermediaries, users, technology suppliers, research institutes as well as grass root level facilitating organisations.

IDEI has developed and refined such an approach over the last 10 years of its experience in the water sector in India. The approach uses commercial marketing principles such that markets are influenced to be more pro poor. IDEI plays the role of a facilitator and integrates the efforts of various players such as marketing intermediaries, manufacturers and NGOs to create demand for and supply of appropriate, affordable technologies for the small and marginal farmers of India. This approach has understood the importance of 'Partnerships', the need for using 'marketing principles' for more effective pro poor solutions. Besides water sector IDEI also applied this approach in the CPHP project on Tomato Packaging it implemented in Himachal Pradesh, India.

The project "Integrating markets, products and partners: An action research to explore and develop a management system for linking tribal communities to markets through value addition" had the following purpose:

"Institutional innovations adopted as a way of establishing systems that improve the livelihood of poor tribal horticulture growers through value addition".

This project was designed to use management principles, further building on IDEI'S approach to explore technology and livelihood interventions for the tribals and to further explore and build a series of relationships that can support and sustain technology development and supply, markets and the integration of poor people into these market and technology systems. Further, this project was designed as a coalition project with three key partners: a) IDEI as the managing partner with skills in marketing, b) OUAT as the technical partner with skills in adapting technology for specific needs and contexts and c) CCD (Centre for Community Development) a local NGO partner with excellent social skills and a close relationship with the tribal community.

The project looked into increasing returns to the tribals by value addition to the crop produced. It evaluated various options such as facilitating marketing linkages with private sector agro-processing units, processing of the produce to increase shelf life, which again could be fed into an agro processing unit, processing for sale as the final product and even the possibility of creating new alternative markets for the produce. These and other possible options were assessed in line with needs of the farmers, quality of the produce and market demand for the output.

The outputs of the project were:

1. Strategic assessment of constraints faced by tribals in accessing higher returns for their key high value crops.
2. A business strategy for linking tribals to markets through a prototype enterprise involving multiple agencies validated and promoted.
3. A set of project design principles from experiences of implementing a multi-agency agro-process project focusing on poor tribals developed and disseminated.

Within two years, the project successfully achieved the following.

- ❖ Conducted a Livelihood Analysis Study together with Market Analysis of Value Added Product and Institutional Analysis and recognised that the local horticulture crop growers:
  - Produce a range of horticulture crops the main being pineapple, guava, lemon, cashew apple and tamarind
  - Sell their produce at very low prices and have no access to market information particularly on the potential of value added products and market prices
  - Have no bargaining power due to absence of infrastructure for storage, transportation
  - Lack knowledge of value addition techniques and alternatives
  - Lack access to markets and linkages with agro processing units
- ❖ Established partnerships with OUAT and CCD having skills in post harvest technology development and community organisation skills respectively to work with different forms of value addition trials with the crops grown and implement a system of technology transfer, application and adoption from the producer's level till it finally reaches different markets through different linkages.
- ❖ Tried out and provided value addition technologies by means of creating awareness of the benefits of value addition, providing training on value addition by technical experts, offering technologies to the commercial processors, exposure visits for gaining information on good practices, linking producers, traders, processors with different service providers like OUAT, Horticulture Deptt, NGOs, Packaging agencies etc for getting services for value addition.
- ❖ Trained SHGs to produce different forms of valued horticultural produces such as osmo-dehydrated pineapple slices and tit-bits, osmo-dehydrated jackfruit tit-bits, cashew apple RTS, jackfruit pickle, pineapple and lemon juice extraction and preservation, guava candy, Citric acid from lemon and tried out market testing of some of the products to get customers feed back for further product development.
- ❖ Established linkages with private food processing industries like M/s Arren Foods Pvt Ltd and OMFED for bulk procurement of horticulture produces (both raw as well as processed produce) like pineapple, lemon, seedless tamarind etc.(one MT of pineapple juice and lemon juice was supplied to OMFED and one quintal of seedless tamarind was supplied to Arren) This directly benefited the community in terms of getting better price, assured sales and better bargaining power. In the process expanded the relationship base to SHGs, grass root level NGOs, farmers, traders, transporters, packers and buyers.
- ❖ Placed proposals with CAPART and Department of Science and Technology, Govt. of India for the set up of a processing plant for bridging the gap between excessive supply of horticulture produce and demand of processing and value addition with an expectation that the unit will provide employment opportunities, better crop returns and assured market.
- ❖ Formed a federation of the growers i.e Gajapati Women Self Help Cooperative Ltd to be a key player in the system to facilitate trading, value addition activities as well as look into capacity development of the growers under the active guidance of CCD.
- ❖ Organised a one-day state level workshop on Crop Post Harvest Options and Market Potential for the sustainable livelihood of the small and marginal farmers with an objective to share the outcome of the project and the important learning with NGOs, private sector processors, technical agencies, Govt. Departments etc About ninety

representatives from different organisations participated. Forward linkages with private sector players could be developed for the interest of the poor growers.

## Section B Background

### B.1 Administrative data

NRIL Contract Number: ZBO 336	Managing Partner(s)/Institution(s): International Development Enterprises (India)
DFID Contract Number: R 8266	Partner institution(s): CCD, Parlakhemundi, Orissa, India (Local NGO Partner) OUAT, Bhubaneswar, Orissa, India (Technical partner)
Project Title: Integrating Markets, Products and Partners: An action Research to explore and Develop a management system for linking tribal communities to markets through value addition.	Target Institution(s): Small and marginal tribal horticulture crop growers in Gajapati district of Orissa, India
Research Programme: Crop Post-Harvest	Start Date: February'2003 End Date: December'2004
Thematic area: Project contributes to theme one in CPHP South Asia Regional Strategy: Horticulture/ Rural Diversification/ Value Addition. It addresses the broad theme of the CPHP strategy of exploring the institutional and organisational issues that surround the success of technology based interventions in poverty alleviation	Budget (i.e. Total Cost): £135,000.00

## Section C Identification and design stage (3 pages)

### Poverty focus

**How did the project aim to contribute to poverty reduction? Was it enabling, inclusive or focussed (see definitions below<sup>1</sup>)? What aspects of poverty were targeted, and for which groups?**

**Please describe the importance of the livelihood constraint(s) that the project sought to address and specify how and why this was identified.**

**How and to what extent did the project understand and work with different groups of end users? Describe the design for adoption of project outputs by the user partners?**

After having successfully completed the CPHP project in Himachal Pradesh, IDEI decided to implement this project using a total systems approach with several institutional actors with complementary skills participating in it. IDEI initiated this project by making a critical analysis of the post harvest issues, opportunities and livelihood options available for the small and marginalized farmers and the impact it would create on the lives of the poor. Orissa being the oldest programme area of IDEI in the water sector, having good relationship base with different stakeholders and resource base and opportunities for the sustainable livelihood of the poor farmers was selected for project intervention.

<sup>1</sup> **Enabling:** addresses an issue that under-pins pro-poor economic growth or other policies for poverty reduction which leads to social, environmental and economic benefits for poor people

**Inclusive:** addresses an issue that affects both rich and poor, but from which the poor will benefit equally

**Focussed:** addresses an issue that directly affects the rights, interests and needs of poor people primarily

While the CPHP project of IDEI in Himachal Pradesh was inclusive in nature, this project was focussed on the tribal communities which were the most marginalized groups living in that area.

### **The Livelihood Constraints And Issues**

The most backward district i.e. Gajapati in Orissa state which is mostly inhabited by the tribal with optimum below poverty population in spite of the abundant resources available was selected as the project site. The tribals otherwise called "SAURAS" grow a wide range of horticultural crops (such as pineapple, oranges, jackfruits, mangos, lemons etc). However despite cultivating horticulture crops, they receive an inadequate price and remain below the poverty line. Since they are physically distanced from markets, they do not market the produce by themselves. They sell the produce to the traders, usually the scheduled castes ( a socio-economically backward community) living in the region, who in turn sell it to the middlemen for onward sale to other larger markets. As a result, the tribals lie at the most disadvantaged end of a long marketing chain. There are number of factors that disadvantage the tribals and limit the market opportunities available to them.

First the produce is usually seasonal, is perishable and has a low shelf life. In addition, the tribal farmers neither have the knowledge and skills nor access to information regarding value addition options. As a result, given its perishable nature, the farmers often resort to distress sale receiving very low prices. For example, for pineapple during the peak harvest time the tribals only get about Rs 0.50- 1 per piece.

Secondly the tribals have to traverse long distances by foot (they live several kilometres in the interior hills) to reach the nearest market. They have also limited options for selling their produce. They depend mainly on the traders particularly on the weekly market days. This means that in the interim period they are not able to pick the fruit which over ripens giving the trader another reason to give reduced price.

Culturally, tribals spend their limited resources on rituals and festivals in the villages. Credit requirements are thus high and in the face of under developed credit options, the tribals often are dependent on the traders for credit which comes in the form of farming inputs, barter with essential items or even cash for the ceremonies. At times, the farmers then mortgage their land for 2-3 seasons and end up working as labourers on their own lands.

While the tribal farmers have been growing horticulture crops, the marketable product quality has not improved. The adoption of improved varieties as required by the market is slow. Erratic rainfall, pest attacks, degrading soil fertility and inadequate knowledge of agronomic practices have further impacted the marketable quality. Though the government tribal and horticulture departments have been working in the area, there have been ineffective extension services provided to the farmers.

Although attempts by several institutions such as the government departments, local NGOs and private sector players to address some of these issues were made nothing successfully materialised to the benefits of the growers. Very few farmer friendly technologies available with the technical institutions like OUAT were taken to the field due to the limited linkages with the implementing organisations such as NGOs, entrepreneurs and others. Infrastructure related problems such as road , telecom, electricity, transport, storage and preservation and proper market places are yet to draw attention of the Govt. or the private sector.

Given the above description the project developed and tested systems and strategies for institutional arrangements to function effectively such that poor tribal horticulture growers through value addition could gain higher returns to overcome poverty.

## **End User's Work Plan For Adopting Project Outputs**

The Project outputs essentially looked at putting systems in place that would lead to adoption of technologies at various levels and marketing of products through value addition.

The project trained women SHG groups in value addition techniques. The growers in the form of their SHGs and federation of SHGs i.e. Gajapati Women Self Help Cooperative Ltd have plans to continue with the business of value added products and will continue its search of finding new business partners with the guidance of CCD.

M/s OMFED and M/s Arren Foods have committed to purchase both raw and processed horticulture produce for the growers through their SHG federation.

CCD being the local NGO has already processed its plan of setting a processing unit in the project area. It also has a plan to develop the capacity of the SHG members and their federation in terms of handling value addition activities and running the business. It also plans to develop and promote a brand name i.e. **Mahendragiri** for a range of value added horticulture produces to be promoted over a period of time. Supply chain members such as traders and dealers are ready to stock the value added products produced by the cooperative society as they experienced a good demand for these products locally during the market testing phase.

With the experience that IDEI has gained vide this project, IDEI intends to apply many of these learnings in its other project areas across 10 states of India.

OUAT having gained experience in this project is now looking for projects in collaboration with its counterpart agencies and other universities for developing and disseminating more and more appropriate and user friendly technologies for the benefit of the rural poor.

### ***Institutional design***

**Describe the process of forming the coalition partnership from the design stage and its evolution during the project?**

**Is there an explicit institutional hypothesis? If yes, is it trying to attack a failure or inadequacy in a mechanism?**

**What other institutional factors were seen as being important?**

### **Working Through Others**

During the project design phase, there was a clear and defined need for partners who could contribute to the following elements to the project.

- A managing partner that had a prior experience of working with crop post harvest interventions and had marketing skills to coordinate and network between the other project partners.
- A technical institution with a credible crop post harvest department, that could conduct trials, appraise technology and transfer it to the poor tribal community
- A grass root level NGO that could mobilise resources, organise people and address the needs of the community of the area.

The IDEI's approach to work through others was successful in the CPHP implemented in Himanchal Pradesh. Based on the learning gained on this front IDEI decided to apply this approach in this project with IDEI viewing its role as one of managing relationships with its partners, establishing systems, coordinating innovations and enabling the needy community to get benefits from the project interventions

The various partners involved in the project were:

**Orissa University of Agriculture and Technology (OUAT):** The crop post harvest department in particular had involvement in developing low-cost, user-friendly, mechanised and non-mechanised value addition technologies for the farmers. However limited opportunities existed for taking these technologies to the level of the farmers. OUAT too was looking for avenues where their technology, expertise could be utilised and put to use for the benefit of the farmers.

**Centre for Community Development (CCD):** A grass root level NGO of Gajapati district having good access to the community and the organising skills had already made some attempts to address some of the livelihood constraints of the poor tribals through promotion of horticulture cultivation. It had however, recognised that main constraints that the community was facing in obtaining higher returns for their produce was;

- Absence of value addition options, technical expertise for the same
- Lack of linkages with high value markets for horticulture produce.
- Lack of utilization of the prevailing Govt. support (know-how available with the state level universities like OUAT, resources with Horticulture Department, dearth of updated information and lack of information dissemination.

The common concern for the poor and the need to utilize resources of expertise, skills and technology for the benefit of the poor brought all the partners together with certain values and commitments for the community. These partners were well acquainted with each other and had worked together before on separate occasions. Like CCD had been utilizing KB pump of IDEI for their operational area and had been a major promoter of the same in the Gajapati district. This had established a good rapport between CCD and IDEI Orissa team. CCD had also been helping OUAT in the field trials of the prototype low cost processing machines ( dal processing machine) designed by OUAT. Similarly IDEI had been working with OUAT for R&D and trials of its irrigation technology. The other stakeholders who were involved in the project during the process of implementation are as follows.

- **TRIBAL FARMERS:** Project participants to benefit directly from the project interventions. Keen to participate, share information and learn. Share good relationship with CCD. Excited about project objectives. Informal agreement to actively participate in project activities. Key motivating factor for them is higher return for horticulture produce.
- **SELF HELP GROUPS:** Groups of women tribal farmers working in horticulture, fairly progressive and having good savings. Very keen to invest savings in a productive manner. CCD the local partner had already initiated the process of group formation which was considered potential to use them in the business line.
- **PRIVATE SECTOR:** included agro processing units M/s Arren Foods pvt ltd, M/s Mamata Agro Foods, M/s Ruchi and OMFED in the public sector who provided linkages for marketing of the horticulture produces either in raw form or in value added form. The process of getting them involved started from individual contacts, which the partners had with some of the key functionaries of the above firms.

- **COMMISSION AGENTS:** Traders and key informants who shared concerns and helped the growers in marketing of their produce
- **TRIBAL DEVELOPMENT DEPARTMENT:** Implementing the horticulture development schemes for the tribals. Provided valuable information on crop varieties and appropriate varieties for value addition.
- **NURSERY GROWERS:** both in the Govt and NGO hands who supplied quality and new improved varieties' saplings to the growers for plantation. They provided valuable information on variety improvement, extent of coverage in the area, orders for the seasons, etc.

In addition CAPART and department of Science and technology in the Govt set up were approached for providing financial support to CCD for setting up a processing unit in the project area. M/s Hindustan Wood and Iron Industry in Jeypur, Orissa manufactured and supplied tamarind decorticating and pressing machines to the SHGs through CCD. M/s Chauhan Brothers in Cuttack were involved in the supply of plastic containers, packaging materials and corking machines. M/s Jagannath Merchandising Pvt Ltd who conducted the consumer survey on Osmo-dehydrated pineapple slices and tit-bits and the market analysis of value added products in Bhubaneswar and Cuttack cities and continued to provide market related information on value added products.

### **Institutional Hypothesis**

The project tested the hypothesis that a successful coalition of partners with complementary skills in technology development and adoption, community development, marketing and business management will result in benefiting poor tribal horticulture growers by putting in a system that will link the farmers to markets and technology for value addition.

This hypothesis had a strong institutional as well as technical component. On the one hand, there is the situation of tribal farmers not being linked to markets due to lack of value addition opportunities and on the other hand existed a lack of a coordinated effort of various agencies to put such a system in place. The project tested this hypothesis that if various agencies each with their own skills, come together to address a problem they would be able to solve it jointly.

By the end of two years, the project has not only put a system in place but also strengthened relationships between partners for long term. For example OUAT now gets the support of CCD to demonstrate its other technologies like dal mill, decorticator etc. in the operational area of CCD. Similarly CCD is presently implementing the water technologies of IDEI in its operational area. OMFED has also asked CCD to submit a list of all horticulture produce in which OMFED is interested for purchase.

All partners and other organisations that have been associated over the life of the project have seen and realised the benefits of working together in partnerships and it is expected that they will use these principles to guide their other projects.

Some of the important institutional factors responsible for the success of the project are:

- The common agreement and trust between the partners
- Commitment to work for poverty reduction.- sometimes reflected in hard work, working late nights to complete lab processes and tests as the produce was perishable
- Timely and routine coordination by the managing partners and taking partners into confidence. The project steering committee meetings as well as informal meetings with the partners, the personnel involved at work places and homes, sharing of documents and simply just being in touch made it possible.
- Sharing of equal accountability and responsibility within the project. For example each of the core partners took up assigned responsibilities as per decision taken in the steering



committee meeting without hesitation. It was not just the responsibility of the Managing partner.

#### **Section D Implementation process (5 pages)**

##### **How was participation maintained among the different stakeholders (the Managing Partner(s) and the Core other Partners and, where relevant, user communities) in the research process?**

Considering the nature of the project and the extent of involvement of technical and social aspects IDEI from the very beginning of the project design phase looked for the suitable partners. As mentioned earlier in this report the relationship base that existed between the partners CCD, OUAT and IDEI in the past in relation to IDEI's work in the water sector was very useful in arriving at a common understanding.

Besides the process of dialogue, two rounds of visits to the project area were organised in order to assess the practical situation, interact with the farmers, observe and understand the livelihood systems of the tribals in the field. The partners were also involved right from the beginning in project formulation and they all participated in the project formulation workshop organised at ICRISAT, Hyderabad.

A calendar of activities with details of individual partner responsibilities and output delivery was prepared from the very beginning. This provided enough clarity on their roles and responsibility. A stakeholder-monitoring table was also prepared mentioning the general role of the partners and their specific monitoring responsibilities.

Every four months a steering committee meeting consisting of all the partners was organised to review the progress made on the research activities and plan for the next three months. This forum provided opportunity to take each partner into confidence on the project front, strengthen relationships and trust each other. The irritants for the partners were discussed and sorted out amicably. For example on the first trial of the technology while processing pineapple, guava, lemon etc the processed products got damaged and CCD questioned the credibility of technical experts from OUAT. The process of defending each others side continued till we had the steering committee meeting where both the partners were made to understand what went wrong. In fact lack of hygienic aspects (particularly the bottles were not sterilised properly) and the absence of a bottle sealing machine for air tight sealing were the main reasons for early fermentation. This led to organising a training on sterilisation and hygienic measures and also the purchase of a bottle sealing machine from Kolkata.

Moreover the concepts and experiences on project management principles from the partners of other coalitions helped them to learn and apply the new knowledge in their respective management field. After attending the learning-sharing workshop in Hyderabad in March '04 all the partners were excited and motivated due to the positive feedback received from the CPHP-SA team and other coalitions. This in it self was a driving factor to push further the research process.

From the managing partner's side a minimum of two visits to the partner organisations per month was ensured to have share experiences, progress, develop a transparency in work, understanding of the work culture and the process. Immediate solutions could be drawn on specific problems without waiting till the quarterly steering committee meeting. For example OUAT wanted to get some stainless steel cutters, which was not available in Bhubaneswar. Since IDEI had an office in Kolkata the design and fabrication of the cutters could be done in Kolkata with the help of IDEI Area Manager. Similarly the requirement of OUAT on HDPE plastic packaging material, which could stand vacuum packaging pressure, could be obtained from Delhi being coordinated by IDEI.

IDEI posted one Area Manager at the field level to closely monitor and guide project activities and interact with the tribal farmers at regular intervals. This provided support to the local partner CCD to plan and implement project activities. Several rounds of discussions in villages while conducting livelihood, marketing and institutional analysis were done jointly by CCD and IDEI.

### Analysis Of The Partnership Process

The methods and techniques of partnership process evaluation applied by IDEI in its Himachal CPHP was applied in this project.

The process variable of interest, which was further explored, are as follows.

- Pre-partnership relationships
- Personal rapport between key persons
- Mutual assessment of ability, standing, competencies etc.
- Existence of a formal agreement
- Perception about ownership of the tasks
- Frequency and nature of contacts etc
- Transparency and mutual accountability
- Irritants if any and how are they sorted out.
- Social distance
- Centrality of financial relationship

The process outcomes could be as follows:

- Trust
- Enhanced mutual respect
- Enhanced sensitivity to the other's concerns
- Willingness/ability to continue relationship beyond project period etc.

An attempt was made to characterise the three partnerships in terms of process variables and process outcomes as in the table below.

*Process Variable:*

#### IDEI PARTNERSHIP WITH

Process Variable	Farmers	CCD	OUAT
Pre-Partner relationship	Informal relationship while promoting Treadle Pump	Informal association while promoting treadle pump	Relationship with some of the Key functionaries who helped in testing of treadle pump.
Personal rapport between key persons	None	Rapport existed between the director, CCD with the ED, IDEI	Rapport existed between the regional incharge at Orissa (IDEI) with the dean, CAET, OUAT, BBSR
Mutual Assessment of abilities and standing	Good assessment of needs and requirements of farmers by IDEI	Clear assessment of mutual skills & strengths	Good assessment of mutual strengths
Existence of a formal agreement	None	Agreement between IDEI & CCD existed	Agreement between IDEI & OUAT existed
Ownership of the tasks	IDEI owned the task but farmers participated fully and with complete involvement.	In terms of commitment to people's development objectives they owned responsibility	Being the Govt. owned agricultural university shown keen interest as part of their commitment to serve the poor people and owned the development process.

		of getting the task done	
Frequency & nature of contacts	Frequent and long personal visits of IDEI and CCD staff	Frequent and long personal visits of IDEI staff to CCD	Several visits and contacts from both the sides
Transparency & mutual accountability	High	High	High
Irritants, if any and how are they sorted out	Their valuable time devoted to discussion during busy hours, sorted out by motivation & creating a feeling that the discussion is important.	Periodic minor problems did exist that were sorted out through phone calls & regular meetings	Not keeping to the quality standard of value added products in laboratory condition, sorted out through personal level discussion steering committee meetings and close monitoring
Social distance	Moderately high	Moderately high	Moderately high
Centrality of Financial relationship	No direct financial relationship	Financial relationship existed for project activities	Financial relationship existed for carrying out technology trials, transferring skills to the field.

*Process Outcome:*

#### **IDEI PARTNERSHIP WITH**

<b>Process outcome</b>	<b>Farmers</b>	<b>CCD</b>	<b>OUAT</b>
Trust	High	High	High
Enhanced mutual respect	Significant	Significant	Significant
Enhanced sensitively to others concerns	High- IDEI understood the livelihood condition of the tribals. Higher income return for the tribal growers through value addition was the main concern	High. Had the similar concerns for the poor like IDEI knew that it has to continue supporting / guiding CCD even beyond project period in this endeavour	Moderately high
Willingness/ ability to continue relationship beyond project period	Expressed satisfaction & willingness to cooperate & support CCD and IDEI work	Strong commitment to go beyond the project period. Ready to establish a processing unit.	Dept. of CPHP has offered any technical help beyond project period.

**What were the major changes that took place during the implementation period? For each one, explain why they came about and how well did the project manage them?**

#### **Openness to options**

Thinking out of the box and keeping the options open is very important. Originally it was envisaged that the producers will be trained on value addition so that they will be able to produce value added product, sell those in markets and earn more. But during the livelihood analysis exercise producers expected a processing unit in their area which could ensure the following.

- Ensure purchase of their raw produces on a regular payment basis.

- Provide employment to the skilled producers
- Encourage cultivation of horticultural crops.

In one of the meetings, CCD one of the project partners also pointed out the need for such a unit. When we started the project we wanted to just ensure that with appropriate output linkages to agro-processors, the incomes could be enhanced. As the project progressed, we realized that a local processing unit would not just lead to enhanced incomes but would also provide employment in the local area.

After feasibility study and technical guidance by Centre for Technology Development - CTD (a consulting firm in Delhi), CCD placed project proposal with DST and CAPART for the establishment of the processing unit. While the DST proposal could not be cleared, CAPART proposal is being reviewed and negotiation is continuing with the appropriate authority for mobilizing financial assistance.

### **Associated Service Provision**

At farm level, project activities concentrated on value addition skills being transferred to the tribals. However, during the course of the project, other associated constraints and needs of the farmers such as information on improved horticultural practices, improved horticultural implements, exposure visits to well maintained plantation sites etc. were also raised. It was not possible to avoid questions of farmers e.g. why the size of his citrus or pineapple was becoming smaller year by year or the methods of fungicide treatment on citrus plants or where to get the sapling of queen variety pineapple. Both CCD and IDEI took up the matter and conducted activities like providing access to market information of horticulture crops, access to right cultivation practices from Horticulture Departments, introduction to the importance and ways of organic farming from experts like SAMBHAV NGO, organizing exposure visit to horticultural rich place like Siliguri, exposure to OUAT for training on processing of Dal. In the process there was much that implementing partners learnt as well. This made the project partners realize that providing value addition skill was not enough, what needed was coordinating the entire value chain of the horticultural produce.

### **Range of Horticulture Produce**

Initially the main thrust of the project was on pineapple. While interacting with people and working in partnership, lots of ideas came up on other crops such as citrus, guava, lemon, cashew nut, cashew apple, custard apple, jack fruit, tamarind, turmeric, etc., for value addition options. Although value addition trials with all these were carried out based on seasonal availability of the produces, towards the end phase of the project it was decided to concentrate on few of them which have market potential, potential for value addition, easy adoption of technologies and more over which had substantial volume of production., A range of produce including pineapple was a better choice since it could provide other value added products in the chain, provided opportunity for value addition activities to be carried out throughout the season and not just limiting to pineapple for a period of three months only. Also if and when a processing unit did come up in the local area, it would feed the plant around the year.

**What were the strengths and weaknesses of your monitoring system? How did you use the information provided by your monitoring system?**

### **Monitoring Process**

Broadly, IDEI used the log frame and the monitoring framework related to this project to keep track of its performance and progress. The way this is done at IDEI is explained below. IDEI's monitoring system flow from the mission statement. Within IDEI we have categorised the information needs to three main categories:

1. Information pertaining to the physical delivery of the structures and services by the project, together with the relevant financial record.
2. Information pertaining to the use of the structure and services by the targeted population and the initial consequences of that use.
3. Information on the social, economic or environmental reasons for any unexpected reaction by the target population that is revealed by the information about the use of structure and services.

Within the organization, IDEI has a structured and well laid out system whereby staffs get opportunities to discuss identified problems in implementation, means of sharing experience across offices within a region and outside of it, learn from experiences in other organizations. The following table explains in detail as to how the process is carried out in IDEI:

<b>Monitoring Mechanism</b>	<b>Location</b>	<b>Responsibility</b>	<b>Purpose</b>
Monthly meetings	Field office	Area Managers	Review & adjustments in operations
Monthly Meetings	Regional Office	Regional Heads	Review & adjustments in regional operations inputs for policy decisions
Planning Meeting	Central Office	Programme and other Functional heads	Review & adjustments in national operations, Review of policy / Strategy
Field Visits	Regions	Donor representatives, Regional Heads and Central office managers	Identifying problems, conducting diagnostic studies, meeting farmers
Regional Coordination Meetings	Region/ Delhi	Regional Heads and central office managers	Review of operations, suggested changes in policy / strategy, Finalizing new initiatives
Annual Review & planning Exercise	Region	Regional Heads, Area Managers	Learning, Incorporation of these into planning
Annual Meeting	Region/ Delhi	Accounts staff	Problems encountered, need for adjustments in accounts system
Donor meetings	Region Delhi	Donor representatives central office managers	Review against plans, feedback from donor visited, project impacts, future design of projects.
Board meeting	Delhi	Board members, Executive Director	Changes in policy / strategy, approval of plans

#### **Internal Evaluation is done through**

- a. The Management Information System which collects information from Field Offices
- b. Quarterly Review at Regional Coordination Meetings with senior staff from the regions.
- c. Annual Programme review for each region / project
- d. Evaluation visits by IDEI Board of Directors and Donor Partners

IDEI's donors have played an important role in both planning and monitoring the programme.

Livelihood analysis study, Institutional Analysis Study, Market Analysis Study on value added products, consumer survey on Osmo- dehydrated pineapple, process documentation, documentation of institutional history, technical studies on value addition to horticultural

produces etc., have been carried out. Besides our own monitoring system a stakeholder monitoring framework related to this project was followed which streamlined the information flow to the main monitoring system. The frame work is as follows:

### STAKEHOLDER MONITORING FRAME WORK

<b>Group / Stakeholder</b>	<b>General Role</b>	<b>Specific monitoring responsibility</b>
<u>Steering Committee</u> <ul style="list-style-type: none"> <li>• Ms. Shivani Manaktala, IDEI</li> <li>• Mr. S.C.Bisoyi, IDEI</li> <li>• Mr. S S Barik, IDEI</li> <li>• Dr. K.M Khan, OUAT</li> <li>• Dr. S. Swain, OUAT</li> <li>• Mr. A. J. Raju, CCD</li> <li>• Mr. Dhananjaya Patnaik, CCD</li> </ul>	Monitoring progress and contribution to project purpose	<ul style="list-style-type: none"> <li>• Monitoring progress of the project on a quarterly basis</li> <li>• Review activity related problems and finding solutions</li> <li>• Review and assess additional information needs at various levels</li> <li>• Discuss innovations in methods of working, successful or interesting finding on specific activities, share experiences and record the same.</li> </ul>
IDEI	Managing Partner	<ul style="list-style-type: none"> <li>• Review the progress against action plan in the monthly meeting of IDEI</li> <li>• Ensure timely reporting and execution of project work</li> <li>• Document and compile experience case studies for process impact domains</li> </ul>
<u>Coalition Members</u> IDEI	Project Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Lead on monitoring of outputs</li> <li>• Develop Quarterly programme implementation plans</li> <li>• Convene quarterly meetings, review progress, prepare reports</li> <li>• Meetings coalition partners and monitoring progress of work on a monthly basis</li> <li>• Ensure flow a fund to the coalition members from time to time and keeping books of accounts related to project expenses</li> </ul>
OUAT	Project Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Lead on monitoring of OVI 2.1</li> <li>• Document results and prepare progress reports on a monthly and quarterly basis</li> <li>• Participate in the monthly and Quarterly Review meetings and in the meeting of the steering committee</li> <li>• Develop monthly and quarterly programme plans in the review meetings and the statement of fund requirement for the quarter.</li> <li>• Maintain a record of accounts related to project expenses</li> </ul>

CCD	Project Implementation and monitoring	<ul style="list-style-type: none"> <li>• Lead on monitoring of OVI 1 .1 &amp; 2.2</li> <li>• Document results and prepare progress reports on monthly and quarterly basis</li> <li>• Participate in the monthly and quarterly review meetings and in the meeting of the steering committee</li> <li>• Develop monthly and quarterly programme plans in the review meetings and the statement of fund requirement for the quarter.</li> </ul>
Tribal horticulture farmers	Primary target group participation in project field tribals	<ul style="list-style-type: none"> <li>• Participate in livelihood analysis and market study</li> <li>• Participate in field trial of appropriate technologies</li> <li>• Provide feedback on technologies and systems</li> </ul>

**What organisations were involved at the end of the project? Were there changes to the coalition (joining/leaving) during the project? If yes, why? Include a complete list of organisations involved, directly or indirectly, in the project and describe their relationships and contributions.**

#### LIST OF ORGANISATION INVOLVED IN THE PROJECT

Sl. No	Name of the organization	Nature of relationship	Contribution to the project	Nature of involvement
1	CCD Paralakhemundi Gajapati	Core partner having formal contracts with managing partner for delivering / participating in specific project activities and outputs	Substantial contribution in terms of organizing the community, delivering specific project activities such as studies, trainings, field level value addition trials, coordinating process of market linkages, representing and negotiating on behalf of the growers etc.	Direct Involvement with good access to the community.
2	OUAT Bhubaneswar Orissa	Core partner having formal contract with managing partner for delivering / participating in specific project activities and outputs	Contributed to the project in terms of identifying low cost and user friendly value addition technology, carrying out technology trials on different horticulture produce, transferring appropriate technology to different stakeholders including the producers through training, technology demonstration and guidance	Direct involvement having specific roles, responsibility and delivery of outputs
3	M/S Jagannath Merchadising Pvt. Ltd.	External Consulting agency having prior relation with IDEI	Conducted consumer survey on osmo-Dehydrated pineapple slice and tit-bits and market	Indirect involvement to provide consumers response on value added product and

	Budheswari Colony Bhubaneswar		analysis of value added horticultural produces	the market potential
4	Centre for Technology Development (CTD) New Delhi	External consulting agency having expertise on technology transfer in fruits and vegetable processing to farmers	Conducted a technical feasibility study for establishing a processing unit in the project area	Indirect involvement to help the NGO partner CCD in developing a technical proposal on establishing processing unit to be submitted to Department of Science and Technology (DST), Government of India for financial support
5	Centre for Science and Technology Nandapur Koraput, Orissa	External consulting agency having expertise and facility for fruit processing	Conducted osmo-dehydration Technology Trials and product processing on pineapple	Indirect involvement to try out technology and bring out processed pineapple products
6	M/S OMFED Bhubaneswar Orissa	Commercial marketing relationship	Developed linkage with the producers for purchase of value added pineapple and lemon juice	Directly involved in the purchase transaction
7	M/S Mamata Agro Foods Mancheswar Indus Trial Estate Bhubaneswar Orissa	Commercial Marketing relationship	Showed interest to purchase value added pineapple and lemon in the form of juice, collected product sample through NGO partner CCD. Negotiation continuing for a tie up	Direct involvement
8	M/S ARREN food Pvt. Ltd. Rasulgarh Bhubaneswar Orissa	Commercial Marketing Relationship	Purchased 1 Quintal of value added Tamarind in seedless form and provided market information on other horticulture produce	Both direct and indirect involvement
9	M/S RUCHI Om Oil and Flour Mills Ltd. Cuttack	Informal at this stage for involving them in the marketing of value added products through their channel	Fruitful discussion for a marketing tie-up.	Direct involvement is expected shortly
10	M/S RD signal and Co. Delhi	Packaging material supplier	Supplied HDPE packaging material to OUAT under the Coordination of IDEI for vacuum packaging of Osmo-Dehydrated pineapple slices and tit-bits	Indirect involvement
11	M/S Bajaj	Processing	Provided information on	Indirect



	Machinery Pvt. Ltd. New Delhi	equipment developer and supplier	juice extraction machine to CCD	
12	M/S Chauhan Brothers Badambadi Cuttack	Supplier of plastic containers, bottles and corks	Supplied corks and plastic bottles to CCD and OUAT for packaging of processed products.	Indirect
13	M/S Hindustan Wood and Iron Industries Jeyepur Koraput	Supplier of agriculture implements and processing equipments	Manufactured and supplied Tamarind block pressing machine to CCD	Indirect
14	M/S Phulena Bhagat Store 7, Erazza Street, Kolkotta - 700001	Supplier of processing equipments	Supplied bottle sealing machine and pouch sealing machine to CCD	Indirect
15	M/S Grihasthi Udyoga Bhubaneswar Orissa	Commercial marketing relationship	Helped in selling processed Jack-fruit and cashew apple products during commercial market testing phase	Indirect
16	M/S S.M. Packaging Visakhapatnam Andhara Pradesh	Supplier of packaging material	Supplier HDPE packaging material to CCD	Indirect
17	M/S Sunabeda Pickle Making Unit Koraput	Consulting and Technical guidance	Provided technical guidance on Jack-fruit pickle making	Indirect
18	Department of Science and Technology Govt. of India Delhi	Application for mobilizing Fund to set up processing unit	Received proposed for sanction of financial assistance	Could not sanction the proposal due to change in their area of priority
19	CAPART Govt. of India Bhubaneswar	Pre-funding relationship	Presently considering the proposal to provide financial support to set processing unit	Direct involvement is expected shortly
20	M/S B.N. Patnaik Rasulgarh Bhubaneswar	Equipment developers and suppliers	Fabricated a set of stainless steel cutters to be used for cutting of pineapples	Helped OUAT in standardising equipments

21	Department of Horticulture, Tribal Development, Soil Conservation Department, DRDA, Paralakhemundi, Gajapati	Key informants	Provided relevant information on the livelihood system of the tribal growers, intervention of Govt. departments through schemes and enriched our knowledge base and understanding of the people, place and the partnering organisation	Indirect
22	Horticulture Nursery At- Ramgiri Gajapati	Supplier of sapling of queen variety pineapple	Supplied queen variety pineapple to the growers	Direct
23	M/S KASAM Phulabani	Provider of technical guidance and suggestion	Provided technical information and guidance on organic certification and showed interest to market horticultural produce like turmeric, tamarind etc.,	Indirect
24	M/s DIPS Communication, Bhubaneswar	Designer & printer	Developed the brand logo, designed different product labels and printed the same	Indirect

There were no changes to the core partners of the coalition. However producers organizations such as Gajapati women Co-operative Ltd. came up in the month of July -2004 which would play a vital role in linking the producer communities with the other value chain members through marketing, capacity development, value addition activities etc.

**How will (have) project outputs affect(ed) the institutional setting?  
How will the technical outputs of the project (if successful and if adopted) change the organisations and the relationships between them and in what way? Refer to the project's technical hypothesis.**

The project tested the hypothesis that the successful coalition of partners with complementary skills in technology development and adoption, community development, marketing and business management will result in benefiting poor tribal horticulture grower by putting in a system that will link the farmers to markets and technology for value addition.

This hypothesis had a strong institutional as well as technical component. On the one hand, there were tribal farmers not being linked to markets due to lack of value addition opportunities and on the other hand existed a lack of a coordinated effort of various agencies to put such a system in place. The technical hypothesis resulted in value addition skills being imparted to SHG groups and well as building their capacity to market their produce. The project also linked them to potential output markets. This aspect of the project is expected to link the organisations together even further. They now are keen to work together on other aspects of their work. Other than each other, the partner organizations have learnt the importance of working jointly towards a common goal that has been achieved in a short time span of 22 months.

## **Section E      Research Activities (15-20 pages)**

*This section should include a description of all the research activities (research studies, surveys etc.) conducted to achieve the outputs of the project analysed against the milestones set for the implementation period.*

*Information on any facilities, expertise and special resources used to implement the project should also be included.*

### **Research activities**

#### **1. Livelihood Analysis Study**

During the initial stage, the partners had agreed to initiate the work with a comprehensive livelihood study in the project area that could bring out the following information.

- ☞ The main source of livelihood
- ☞ Factors affecting livelihood in terms of five main Capital- Human, Social, Natural, Physical and Financial.
- ☞ Other main aspects of gender, caste, education, migration, market, dynamics, etc.

Through the study it was recognized that the local horticulture crop growers.

- ☞ Produce a range of horticulture crops the main being pineapple, guava, lemon, and spice crops such as turmeric.
- ☞ Sell their produce at very low prices and have no access to market information.
- ☞ Have no bargaining power due to obscure of infrastructure for storage, transportation.
- ☞ Lack knowledge on value addition techniques and alternatives
- ☞ Lack access to markets and linkages with agro processing

The study was successfully carried out with detailed information being collected. It enhanced our understanding of the livelihood system of the tribal growers, the opportunity that existed for value addition and market related activities.

After the completion of the study its importance was realized when in addition to pineapple the other crops with distress sale also emerged like jack fruit, turmeric, tamarind, custard apple, cashew apple, guava, citrus etc. Thus the study influenced substantially the subsequent phases of planning.

The study also helped a lot in rapport building with the community and creating confidence in the project members. People were glad that some initiatives were being taken for addressing their core problem.

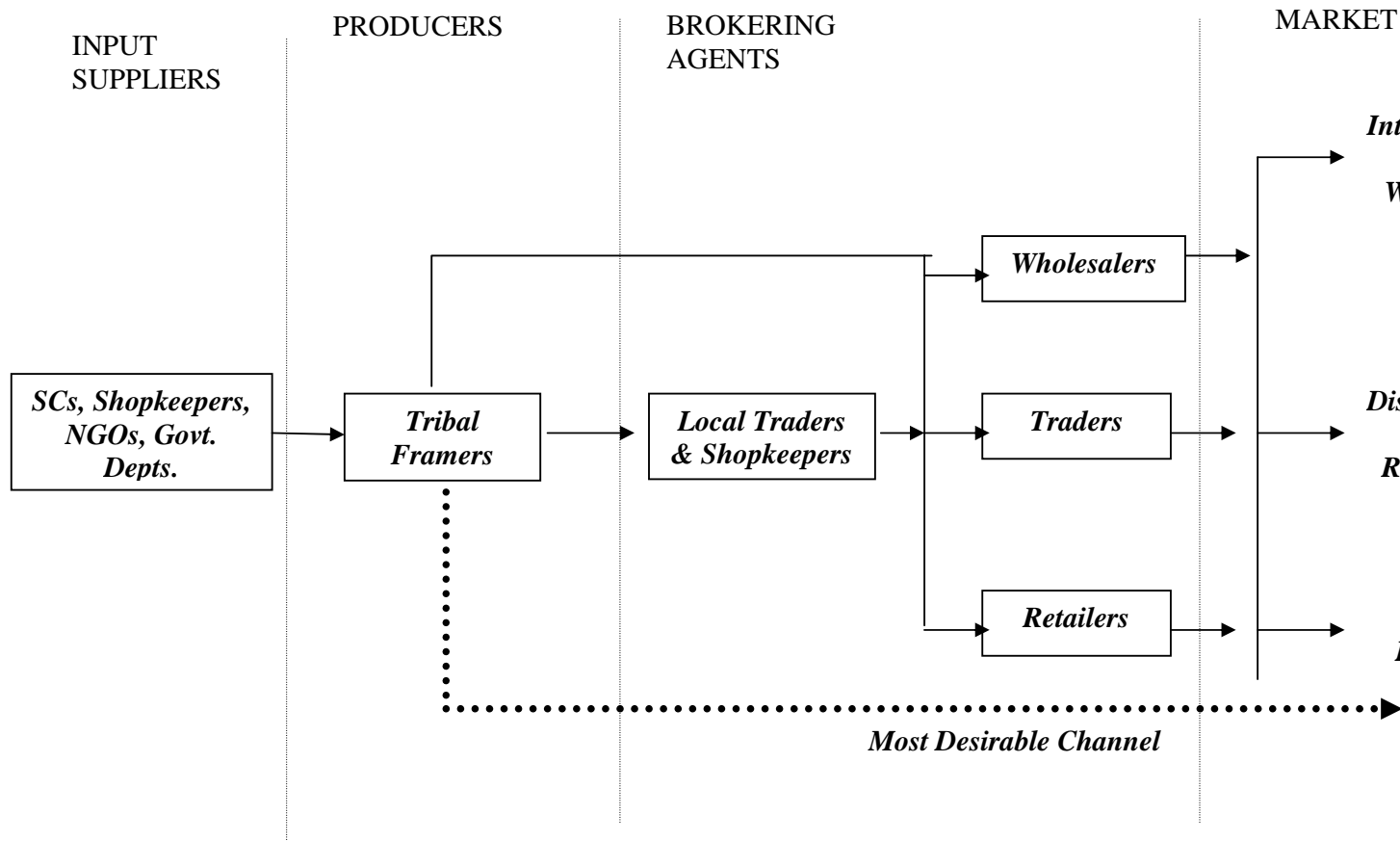
During the study it was realized that how important it is to make the community aware of the purpose of the study.

Based on the study the project intervention included value addition activities, technology trials, new product development, linking growers to high value market, etc., and many other options that could come up in the process of action research as a viable option for sustaining the livelihood of the poor tribal growers.

### **Some important suggestions made by the study:**

- Maximise income from the existing high value crops through value addition. Research trials should be conducted for value addition possibilities and necessary trainings should be conducted for passing the necessary skills to the community.
- Increase horticulture crop productivity and quality by introducing land and water management practise and soil conservation activities.
- Develop an organised market system with the initiative of the local social institutions like SHG federation, village committees and link these market systems with the growers as well as state and inter-state market systems. However creating, strengthening and sustaining such systems are the challenging tasks. As seen in Maharastra the Grape owners have been successful in such marketing ventures. These systems not only help in marketing but also render many more business development services.
- A local NGO or a network of the local bodies should make effort to pull in support agencies like financial institutions, agri-input companies etc. from the Govt. and private sector. These agencies will help in minimizing problems within the livelihood frame work.
- Ties with fruit processing units can be established for bulk procurement of horticulture produce( Lemon, pineapple, guava etc) at mutually agreeable market prices against confirmed order.
- Simple processing like cleaning, grading and packaging will make the produce more acceptable to the wholesalers, retailers and consequently the number of middlemen can be reduced.
- The crops grown in the area are organic by default. Statutory organic certification might attract exporters of organic produces. The process should start from the local NGO, through the Govt. to APEDA, the authorised body to issue organic production certification.
- Efforts should be made to develop capacity of the existing SHGs in terms of management skills, group activities and reduced vulnerability to the external forces.

## Structure and Dynamics of Market Systems of Horticulture Produce



## 2. Institutional Analysis Study

The purpose of this study was to explore in detail the social capital of the growers and to have an understanding on how they operate, what/ who influences them, interaction and linkages that exists with external stake holders such as marketing intermediaries and other service providers. It was very important to know if the tribal farmers were a part of any association, network or some socially mobilized group, how such groups operate, their interaction and dependence level, benefits received or not received as members of groups, cohesiveness conflict management etc.,

Such an analysis was helpful in identifying specific interventions that could potentially be taken up by village level group whether the need is to collectively market their produce, add value by group level processing or even to avail institutional credit. For example, a list of potential women SHG having substantial group saving, a good past record of effective functioning, some amount of skills with the members on marketing and value addition and a high degree of interest to be involved in group level processing and marketing by mobilizing institutional credit was prepared. Similarly the other institutional players who influenced the livelihood system of the growers were also identified and the analysis revealed the potential to involve the private sector in value addition and processing as well as output linkages. The potential identified for forming a SHG federation during the study led to the formation of Gajapati Women Self-Help Cooperative Ltd.

### Institutional Ranking

After studying 11 Institutions, their relative impact on the community was measured. The innermost circle has institutions like: SHGs, SHG Federations, Horticulture Department, JKP, CCD and RGB. These institutions are making the maximum *positive* impact on the community. The next impact zone has institutions like: GVM, NABARD and Agriculture Department. The policies and programmes are also affecting the community in some degree. Next are institutions like: DRDA, ITDA and Soil Conservation Department. These bodies have been found to have minimum impact on the community. In other terms, their programmes have not been successful in bringing about the desired benefits. The Institutions as per the ranks are as follows:

1. SHGs, SHG Federations, Horticulture Department, JKP, CCD and RGB
2. GVM, NABARD, Agriculture Department
3. DRDA, ITDA and Soil Conservation Department

## 3. Market Study

The objective of the market study was to identify why tribal horticulture growers lacked access to high value markets and to identify a commodity / crop with high scope for value addition with which this project with work. For this the following aspects were studied.

- Current market conduct – who are the various market players and service providers, their roles, existing infrastructure, bottlenecks in access to markets, returns on the produce for various players e.g., traders at the village level, traders at larger markets etc. Opportunities that exist for linkages to higher value markets, processing units etc.

- Understanding the raw material supply base – crop-wise total production volumes, quality of the various horticulture crops e.g., sweet pr sour, size of fruit etc., surpluses available for value addition that fetch extremely low prices during periods of distress sales, wastages due to inability to harvest, store or sell etc.
- Analysis of opportunities of value addition in fresh processed, semi-processed by products (based on crop type, availability and quality) for understanding the potential for market expansion and diversification.
- Understand the potential for certification / labelling for niche markets e.g., organic cultivation
- Demand versus supply of value added produce (crop-wise) at local, regional, and national levels

### **Summary of Market Analysis of processed fruit products in Orissa.**

In Orissa cultivation of horticultural crops is gaining popularity through some leading farmers who are growing horticultural crops in non-agricultural land. Some regions are there where vast area is covered under one crop like pineapple in Gajapati and Rayagada district, Mango in Gajapati district, Litchi in Angul and Deogarh district, Turmeric in Phulbani, Ginger in Koraput and vegetables in Keonjhor district. These crops can be developed in terms of productivity and quality etc and processing centres could be set up locally for value addition.

Value addition, in fruit crops particularly, can be jam, jelly, squash, pickle etc. In Orissa few small industries are processing these products at low scale. They are as follows.

- OMFED
- HAVON (Arren foods pvt ltd)
- Sabita Foods
- Maple Agro

Besides some fruit processing training centres, SHGs and individuals also prepare pickle, sauce etc. for their own consumption as well as for local sale.

Production and marketing of processed fruit products of Orissa is in a nascent stage. Many manufacturers from outside the state market their products in Orissa. This indicates that there is a consumption demand which is met by outside product because of their quality and marketing strategy. List of some of the manufacturers and the product class they are dealing in is given below.

KISSAN- Tomato Sause  
 NOGA- Squash, Jam, Tomato Sause  
 GALA – Tomato Sauce, Squash, jam  
 Haldiram- Squash, Tomato sauce  
 Maggi- Tomato Sauce, Ketch up  
 Tops- Pickle  
 PREM- Tomato Sauce, Squash  
 HAVON- Jam, Squash, Ketch up, Tomato Sauce  
 OMFED: Tomato Sauce, Squash, Pickle  
 DRIK: Tomato Sauce, Pickle, Jam  
 PRIYA: Pickle

It is estimated that the annual sales of these products in Orissa is around Rs 3.0 to Rs 3.5 crore. The product class wise share can be as follows.

PICKLE- 35%

Sauce – 25%

SQUASH -15%

JAM – 25%

*Kissan* brand is still the market leader because of its longstanding services, quality, packing and positioning. GALA and NOGA brand products are of good quality and are increasing their share. Since these products are slow moving items, a vast geographical market is required which KISSAN is enjoying since long through its distribution network. KISSAN has the largest share of sales with 60% of market share.

It is evident from the consumption demand of people that there is tremendous market for processed fruit products.

### **Consumer survey and Market Analysis of osmo-dehydrated pineapple slices:**

#### ***The objectives of the study were:***

- ❖ To collect feed back of the consumer on the product
- ❖ To understand consumers' perception about product quality
- ❖ To know price sensitiveness
- ❖ To understand customer purchase frequency
- ❖ To identify the niche segment which the product
- ❖ To collect other market related information
- ❖ To suggest further specific areas for improvement of the product and packaging.

The study was conducted by an agro product distributor - M/s Jagannath Merchandising Pvt. Ltd. in Bhubaneswar and Cuttack cities.

OUAT, the technical partner produced the value added pineapple slices, tit-bit and squash in their laboratory and supplied the same to M/s Jagannath Merchandising pvt. ltd for carrying out the survey process. The study had the following important suggestions and recommendations:

#### • **Product Concept Development:**

After consumer survey, developing a product concept on the basis of actual image of the product acquired by the customer was done. The study threw up the following ideas:

Concept 1: An instant breakfast supplement as fresh food for whole family.

Concept 2: An instant fruit drink for the children

This product can compete with alternate product like fresh fruit, fruit drinks, cold drinks etc. A product positioning map can be developed as follows.



### 'X' – Osmo-dehydrated Pineapple Slices

<b>Expensive</b>		Fruit drink
		Cold Drink
<b>Cheap</b>	Fresh fruit	Brand X
	<b>Slow</b>	<b>Quick</b>

- **Product Development:**

The taste and flavour as well as appearance and colour needed to be developed through R&D process as only 36% of consumers rated the product as very good. Similarly sweetness was to be increased to be at par with fresh fruit. The packing needed improvement after commercial production.

**Market Strategy Development:**

From the market survey the following facts were ascertained.

- It is a slow moving product
- The purchase is occasional, not essential
- The product can be used by whole family as fresh fruit and fruit drink
- The cost compared to product quality is high
- The product attributes needed to be further developed.

Strategies for product, price, promotional methods and distribution policy will be developed after commercial production.

**Recommendation 1:**

The product should be positioned properly i.e the product attributes should be precisely defined along with competitive advantages and be projected for specific consumers need. The cost, quickness to prepare, nutrient value, calorie content etc may be taken into account for this purpose. In this particular study most of the people wanted this product to consume during breakfast meal as fruit drink or fresh fruit to get nutrition/calorie value.

**Recommendation 2:**

More intensive study is carried out to develop the product. Besides physical properties like colour, odour, taste, appearance etc intrinsic values like sweetness content, citrus content, nutrient content, calorie content etc are to be appropriately maintained. The technology and the process flow methods can be developed for commercial production after R&D study. Central Food Technology Research Institute, Mysore can be contacted for any such technology if developed by them.

**Recommendation 3:**

The raw material is an organic produce and hence the final product should be certified as organic. Necessary certification may be accorded. This will have an edge over competitive products as the demand for organic foods is increasing both in domestic as well as international market. In India APEDA, a

Govt. of India organisation is acting as nodal agency for popularising organic products.

**Recommendation 4:**

A business plan needs to be developed based on the location of raw material and production centre, surplus production, cost of raw material, cost of production, scale of production, sales price and the objective of the producer. Based on the volume of the business, market plan will be developed as per the consumer feedback during this study. A marketing plan can be developed and incorporated in business plan.

To accomplish the above studies, interviews with the following stakeholders groups were conducted.

- 1 Marginal Tribal Growers. These were from 16 village in Gajapati District of Orissa, local NGO partner, CCD facilitated the research process and subsequently become a key action in the implementation of programme activities
- 2 Traders and middlemen in the primary markets e.g., haats, these were from both inside and outside the district and states
- 3 Key informants such as horticulture department, ITDA, DRDA and local NGOs within the District.
- 4 The wholesale traders in Berhampur, Bhubaneswar, Visakapatnam, Bhanjanagar etc.
- 5 Agricultural input dealers such as seed supplier, Nursery growers, equipment supplier etc.
- 6 Different consumer segments in Bhubaneswar and Cuttack cities as interacted by Jagannath Merchadising Pvt. Ltd during the consumer survey.

**4. Technology Search**

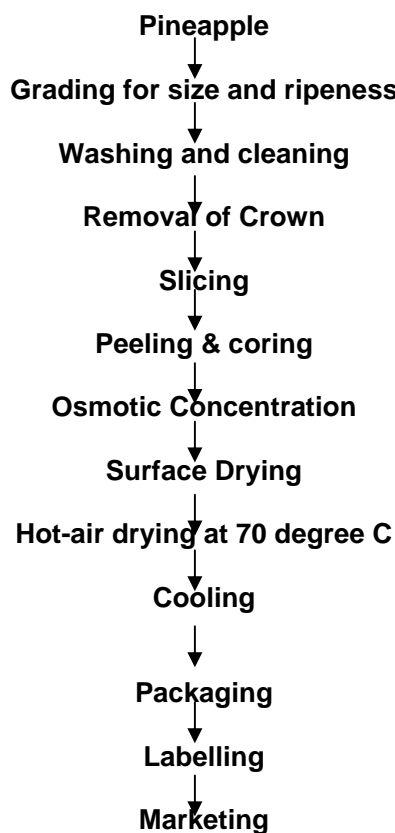
Value addition to the horticultural crops and market linkage being the major thrust of the project, IDEI's initial attempt was to identify technologies available for value addition. A literature review exercise was conducted in which information was collected from the internet and different libraries of technical institutes including OUAT. OUAT being the technical partner took initiative in this regard. During the process of technology search one of the senior staff of IDEI visited Thailand and collected the processed value added horticultural produce popularly sold in Thailand. These included osmo-dehydrated pineapple tit-bits, tamarind, papaya, pasteurized guava juice etc. Similarly an IDEI staff also collected osmo-dehydrated pineapple slices from Johannesburg. In addition, samples of value added horticultural products were also collected from Bangalore and Kolkata which included juice, dried fruits etc. The samples collected were immediately given to OUAT for test of their contents in the laboratory. After review of literature and identification of technology OUAT scanned all technologies and conducted feasibility tests of different technologies. An in-depth analysis was done to find out specific technologies that could add value to: fresh produce, semi-processed produce, processed produce and by-products. The technology options were classified as: drying technology, juices, pulps or pastes, by-product/fibre technology.

The technology standardisation for the following horticulture crops were carried out in the OUAT laboratory.

- Pineapple: Squash, RTS, Osmodehydrated slices and tit-bits, jam, juice
- Custard apple: Squash, RTS and Jam
- Lemon: Squash, cordial, juice
- Guava: Candy, jam, and Jelly
- Jackfruit: Osmo- dehydrated slices and pickle
- Cashew apple: RTS, Jam and Jelly

### **Technology Trials and Development:**

OUAT tried out different technologies for production of different value added products in their laboratory and also in the field. The first trial was with osmo-dehydrated pineapple slices. The technological flow sheet for osmo-dehydrated pineapple slices as developed by OUAT after trial is as follows.



### **Osmo-Dehydration Technology:**

Osmo-dehydration is a useful technique for the concentration of horticultural crops, realized by placing the solid food, whole or in pieces, in sugars or salt aqueous solutions of high osmotic pressure. It gives rise to at least two major simultaneous counter current flows; a significant water flow out of the food in to the solution and a transfer of solute from the solution into the food. In osmotic dehydration the prepared fresh material is soaked in a heavy (thick liquid sugar solution) and /or a strong salt solution and then the material is sun or solar dried. During osmotic treatment the material loses some of its moisture. The syrup or salt solution has a protective effect on colour, flavour and texture. This protective

effect remains through out the drying process and makes it possible to produce dried products of high quality. This process makes little use of sulphur dioxide.

The interesting part of this technology standardisation by OUAT is that the process adopted as shown in the above flow chart reduces the product loss to maximum extent. Besides the main product i.e the slices, the tit-bits and RTS are received as by-products. The OUAT was able to standardise a set of stain less steel cutters which are required in the processing.

This technology was also applied with the processing of Jackfruits which are grown in substantial quantity in the project area.

### **Other Technologies:**

Other technologies which were tried out by OUAT included technologies for juice extraction. In this regard OUAT developed a simple and user friendly juicer having both manual and power operation facility for the SHGs of the project area. The technologies for jam jelly, candy, pickle etc were also tried.

With the initiative of IDEI, the technologies for deseeding tamarind and pressing were identified at Jeypore with one of its manufacturers of treadle pumps. CCD who was looking for such technology was linked for purchase of the same. It was found to be a very useful technology in adding value to tamarind. The seedless tamarind after processing through this technology was sold at Rs 45/- per kg.

Some of these technologies were also tried out in the project area with the active participation of the growers. While the technologies for preparation of squash, jam, RTS, pickle and juice extraction were easily understood and adopted by the growers, the osmo-dehydrated technology needed some time for acceptance and adoption. A group of SHG members visited OUAT laboratory thrice to understand the technical process. The first lot of the produce tried in the field was damaged due to absence of hygienic facilities that are required for processing of fruit products. At one point it was decided to offer the technologies to the farmers which they will be able to handle such as juice extraction, preparation Squash, RTS, Jam etc. The other technology options was left with the processing unit proposed to be established in the area which will be supplied with the fresh produce or semi processed by the growers.

### **Processing Of Horticultural Produces For Market Testing**

OUAT carried out the bulk processing of pineapple, Jackfruit, cashew apple, lemon in their laboratory as well as at CCD in Parlakhemundi.

<b>Sl. No</b>	<b>Name of the Product</b>	<b>Volume</b>	<b>Year of production</b>
1	Pineapple slices	100 pkts of 100 gm. each	2003
2	Pineapple Tit-bits	50 pkts	2003
3	Pineapple slices	50 pkts	2004
4	Pineapple Tit-bits	150 pkts	2004
5	Cashew apple RTS	700 bottles(200ml)	2004
6	OD jackfruit slices	100 pkts	2004
7	jackfruit pickle	100 pkts of 250gms.	2004
8	pineapple squash	40 bottles (700ml)	2004
9	pineapple RTS	40 bottles	2003
10	pineapple jam	23 bottles	2003

11	lemon Squash	7 bottles	2003
12	lemon pickles	4 bottles	2003

The above products were developed with an objective to test the product in the market. However different packaging materials were purchased from different sources for proper packaging of the products. With the initiative of IDEI a set of product labels were designed and printed to give the value added product a commercial look. Further for the first time a brand name was developed by CCD i.e Mahendragiri, the hill range which makes Gajapati proud and prosperous.

While the test marketing of the products such as pineapple slices, tit-bits were carried out by M/s Jagannath Merchandising, the marketing of other products were carried out by the Area Managers of IDEI and their staff in four different zones of Orissa state mainly in urban and semi-urban places. Different shops selling processed food items were selected for sale of different items. While M/s Jagannath Merchandising submitted a report on their findings, the market response on other value added products were recorded. Based on the market feed back the products were further refined. This phase also helped in establishing market linkages with output markets for the value added horticulture produce of the tribal farmers.

### Technology Transfer And Capacity Development

Effort was made by both CCD and OUAT to transfer value addition technologies to the growers. In this regard five trainings on value addition to horticulture produces were organised. The details are as follows.

Sl. No.	Name of Training	Organised by	Period	contents of training	Outcome
1	Training on value addition to horticulture produce	CCD with the technical support of OUAT	16-18 July 2003	<ul style="list-style-type: none"> <li>• Discussion on preservation of horticulture crops</li> <li>• Syrup and slice preparation</li> <li>• Process flow chart for different pineapple products</li> <li>• Preparation for drying and preparation of squash, RTS, Jam etc</li> <li>• Packaging for processed products</li> <li>• Preparation of value added products from Guava and cashew apple</li> <li>• Preparation of value added products from lemon</li> </ul>	<ul style="list-style-type: none"> <li>• Value added products developed</li> <li>• Participants gained skills on processing technology</li> <li>• Confidence of the growers developed</li> </ul>

2	Training on value addition to horticultural crops	CCD with the technical support of OUAT	31 <sup>st</sup> March 2004	<ul style="list-style-type: none"> <li>• Discussion on preservation and processing of Jackfruit</li> <li>• Salt solution preparation and jackfruit pre-treatment</li> <li>• Process technology for osmo-dehydrated jackfruit product</li> <li>• Demonstration of turmeric processing equipments like cleaner, grader, polisher and dryer.</li> <li>• Final processing, drying and packaging of jackfruit products.</li> <li>• Demonstration of Agricultural implements and machines.</li> </ul>	<ul style="list-style-type: none"> <li>• The participants could understand the process of jackfruit and turmeric processing</li> <li>• Osmotic jackfruit slices were produced.</li> </ul>
3	Training on value addition to horticulture produce	OUAT and IDEI	May 20-21 2004	<ul style="list-style-type: none"> <li>• Discussion on preservation of cashew apple and jackfruit</li> <li>• Process flow chart for different cashew apple products.</li> <li>• Cashew apple juice extraction and pre treatment of juice</li> <li>• Preparation of salt solution and jackfruit slice</li> <li>• Drying and packaging of jackfruit slice.</li> <li>• Preparation of cashew apple RTS</li> <li>• Preparation of cashew apple jelly</li> </ul>	<ul style="list-style-type: none"> <li>• Participants gained knowledge on processing of Jackfruit</li> <li>• Value added jackfruit products such as RTS, Jelly and Osmo dehydrated jackfruit slices were produced</li> </ul>
4	Value addition training on horticultural produce	Organised by CCD with the technical assistance of OUAT	14 <sup>th</sup> May 2004	<ul style="list-style-type: none"> <li>• Cashew apple RTS , jam and jelly preparation</li> <li>• Solar dehydrated jackfruit pieces and jackfruit pickle.</li> </ul>	<ul style="list-style-type: none"> <li>• Participants gained knowledge on value added technologies</li> <li>• Final products of value addition.</li> </ul>
5	Value addition to	CCD with the help of a private	7-8 <sup>th</sup> June 2004	<ul style="list-style-type: none"> <li>• Reinforcement of technology trials on</li> </ul>	<ul style="list-style-type: none"> <li>• Participants gained knowledge on value</li> </ul>

	horticultural produce	food technocrat.		pickle, jam and jelly making.	added technologies • Final value added products came out.
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### Output Market Linkage

The information collected during the market analysis study on identification of processing units helped to develop a linkage with such units for bulk procurement of horticulture produce either in raw form or value added form. M/s OMFED and M/s Arren Foods (two large food processing units in the state) agreed to purchase bulk quantities of the horticultural crops grown in the area. Subsequently OMFED purchased one MT of Pineapple and Lemon juice and M/s Arren purchased one quintal of seedless Tamarind. CCD, the local NGO is helping the SHGs and their federations to execute the supply of the required fruit crops during the harvest time to these processors. M/s OMFED has committed to purchase a range of horticultural produce and asked CCD to submit a price list of all value added products.

### Exposure visits

In addition to the training provided to the SHGs, IDEI facilitated an exposure visit of CCD staff and some producers to the pineapple growing areas in Siliguri on 18<sup>th</sup>-24<sup>th</sup> Feb'04 with an objective to study and observe the economics of pineapple crop plantation, its management, storage, value addition and marketing feasibility. The members of the team interacted with the farmers, collection agents, retailers, wholesalers, PRI members, experienced farmers and the horticulture department.

They studied in detail the varieties grown, transplantation period, harvesting time, soil and climatic conditions, gradation of Pineapple in size, land preparation and process of cultivation, selection of suckers, size of farming, life span of pineapple fruit.

The team had the following findings.

- The singapuri variety is suitable to the climatic and soil condition of the area in the region of Siliguri and Darjeeling.
- Farmers of this area are capable of investing large amounts e.g. Rs 50,000/- per acre
- Pineapple is the only alternative crop of the area in substitute to the tea plantation
- There is limited promotional activity by the Government and Horticulture Department.
- Farmers are educated and quite progressive on commercial attitude.
- Marketing linkages are well established (on phone calls from Kolkata, the dealers are able to arrange the sale of products.)
- The land shape of the area of pineapple plantation is plain plateau.
- There is no soil erosion and water storage.
- Some of the farmers were exposed to Kerala for Sisir Pineapple which are growing on sloppy land and found to be suitable for Mandalshai zone (project area).
- Some of the suckers were collected for plantation in the project area.

**WORKSHOP ON CROP POST HARVEST OPTIONS AND MARKET POTENTIAL FOR THE SUSTAINABLE LIVELIHOOD OF THE SMALL AND MARGINAL FARMERS:**

A one day workshop on the above theme was organised by CCD in collaboration with IDEI and OUAT on 8<sup>th</sup> October'04 at Hotel Sishmo in Bhubaneswar with the following objectives.

- To share the important lessons and the experiences learnt from the project with the NGOs, Govt and private sector players
- To explain and demonstrate the CPHP technologies which are developed by OUAT
- To motivate private sector players to have marketing tie-ups with the NGOs who are involved on post harvest value addition activities.
- To disseminate the message of successful coalition approach to linking poor communities with the market system.

The workshop was attended by 85 participants from different NGOs, Govt and private sector processing units. The workshop covered discussion on different value addition technologies, the market potential of value added products, the scenario of value addition activities in Orissa, demonstration of some of the technologies, the methods and dynamics of working in a coalition; its advantages etc. On this occasion printed literature on the CPHP project activities were circulated. As an immediate outcome many organisations contacted our core partners particularly OUAT to know in detail about specific technologies, their utility in different area specific situations etc. The details can be found in the annexure II.

**Section F Project effectiveness**

This section of the evaluation report uses the rating criteria for the purpose and your outputs previously used in your annual reports.

	Rating
<b>Project Goal:</b> Crop-post harvest innovation systems respond more effectively to the needs of the poor.	1
<b>Project Purpose:</b> Institutional innovations adopted as a way of establishing systems that improve the livelihood of poor tribal horticulture growers through value addition.	2
<b>Project Outputs</b> 1.Strategic assessment of constraints faced by tribals in accessing higher returns for their key high value crops	1
2. A business strategy for linking tribals to markets through a prototype enterprise involving multiple agencies validated and promoted	2
3. A set of project design principles from experiences of implementing a multi-agency agro-process project focusing on poor tribals developed and disseminated	1

- 1= completely achieved
- 2= largely achieved
- 3= partially achieved
- 4= achieved only to a very limited extent
- X= too early to judge the extent of achievement (avoid using this rating for purpose and outputs)



## Outputs (5 pages)

**What were the research outputs achieved by the project as defined by the value of their respective OVIs? Were all the anticipated outputs achieved and if not what were the reasons? Your assessment of outputs should be presented as tables or graphs rather than lengthy writing, and provided in as quantitative a form as far as is possible.**

For projects aimed at developing a device, material or process, and considering the status of the assumptions that link the outputs to the purpose, please specify:

- a. What further market studies need to be done?
- b. How the outputs have been made available to intended users?
- c. What further stages will be needed to develop, test and establish manufacture of a product by the relevant partners?
- d. How and by whom, will the further stages be carried out and paid for?
- e. Have they developed plans to undertake this work? If yes, what are they? If not, why?

Project Outputs	Objectively Verifiable Indicators	Project Achievements
1. Strategic assessment of constraints faced by tribals in accessing higher returns for their key high value crops	1.1 By the end of September'03 prioritised list of livelihood and marketing constraints and opportunities and crop options for intervention	1.1 Livelihood Analysis Study, Institutional Analysis and Market Analysis studies were conducted. It was recognised that the local horticultural growers: <ul style="list-style-type: none"> <li>• Produce a range of horticulture crops the main being Pineapple, Lemon, Guava, Cashew apple, Jackfruit, Tamarind, citrus etc.</li> <li>• Sell their produce at very low prices and have no access to market information</li> <li>• Have no bargaining power due to absence of infrastructure for storage, transportation.</li> <li>• Lack of knowledge on value addition techniques and alternatives</li> <li>• Lack of access to markets and linkages with agro processing units.</li> <li>• Opportunities explored with OMFED and ARREN market linkage</li> <li>• Decided to intervene with Pineapple, Cashew apple, lemon, Tamarind, Jackfruit</li> </ul>
2. A business strategy for linking tribals to markets through a prototype enterprise involving multiple agencies validated and promoted	2.1 Appropriate technology that meets needs of the tribal farmers for value addition identified by end of 3 <sup>rd</sup> quarter, year one	<ul style="list-style-type: none"> <li>• The technologies for value addition to different horticulture produces were identified as follows.               <ul style="list-style-type: none"> <li>▪ Osmo dehydration Technology for processing of Pineapple and Jackfruits</li> <li>▪ Appropriate technology for pickle making, and preparation of squash, jam jelly and juice.</li> <li>▪ Technology identification for decorticating and pressing of seedless Tamarind( Equipments developed by M/s Hindustan Wood and Iron Industries, Jeypore)</li> <li>▪ Technologies developed by OUAT for juice extraction and preservation (machine having both power and manual operation facilities developed by OUAT for use in local area.</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>▪ Technologies identified and collected for bottle sealing and poly packaging.(Vizag and Kolkata)</li> </ul>
	2.2 Appropriate clusters of Self-help groups, private sector and other agencies established by end of quarter 3 year 2	<ul style="list-style-type: none"> <li>• About 200 SHGs facilitated by CCD were met and a cluster of 20 credible SHGs were identified in the project villages who actively participated in the value addition training programme, produced value added products and were involved in the marketing of horticulture products both in raw and value added form.</li> <li>• M/s OMFED, M/S Arren Foods pvt ltd, M/s Mamata Agro Foods were identified as credible processors with whom business links were initiated and established.(OMFED purchased 1MT of pineapple and lemon juice, ARREN purchased one quintal of seedless tamarind and Mamata Agro received samples of lemon and pineapple juice for business linkage.</li> <li>• Link was established with equipment and material suppliers both in Orissa and outside particularly in Kolkata, Delhi, Vishakhapatnam.</li> <li>• It was found that a single training programme or even few more trainings will not be adequate to produce food products as per quality specifications. With the minimalist infrastructure available at farm level, the tribal groups can at best supply graded, cleaned or semi-processed fruits.</li> </ul>
	2.3 Business strategy pilot tested by tribal communities and local market actors by the end of quarter2 year3	<ul style="list-style-type: none"> <li>• On seeing the market potential of the value added products, CCD the local NGO partner showed interest to establish a processing unit in the project area.</li> <li>• A project proposal was prepared with the technical guidance of Centre for Technology Development, New Delhi, an agency having expertise on fruit processing and submitted to the Department of Science and Technology which supports such ventures in rural areas. Unfortunately it was not cleared due to a change in priority of DST. However, another proposal was submitted to CAPART for consideration. The proposal was revised in the light of our discussion with the Convenor, CAPART and the final approval is awaited.</li> </ul>
	2.4 Strategy presented at consultation meeting of rural development and private sector actors in Orissa by Quarter 3 year 3	<ul style="list-style-type: none"> <li>• A one day workshop on Crop post harvest options and market potential for sustainable livelihood of the small farmers was organised at Hotel Sishmo on 8<sup>th</sup> October'04 with an objective to: <ul style="list-style-type: none"> <li>• Share the lessons learnt in the project among the NGOs, Govt agencies, and private sector players.</li> <li>• Present the strategy for discussion in the workshop.</li> <li>• Highlight the concept of working in coalitions, its advantages and the innovations and institutional</li> </ul> </li> </ul>

		<p>changes that take place in the process to impact livelihood of the poor.</p> <ul style="list-style-type: none"> <li>• Explain and demonstrate post harvest technologies for adoption by NGOs, Govt agencies and private processors for the benefit of the poor tribal growers.</li> </ul>
3. A set of project design principles from experiences of implementing a multi agency agro-process project focussing on poor tribals developed and disseminated.	3.1 Institutional lessons synthesised and documented throughout the life of the project	<ul style="list-style-type: none"> <li>• CPHP process reports were prepared based on the assessment of the affect of the activities on the 3 impact domains such as the lives of the poor, capacities of the partner organisations and policy environment in which we operate.</li> <li>• The steering committee meetings of the coalition partners discussing and synthesising institutional lessons were recorded</li> </ul>
	3.2 At least one briefing note synthesising project design principles	<ul style="list-style-type: none"> <li>• A three fold coloured leaflet titled Integrating Markets products and partners was printed and disseminated among the policy makers and activists in the NGO, Govt agencies and private sector players. It contained briefing about the project, the coalition approach, activities, learning and the advantages of working in coalition. The leaflet was circulated in workshops and meetings.</li> </ul>
	3.3 Project design principles presented at consultation meeting of rural development agencies and donors by quarter 3 year 3	<ul style="list-style-type: none"> <li>• The project design principles were presented in the CPHP workshop which was organised in Oct'04</li> <li>• About 85 participants belonging to NGOs, Govt Agencies in the rural development sector and the private sector players participated in the discussion, shared their opinions and expressed their interest in the project outcomes as well as the process.</li> </ul>

At this stage of project implementation or even at little later stage individual case studies, studies on the functionality of the different institutions like SHG, their federation, market studies as and when new products come in or for further exploring market potential and opportunities will be required.

The above outputs of the project have been made available to the users such as the primary tribal growers through value addition trainings, exposure to markets, technical institutes, linkages with the secondary and tertiary level of markets etc. Similarly the very in depth understanding of the livelihood and market related constraints as revealed by livelihood, institutional and market analysis studies helped the partners like CCD to develop project proposals to set up processing unit and put in a systematic intervention by mobilising support from donors. Similarly OUAT could receive the real feel of the field situation. Their mind set is now changed from Lab to a field based technologies development which will be appropriate and user friendly. The processors now have the information on the volume of production of different horticulture produce and the knowledge, that the growers organised through their federation have the capacity to extract juice of pineapple, lemon, citrus etc and supply the same. A price list of all products are also provided to the processors to help them for instant placement of order. Through the CPHP workshop the institutional lessons and principles have been disseminated among the policy makers of the NGO, Govt agencies and other private sector

players who have started adopting some of the principles in their approach to work.

The formation of SHG federation i.e the Gajapati Women Self Help Cooperative Ltd with the initiative of CCD will play an important role in streamlining the value addition activities, market linkage activities and the capacity development of the growers. The capacity of this body as well as the SHGs who operate in the periphery must be strengthened for continuously linking tribals with the market. CCD will escort the federation to operate smoothly till the time the member's capacity is developed to run the federation on their own. CCD is looking for programmes to continue the partnership process so that over a long term the poor tribal growers gain confidence and manage the systems created on their own.

### **Purpose (2 pages)**

**Based on the values of your purpose level OVIs, to what extent was the purpose achieved? In other words, to what degree have partners/other users adopted the research outputs or have the results of the research been validated as potentially effective at farmer/processor/trader level?**

The project purpose and the specific indicator of the IDEI project as stated in the log frame was:

Project Purpose: Institutional innovations adopted as a way of establishing systems that improve the livelihood of the poor tribal horticulture growers through value addition.

Purpose OVI: 1.1 By the end of the 2005 project the coalition members have developed a project proposal applying institutional innovations.

Purpose OVI: 1.2 By 2008 10% of new projects apply institutional innovations in project design

Purpose OVI: 1.3 By 2008 livelihoods of tribal communities enhances by better links to markets.

The project has already initiated the process by applying to DST and CAPART for establishing a processing unit to streamline the value addition trial and market linkage activities. Further proposals will be developed based on innovations from time to time.

The farmers now have the skills to add value to their produce. They are undertaking juice extraction, pickle, jam, jelly and squash making on their own.

OUAT has been incorporating the principles and learning from the project in their research and academic programmes. They have been keenly working with CCD on other technologies beyond the scope of this project.

The private sector players showed interest on the innovative way of working together in which the main beneficiary is the poor tribal grower. As a result the linkages for supply of value added products could be established. Some were surprised that such good quality produce was available within the state while they were sourcing from outside the state.

The project has documented the key learning and the institutional development process through its reports, process documentation, minutes of the coalition

meetings etc. Synthesis of the learning and principles have been disseminated in the workshop organised in last Oct'04. IDEI is using opportunities in seminars and conferences to disseminate the lessons of this project. In fact there is adequate awareness about the project among the NGOs, Govt. agencies and private sector processors who are interested to apply the project innovations in their proposals.

### **Goal (1 page)**

#### **What is the expected contribution of outputs to Project Goal?**

**Goal:** Crop post harvest innovation systems respond more effectively to the needs of the poor.

The project contributed significantly to the above goal in terms of innovation of user friendly and low cost technologies befitting to the needs of the growers and the processors. They have adopted the technologies for adding value to the produces for getting higher return. Different forms of value added products and the technologies being in place private sector players showed interest to initiate business with the poor growers for providing a regular source of income. Due to the project intervention the demand for the produce increased which ultimately resulted in a price hike of the produce benefiting the poor growers. The linkage established with OMFED and M/s Arren for regular supply of the value added produce is a breakthrough in which the interests of the growers in terms of sale of produces and regular income have been protected. The innovation is that a group effort is promoted for the first time. For the first time with the initiative of the local NGO partner a federation of the growers i.e Gajapati Women Self Help Cooperative Ltd has been established to provide the poor growers a platform through which the communities could be better linked with the markets. A network of different organisations such as the technical organisations, intermediaries, growers, public and private processors and other market players could be established and coordinated. The system in place will be coordinated at a later stage by the federation of the growers.

What is most interesting is that the coalition approach has led to “beyond project” relations amongst the partners who are now looking at working together on other projects as well as with other new partners as much as was made possible in a time span of 22 months by this approach. Some of this is explained further in the section below.

### **Section G – Uptake and Impact (2 pages)**

#### **Organisational Uptake (max 100 words)**

**What do you know about the uptake of research outputs by other intermediary institutions or projects (local, national, regional or international)? What uptake by which institutions/projects where? Give details and information sources (Who?What?Howmany?Where?)**

The knowledge/ technology partner OUAT is exploring ways and means with other counterpart agencies such as ICAR (Indian Council for Agriculture Research), other universities for carrying out more such action research projects. The university particularly the department of post harvest technology is inviting projects wherein it can carry out research for providing pro-poor, affordable and user friendly technologies for value addition to different crops including horticulture. Other core partner CCD also gained an in depth

understanding on the livelihood constraints and opportunities which enabled it to put in systematic intervention for ensuring sustainable livelihood of the poor. CCD adopted process of constraints and opportunity identification in its other projects. Organisations like Sarvodaya Vikash Samiti, Khurda, RCDC, Bhubaneswar and SRAVANI, Khandapara showed interest and discussed with the core partners for initiating post harvest activities by utilising the innovations and technologies developed by this project. The research outcome in the form of value added product is well accepted by different consumer segments of the community. IDEI is guiding them. Reference: CPHP project institutional output report

#### **End user uptake (max 100 words)**

**What do you know about the uptake of research outputs by end-users? Which end-users, how many and where? Give details and information sources**

The end- users have already taken up small scale value addition efforts on a commercial basis. The tribal women SHG members have acquired sufficient skills for preparing pickle, jam, seedless tamarind and juice and for selling these products at the district level market. These tribals have also been linked with M/s OMFED and M/s Arren Foods Pvt Ltd for regular supply of Pineapple and lemon juice, seedless tamarind and other horticulture produces like mango, citrus, jackfruit, turmeric etc. More over the growers have been organised in the form of SHG federation to make organised effort in this regard. Reference: IDEI Institutional output report, process documentation, quarterly reports and annual report.

#### **Knowledge (max 100 words)**

**What do you know about the impact of the project on the stock of knowledge? What is the new knowledge? How significant is it? What is the evidence for this judgement?**

The project has been able to affect the knowledge base of the all coalition partners. The research institute, in a rare case, has been able to execute the research for the poor users and has been able to significantly make changes in the existing technology in order to come up with pro-poor prototypes that can be used even in out of lab conditions. The other new knowledge areas are: Organised effort by the growers is possible provided an escort agency guides them over a long term so that the growers become capable of managing the systems on their own. This is evident from CCD being instrumental in organising the Gajapati Women Self Help Cooperative Ltd and escorting them to carry out value addition and marketing activities. The exchange of ideas, knowledge, and experiences among the partners having different areas of strength particularly in a coalition project has resulted in mutual benefits and capacity developments. Reference: IDEI institutional output report.

#### **Institutional (max 100 words)**

**What do you know about the impact on institutional capacity? What impact on which institutions and where? What change did it make to the organisations (more on intermediate organisations). Give details and information sources.**

Each agency has been able to gain expertise from each other. For example, the NGO partner has been able to gain from the technical and marketing experience of the other partners. It has also been able to access services from other institutions through the vast network developed through this coalition. It has developed the capacity of the CCD the NGO partner in the marketing of the rural products. It was a good experience for them this year when they received substantial order for seedless tamarind because of the packaging and smaller packs. IDEI having expertise in marketing could gain sound knowledge on appropriate post harvest technologies and applied the same in its other programs across the country. Reference: IDEI institutional report.

### **Policy (max 100 words)**

#### **What do you know about any impact on policy, law or regulations? What impact and where? Give details and information sources**

The project has been able to affect the operational policies of the NGO and the Research University. With this successful coalition project, they are more receptive to similar projects. The partners have been able to implement the learning and the experiences of this project in other areas of their operation. The concept of value addition to horticulture produces has been receiving good response from the NGOs, Govt. authorities, the consumers and the entrepreneurs. The Government of Orissa has introduced a new act – Orissa Self Help Cooperative Act-2000 in order to lead SHGs towards self-sustainability. The ministry of Food Processing, Govt Of India has also invited the entrepreneurs/NGOs of Orissa to come forward to undertake fruit processing activity as a commercial activity.

A very recent development in the last quarter of the project has been the decision by the government to set up a cold storage facility in the project area as well as establish a local level processing unit for the benefit of tribals of that area.

### **Poverty and livelihoods (max 100 words)**

#### **What do you know about any impact on poverty or poor people and livelihoods? What impact on how many people where? Give details and information sources.**

The project activities have largely benefited the target community. The project has affected their livelihoods at three levels.

- Firstly, the community with their newly acquired skills and knowledge, will make simple value added products like pickle, seedless tamarind, juice extraction etc and attain self sufficiency by selling the products in the primary as well as nearest secondary markets.
- Secondly, the local NGO will set up a processing unit in the local area and the proposal is now under the consideration of CAPART for financial assistance. The unit will be fed by the periphery SHG units in terms of providing fresh fruits or semi-processed produce for final processing at the unit.
- And thirdly, linkages have been developed with the food processing industries for supply of the horticulture crops to the processing plants. These value added products have already been cleared for quality by the units and orders have been placed for the coming season.

The overall impact is higher income returns to the poor producers. For raw produce also, the last season saw an increase in the local market price of pineapple from Rs. 2 to Rs. 4 per piece. More than 3000 growers are expected to get benefits out of this innovative system. At this stage of project intervention the activities and systems are being streamlined and made operational.

**Environment (max 100 words)**

**What do you know about any impact on the environment? What impact and where? Give details and information sources.**

All the interventions have been made with the objective of maintaining the environmental harmony. The horticulture crops of the area are all organically grown and this feature has been maintained through out. Exposure of project staff and growers to the pineapple growing areas in Silliguri and at SAMBHAV NGO , practising concepts of organic farming helped them strengthening organic cultivation of horticulture produce. The saplings of queen variety pineapple were brought and planted in selected areas. More over the problems related to soil conservation, fungicide of the fruits, reduction in the shape, size and quality of pineapple were sorted out with the technical knowledge and guidance of the local Horticulture Department. These initiatives have helped to maintain the environmental balance. The final products are being sold where 'ORGANIC' is the unique selling proposition. Effort is being made to get organic certification for the products marketed. The assistance of KASAM NGO having expertise in dealing with organic products and certificates is being mobilised in this regard.

Signature	Date
Core Partners	.....
Managing Partner	.....
.....	

**ANNEXES**

- I Copies of the stakeholder, gender, livelihoods and environmental form included with the concept note.
- II Project Logical Framework
- II Partner (user) organisations workplan for adopting project outputs
- III Copies of diaries, coalition meeting reports etc
- IV Feedback on the process from Partners(s) and users (where appropriate)
- V Tabulated description of disseminated outputs (format from green book) – same as given in the PCSS and should include all published, unpublished and data sets. If any of the reports included in this annex has not been submitted to the programme previously, please include a copy (preferably an electronic copy or if not available a hard copy)



**A. GENDER ANALYSIS****1. How does your research problem/opportunity affect men and women differently?**

Women are largely responsible for growing horticultural crops in this area. Traditionally amongst these tribal families, farming and providing for the family is a woman's work. Their day begins at three in the morning with attending to the domestic chores. At about 6:00 a.m. they set out to cultivate their farms, sometimes crossing as many as 2-3 hills to reach their field. They return to the village only in the evening where they once again get absorbed with domestic chores. In spite of working on the fields almost through the day, the returns on the produce are usually very low. High physical effort and low economic returns leads to heavy physical burden on the women leaving little or no time for any other activity/engagement.

**2. How will your expected results impact differently on women and men?**

Women being largely responsible for cultivation tend to gain the most from the project considering the amount of effort they put in to cultivate their fields, but in the long run the project is expected to benefit the family at large. Decisions are jointly taken and the benefits from the project are hence expected to have equal impacts on men and women. During our discussions in the field, the tribals informed us that with extra financial resources they would like to improve their infrastructural facilities such as housing.

**3. What barriers exist to women's participation in the research process?**

Cultural norms require the women to be more active in farming but they are not eager to travel due to the time constraint arising out of the need to manage the cultivation front and the domestic front. If we are to interact with them during the course of this project we will need to meet them only in the evenings.

## B. STAKEHOLDER ANALYSIS

### Stage 1: Stakeholder Interests and Potential Impact

**TABLE 1A: COALITION MEMBERS – INTERESTS AND IMPACT**

Stakeholder	Key Interests in the Research	Potential Impact Of Research
IDEI	<ul style="list-style-type: none"> <li>Enhanced income options for the tribals</li> <li>New market creation opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Helps in achieving our goal of poverty alleviation</li> <li>Enhanced capacity in research</li> </ul>
Research Institute The SC-ST training Institute, Orissa	<ul style="list-style-type: none"> <li>Building on previous research</li> <li>Putting research into practice</li> <li>Analyzing a new social and economic situation.</li> </ul>	<ul style="list-style-type: none"> <li>Enriched knowledge</li> <li>Prestige</li> </ul>
Local level organization - DKDA	<ul style="list-style-type: none"> <li>Improving the economic conditions of the tribals</li> </ul>	<ul style="list-style-type: none"> <li>Enhancement of trust with tribals</li> <li>Enhanced prestige</li> </ul>
Technology partner	<ul style="list-style-type: none"> <li>Enhanced business opportunity</li> </ul>	<ul style="list-style-type: none"> <li>Promotion of their technology</li> <li>Possibility of larger business</li> </ul>

**TABLE 1B: EXTERNAL STAKEHOLDERS – INFLUENCE AND IMPACT**

Stakeholder	How can they influence the project?	Potential Impact Of Research
Tribal farmers	<ul style="list-style-type: none"> <li>They need to agree to become active market participants</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced incomes and financial security</li> <li>Break out of debt trap</li> <li>Enhanced investment in social functions and housing (as told to us by the tribals)</li> </ul>
Agro processing industries	<ul style="list-style-type: none"> <li>Agreeing to buy their raw materials from the tribals.</li> </ul>	<ul style="list-style-type: none"> <li>Dependable and assured access to raw materials/ inputs</li> </ul>
Middlemen	<ul style="list-style-type: none"> <li>Refusing to co-operate with the project</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in returns due to rationalization of margins</li> </ul>
Dongria Kondh development agency	<ul style="list-style-type: none"> <li>They enjoy a good rapport with the tribals and can help in accessing the tribals</li> <li>Provide a better understand of the local context</li> <li>DKDA can also help in disseminating scientific knowledge to the people.</li> </ul>	<ul style="list-style-type: none"> <li>Helps in furthering their goal that is, the welfare of the tribals.</li> </ul>

**STAGE 2**

**TABLE 2A: PROPOSED ROLE OF COALITION MEMBERS IN THE PROJECT**

<b>Stage Of Research Process</b>	<b>Proposed coalition member</b>	<b>Proposed Role</b>	<b>Justification of role</b>
<p><b>Identification</b></p> <p><b>Concept note stage</b></p>	<ul style="list-style-type: none"> <li>• IDEI</li>   <li>• Research Institute</li>   <li>• DKDA</li> </ul>	<ul style="list-style-type: none"> <li>• Initial area assessment and identification of coalition partners</li> <li>• Writing the concept note for submission</li>   <li>• Help in the area assessment and share previous research experiences</li>   <li>• Assist in and validate area assessment findings</li> </ul>	<ul style="list-style-type: none"> <li>• Managing partner</li> <li>• 10 years experience in Orissa</li> <li>• Prior experience of CPHP in Himachal Pradesh</li> <li>• Trained in preparing the concept note</li>   <li>• Research skills</li> <li>• Previous research experience on DK tribes</li>   <li>• Good understanding of local context</li> <li>• Well established level of trust with the tribals</li> </ul>
<p><b>Design and development</b></p> <p><i>project memorandum stage</i></p>	<ul style="list-style-type: none"> <li>• IDEI</li>   <li>• Research Institute</li> </ul>	<ul style="list-style-type: none"> <li>• Further develop the intervention strategy</li> <li>• Writing the proposal</li>   <li>• Assist in developing the proposal</li> </ul>	<ul style="list-style-type: none"> <li>• Managing partner responsible for submission of PMF</li> <li>• Analytical skills</li>   <li>• Have 30 years of research experience especially on tribals of Orissa</li> </ul>

<p><b>Implementation and Monitoring</b></p>	<ul style="list-style-type: none"> <li>• IDEI</li> <li>• DKDA</li> <li>• Technology Partner</li> </ul>	<ul style="list-style-type: none"> <li>• Assess and refine appropriate solutions for value addition</li> <li>• Coordinate with partners and stakeholders</li> <li>• Ensure interests of stakeholders are considered and effectively represented</li> <li>• Share findings and progress periodically with SCST institute</li> <li>• Periodic review of progress</li> <li>• Monitor sustainability of research interventions</li> <li>• Provide access to tribals</li> <li>• Act as the local implementing arm</li> <li>• Ensure that the project does not negatively impact the tribals at any stage</li> <li>• Provide access to relevant technology</li> <li>• Build capacity in technology use, maintenance, etc</li> </ul>	<ul style="list-style-type: none"> <li>• Prior experience in project implementation</li> <li>• Experience of working in Orissa for the last 10 years</li> <li>• Knowledge about local dynamics</li> <li>• Good relations with the tribals</li> <li>• Welfare of the tribals is their primary concern</li> <li>• Technical expertise</li> </ul>
<ul style="list-style-type: none"> <li>• Evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• IDEI</li> <li>• Consultant</li> </ul>	<ul style="list-style-type: none"> <li>• Impact assessment of the project</li> <li>• Ability to achieve project objectives and outcomes</li> <li>• Potential for scaling up</li> <li>• Impact assessment</li> <li>• Ability to achieve project objectives and outcomes</li> <li>• Critical examination of gaps</li> <li>• Process documentation</li> </ul>	<ul style="list-style-type: none"> <li>• As implementers, IDEI will have complete understanding of all aspects of the project</li> <li>• Prior experience in impact assessment</li> <li>• By periodic assessments, IDEI can learn and incorporate learnings into the project</li> <li>• Expertise</li> </ul>

**TABLE 2B: EXTERNAL STAKEHOLDERS AND RELATIONSHIPS WITH COALITION**

Stage Of Research Process	Degree of Participation		
	<i>Inform</i>	<i>Consult</i>	<i>Collaborate</i>
<b>Identification</b>  <b>Concept note stage</b>		Agro-processing units	<ul style="list-style-type: none"> <li>• Tribals</li> <li>• Middlemen and traders</li> <li>• SC/ST training institute</li> <li>• DKDA</li> </ul>
<b>Design and development</b> <i>project memorandum</i>			<ul style="list-style-type: none"> <li>• Tribals</li> <li>• Middlemen</li> <li>• Agro-processing units</li> </ul>
<b>Implementation and Monitoring</b>			<ul style="list-style-type: none"> <li>• Tribals</li> <li>• Middlemen</li> <li>• Agro-processing units</li> <li>• Government agencies</li> <li>• Technology partner</li> </ul>
<b>Evaluation</b>		<ul style="list-style-type: none"> <li>• Consultant</li> </ul>	<ul style="list-style-type: none"> <li>• Tribals</li> </ul>

**Note:**

It is assumed that those listed alongside the first row would have been already contacted in the process of preparing the concept note. Contact details for these stakeholders should be provided.

- **Dongria Kondh Development Agency**  
Gram Panchayat : Chattikona  
Block : Bissam cuttack  
District :Rayagada  
Orissa
  
- **SC and ST Training Institute**  
Unit - V111  
Bhubaneswar 751003  
Orissa  
Ph.No. (0674)563649
  
- **International Development Enterprise**  
C5/43. Safdarjung Development Area  
New Delhi-110016  
Ph.no. (011) 6969812, 6969813  
Fax : (011) 6965313

- **Aaren Foods Pvt. Ltd.**  
107Rasulgarh  
Bhubaneshwar-751010  
Orissa  
Ph. No. (0674)585309, 580963, 580090  
Fax : 91-674-583137

### C. LIVELIHOOD ANALYSIS

**1. Which interest group(s) is your work intended to benefit and where are they?**

This project is intended to benefit poor tribal farmers in southern Orissa. These tribals grow horticultural crops on the hills.

**2. In what way can they be defined as ‘poor’? State your source(s)?**

The Dongria Kondhs fall below the poverty line and live in remote areas on the hills. The state government has been working for the development of these tribes for the last 50 years.

.(Source: Dongria Kondh Development Agency, Government of Orissa, IDEI field visit).

**3. What livelihood problem or opportunity are they experiencing and how many people are affected? State your evidence.**

The vulnerability context of the people lies in the institutional constraints to accessing the market. In spite of having rich natural capital (the climatic conditions are very favourable for horticultural production), the tribals lack social and economic networks. The tribals grow a wide range of horticultural crops (like pineapples, oranges, jackfruits, mangoes, lemons etc.) However, since they are physically distanced from markets, they do not market the produce themselves. They sell the produce to the *Schedule Castes or SCs (the ‘untouchables’)* who in turn sell it to the middlemen for onward sale to other states. Hence the tribals lie at the most disadvantaged end of a long marketing chain. There are a number of factors that disadvantage the tribals from being tough market players. First, the produce is usually seasonal and has a low shelf life. Secondly the tribals have to traverse long distances by foot (they live 8 kilometres in the interior hills) to reach the market. Hence, since there is a lot of produce during the season which needs to be sold coupled with its perishability, often they need to resort to distress sales.

This kind of distress sale at very low prices has other important concomitants associated with it. The tribals get around 20-30% of the final selling price. This leads to low investment in inputs leading to low quality of produce. This, coupled with the cultural consideration to spend on rituals, forces the tribals to borrow from the village money lenders (usually the SCs) and mortgage their land for 2-3 seasons. In several cases the tribals never break out of this cycle and end up working as labourers on their own lands. Evidence: This situation came to light through field work among the Dongria Kondhs and through discussions with government agencies and local non governmental organizations.

**4. What contribution will your work make to this, over the timeframe of the project?**

This project facilitates marketing linkages by assuring more reliable incomes from crops and crop products. This research project will look into increasing returns to the tribals by value addition to the crop produce. The project will evaluate various options such as facilitating marketing linkages with private sector agro-processing units, processing of the produce to increase shelf life which again can be fed into an agro processing unit, processing for sale as final product or maybe even creating new and alternative markets for the produce. These and possibly other options will be assessed in line with needs of the farmers, quality of the produce and market demand for the output

**5. What external factors need to be in place for impacts to be sustained and extended after the project has ended?**

This project for a sustained impact will require a continuous supply of horticultural produce as well as a continued market demand for value added output.

**6. What other initiatives (research or development) would your project complement/add value to?**

This programme would add value to

- State programmes: The Government of Orissa has been working for the welfare of the tribals for the last fifty years. For this, the government, has set up many organizations one of them being the SC and ST Training Institute, our coalition partner.
- National policies: Our project directly complements the national efforts being made to improve the bargaining power of the tribals.
- Donor Projects: Poverty alleviation and livelihood projects.

**7. On what basis was the work that you propose identified?**

This project was identified based on IDEI's 10 years of experience in Orissa and through consultation with stakeholders, that is, with the tribal farmers themselves, the middlemen, the government agencies (including research institutes) and with local non government organisations.

**8. Who stands to lose from your work, if it is adopted / implemented on a large scale?**

The middlemen stand to lose a part of their margins (currently extremely skewed in their favour) from making the market more accessible to the farmers.

**ANNEX 4: ENVIRONMENTAL SCREENING SUMMARY NOTE (ESSN)**

<p><b>1. Project Title:</b> Enhancing returns to the tribals of Orissa by creating avenues for value addition of their horticulture produce thereby enabling them to become market participants.</p> <p><b>2. Project Cost:</b></p> <p><b>3. Duration:</b> 24 months</p> <p><b>4. Country:</b> India</p>										
<p><b>5. What are the potential significant environmental impacts (both positive and negative) of the proposed research activities?</b></p> <p>As the returns to the tribals increase, they will increase their area under cultivation. This will improve the soil cover on the hills, increases water percolation and reduces soil erosion. No negative impacts expected.</p>										
<p><b>6. What are the potential environmental impacts (both positive and negative) of widespread dissemination and application of research findings?</b></p> <p>As above.</p> <p>In the long term, with increase in processing, there may be some negative impacts on account of industry presence such as pollution, effluents, etc. However, if the best alternative is village level small-scale processing, this problem could be minimised to a large extent.</p>										
<p><b>7. What follow-up action is required to minimise potentially significant negative impacts?</b></p> <p>As explained above, we do not expect any major negative impacts.</p>										
<p><b>8. How can positive impacts be enhanced/extended cost-effectively?</b></p> <p>Positive impacts can be extended effectively through local non- governmental organisations and through government agencies.</p>										
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"><b>This Note Completed by ( applicant):</b></td> <td style="width: 50%; vertical-align: top;"><b>Name:</b>.....</td> </tr> <tr> <td></td> <td style="vertical-align: top;"><b>Institution:</b>.....</td> </tr> <tr> <td></td> <td style="vertical-align: top;"><b>Date:</b>.....</td> </tr> <tr> <td style="vertical-align: top;"><b>Endorsed/modified by Programme Manager:</b></td> <td style="vertical-align: top;">.....</td> </tr> <tr> <td></td> <td style="vertical-align: top;"><b>Date:</b>.....</td> </tr> </table>	<b>This Note Completed by ( applicant):</b>	<b>Name:</b> .....		<b>Institution:</b> .....		<b>Date:</b> .....	<b>Endorsed/modified by Programme Manager:</b>	.....		<b>Date:</b> .....
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	<b>Institution:</b> .....									
	<b>Date:</b> .....									
<b>Endorsed/modified by Programme Manager:</b>	.....									
	<b>Date:</b> .....									



**Annex – II**

**Project Logical Framework:**

<b>Narrative Summary</b>	<b>Objectively Verifiable indicators</b>	<b>Means of Verification</b>	<b>Assumptions</b>
<b>Goal</b>			
Crop-post harvest innovation systems respond more effectively to the needs of the poor.			
<b>Purpose</b>			
Institutional innovations adopted as a way of establishing systems that improve the livelihood of poor tribal horticulture growers through value addition.	<p>By the end of the 2005 project the coalition members have developed a project proposal applying institutional innovations.</p> <p>By 2008, 10% of new projects apply institutional innovations in project design</p> <p>By 2008, livelihoods of tribal communities enhances by better links to markets</p>	<p>Research proposals</p> <p>Partners' annual reports</p> <p>External reviews</p> <p>State level poverty statistics and consumption and income surveys.</p>	<p>Policy process able to adopt systems approach to innovation in the post harvest sector</p> <p>Project on "Institutional Learning and Change: a capacity development approach to exploring and strengthening post-harvest innovation system in South Asia" creates mechanisms for widely promoting project lessons and thus changing behaviour of innovation system.</p>
<b>Outputs</b>			
<p>1. Strategic assessment of constraints faced by tribals in accessing higher returns for their key high value crops.</p> <p>2. A business strategy for linking tribals to markets through a prototype enterprise involving multiple agencies validated and promoted.</p>	<p>1.1 By the end of September 2003 prioritised list of livelihood and marketing constraints and opportunities and crop options for interventions.</p> <p>2.1 Appropriate technology that meets needs of the tribal farmers for value addition identified by end of 3rd. quarter, year 1</p> <p>2.2 Appropriate clusters of self-help groups, private sector and other agencies established by end of quarter 3 year 2</p> <p>2.3 Business strategy pilot tested by tribal communities and local market actors by the end of quarter 2 years 3.</p> <p>2.4 Strategy presented at consultation meeting of rural development and private sector actors in Orissa by quarter 3 year 3</p>	<p>1. Needs assessment report Market study report Quarterly reports</p> <p>1. Technology scan / literature review and appraisal document</p> <p>2. Project quarterly reports</p> <p>3. Interim project reports.</p> <p>4. Strategy document</p> <p>5. Policy and journal articles prepared by external researchers.</p> <p>6. Minutes or proceedings of consultation meeting</p>	<p>Other sector stakeholders can adopt and apply principles and institutional lessons</p> <p>Competition from other development interventions prevents stakeholder participation in scale-up of pilot system</p>

<p>3. A set of project design principles from experiences of implementing a multi-agency agro-process project focusing on poor tribals developed and disseminated.</p>	<p>3.1 Institutional lessons synthesised and documented throughout the life of the project.</p> <p>3.2 At least one briefing note synthesising project design principles.</p> <p>3.3 Project design principles presented at consultation meeting of rural development agencies and donors by quarter 3 year 3.</p>	<p>1. Process monitoring reports.</p> <p>2. Coalition meeting minutes</p> <p>3. Minutes or proceedings of consultation meeting</p>	
<b>Activities</b>			
<p>1.1 Undertake livelihood analysis 1.2 Conducting a market study for analysing potential of value addition to various crops grown. 1.3 Conducting an institutional analysis</p> <p>2.1 Conduct a technology market analysis or technology scan 2.2 Technology appraisal 2.3 Technology review discussions 2.4 Trials with farmers and equipment suppliers 2.5 Identification of stakeholders 2.6 Product development and market testing 2.7 Dissemination plan</p> <p>3.1 Document the partnership process, lessons learnt and implications of these lessons 3.2 Disseminate findings</p>			<p>Drought or other climatic factors do not affect agriculture output and thereby research process over the 2 years</p> <p>Naxal groups do not prevent fieldwork</p> <p>Appropriate technology available and adaptable</p> <p>Vested interests in marketing systems are not threatened by the project and are supportive</p> <p>Key staff and coalition members stay with the project or replacement is easy to find</p> <p>Disagreements amongst partners can be resolved amicably</p>

## REPORT ON

**STATE LEVEL WORKSHOP ON CROP POST  
HARVEST OPTIONS AND  
MARKET POTENTIAL FOR SUSTAINABLE  
LIVELIHOOD OF SMALL FARMERS**

**Back ground:**

Orissa is rich with horticultural resources. The farmers in the rural and tribal areas, growing the high value horticultural produces, still remains below poverty line. The main reasons for this are the exploitation by the middlemen, lack of marketing opportunities, lack of facilities for value addition etc. The Gajapati district of Orissa is famous for horticultural produces, which are mainly grown by the *Saura* tribes. To help these growers, earn higher returns; CCD, IDEI and OUAT implemented a coalition project with an objective to link the poor tribal growers with the market system through value addition and market linkage activities. During the last one year of operation the project has achieved remarkable yardstick in the field of value addition trials of horticultural crops such as pineapple, lemon, jackfruit, tamarind, turmeric, orange, cashew, cashew apple etc. development of low cost affordable and environment friendly technologies suitable to the local conditions and promotion of market tie-up with private and government sectors. The interesting part of this initiative is that the tribal growers are organized in the form of SHGs and their federations for undertaking value-added production and market related activities.

In the above context a one-day state level workshop on “Crop post harvest options and market potential for sustainable livelihood of the small farmers” was organised by CCD in collaboration with IDEI and Department of Agricultural Processing and Food Engineering, CAET, OUAT at Hotel Sishmo, Bhubaneswar on 8<sup>th</sup> October 2004.

**The Workshop Audience:**

For this workshop representatives from NGOs from all over Orissa, Private and Government players like processing industries, marketing organizations and scientists from OUAT were invited to share their views. 85 delegates on CPHP expertise were participated in the workshop from different corners of Orissa to share their experiences, suggestions for the innovations made so on sustainable livelihood initiatives and effective intervention of Crop post harvest options in rural area.

**The workshop objectives:**

- To share with others on the CPHP technologies available for the farmers.
- To highlight the lessons learnt from different experiments on CPHP
- To have an interface with the private sector players in collaboration or tie-up in the marketing front.
- Get insight on area specific CPHP interventions for the sustainable livelihood of the poor farmers.
- Dissemination of home products prepared by SHG members at the State level
- To explore the market potential for the value added CPHP products.

### Agenda of the Workshop

SL. NO.	TIME	SUBJECT
1	9.00 to 10.00 AM	<ul style="list-style-type: none"> <li>Registration by Participants</li> </ul>
2	10.00 to 10.15AM	<ul style="list-style-type: none"> <li>Inauguration of the Workshop by the Sri S. Singh, Convener, CAPART, Bhubaneswar</li> <li>Welcome address by Mr. A. J. Raju, CCD, Paralakhemundi</li> </ul>
3	10.15 to 10.45 AM	<ul style="list-style-type: none"> <li>Address by Sri S. Singh, Chief Guest</li> </ul>
4	10.45 to 11.00 PM	<ul style="list-style-type: none"> <li>Tea break</li> </ul>
5	11.00 to 12.30 PM	<ul style="list-style-type: none"> <li>Presentation of IDEI, OUAT and CCD on CPHP by Sri S.C. Bisoyi, Dr. Md. K. Khan and Sri. A. J. Raju</li> </ul>
6	12.30 to 1.00 PM	<ul style="list-style-type: none"> <li>Experience sharing by Mr. S. K. Sahu, MD, RUCHI Pvt. Ltd.</li> </ul>
7	1.00 to 1.45 PM	<ul style="list-style-type: none"> <li>Other Innovative Technologies for Post Harvest Processing and Value-addition of Crops by Dr. Md. K. Khan, CAET, OUAT</li> </ul>
8	1.45 to 2.30 PM	<ul style="list-style-type: none"> <li>Lunch Break</li> </ul>
9	2.30 to 3.00PM	<ul style="list-style-type: none"> <li>Value addition to Horticultural Crops and their Marketing by Mr. G. C. Mohapatra, Specialist in Food Processing</li> </ul>
10	3.00 to 3.30 PM	<ul style="list-style-type: none"> <li>Low cost Technology on Preservation and Value Addition” by Dr. K. Atri, Scientist, National Research Center for Women in Agriculture (NRCWA), Govt. of India</li> </ul>
11	3.30 to 4.00 PM	<ul style="list-style-type: none"> <li>Processing and marketing of agricultural produce by Sr. Pramod Chandra Patanaik, Secretary, KASAM-NGO</li> </ul>
12	4.00 to 4.30 PM	<ul style="list-style-type: none"> <li>Affordable Irrigation Technologies for Small and Marginal Farm Families by Mr. S. C. Bisoyi, COM, IDEI, Bhubaneswar</li> </ul>
13	4.30 to 4.45 PM	<ul style="list-style-type: none"> <li>Tea break</li> </ul>
14	4.45 to 5.00 PM	<ul style="list-style-type: none"> <li>Vote of thanks by Mr. A. J. Raju.</li> </ul>

#### Workshop Deliberations:

At the outset, the **Chief Guest Mr. Surendra Singh, Convener, CAPART, Bhubaneswar** inaugurated the workshop.

**Mr. A. Jagannadha Raju, Secretary, CCD** welcomed all the participants including the Chief Guest and asked for the personal introduction of the participants.

Addressing on the conference, the Chief Guest expressed his view on crop post harvest technologies initiated by CAPART and opined his consent to provide technological support on post crop harvest to the interested VOs who are having potential to implement the program successfully.

He also expressed his opinion regarding some formalities in submission of the proposals following the modalities of CAPART, for effective implementation, appraisal and evaluation, if fails so, misappropriation of the funds provided therein in any case, there may a possibility of blacklisting the implementing agency.

There after **Mr. Suresh Chandra Bisoyi, Chief Operating Manger, IDEI, Bhubaneswar** has opined his views on CPHP intervention and its progress and presented the following:

- Vision and Mission of IDE(I)
- Objectives of the CPHP
- Selection of criteria of CPHP zone
- Activities of the project
- Possible Indicators of the project
- Different inputs
- Expected result from the project
- Marketing scope and potential of value added projects
- Model equipment intervention
- Practices and sales
- Sustainable agriculture and horticulture practices

**Mr. M. K. Khan, Research Engineer, CAET of OUAT** has demonstrated the products like pineapple RTS, Jam, Jelly, Slice, Pickles, Candy, Squash etc, prepared by OUAT with the designing of innovative equipments and machines like Solar Dryer, Electrical Dryer, Dal processing machine, Juice Extractor, Turmeric boiling, polishing and drying, Paddy thresher, Paddy sower and other low cost value addition technologies with regards to horticulture and agriculture development.

**Mr. A. Jagannadha Raju, Secretary, CCD** has explained on some critical issues and the contradictions in relation to the marketing tie-up of the horticulture produces, intervention of the out side commercial interest groups in a malafide intention to deceive the gullible tribes, exploitation of the middlemen, sahuakars and other covetous interest groups to squeeze the tribal production and resource base and the bottlenecks on the feasibility of haats, inaccessibility and inappropriate communication system, lack of cold storage facility, inappropriate sdbn dissemination of information in relation to the appropriate market fixation of prices and absence of value addition skills etc, were the damnable threats against the base of socio-economic livelihood of the tribes, existing earlier in the CPHP zone of CCD.

He beautifully narrated on the natural aura of Mandalasahi of Rayagada Block - the CPHP project zone, famous for the bounty of the horticulture crops, where the tribal farmers are growing ample horticulture crops like pineapple, lemon, guava, jackfruit, orange, banana, papaya, cashew nut, cashew apple and other NTFPs since years together. Due to lack of marketing facility and unexpected perishable nature of the products, they are bound for a distress sale with a low cost without any expected outcome. In spite of having there resources, they are in poverty.

But after the intervention of the CPHP in the area, various potential development trainings on value addition of the horticulture produces etc., were imparted to the tribal farmers and women, in support of the technical assistance of OUAT and the basics on the horticulture crop management system was provided though various trainings, meetings, workshops and exposures further to capacitate their skill potential in the sector which ensured now their capability to access and control over the resources and the domain owned by them, with collective interventions to obtain the fruit of their labour.

Now they are capable of preparing various value added produces and could able market on various haats/markets establishing good marketing linkages with the reputed marketing agencies.

He stated that the tribal groups have supplied 610 Kg of Pineapple juice and 429 Kg of Lemon juice to **OMFED** which is a commendable impact of CPHP intervention in the area.

**Mr. Raju** has also appreciated on role transformation and venture of different partners like **IDE(I), and OUAT-** for technical guidance , for the effective implementation of CPHP in the project area and due to their deliberate efforts and unstinted support CCD could able to work at the grass-root level promoting the better livelihood initiatives renovating the rural scenario, espousing effective marketing tie-up for the promotion of rural entrepreneurship development.

**Mr. Sarat Kumar Sahu, MD, Ruchi** was explained his past shrewd experience in promotion of entrepreneurship activities. He said that, they have started the entrepreneurship with the initial investment of Rs. 15000/- and with 3 persons of their family involved. After their incessant efforts with better quality of products and good marketing tie-up now they are transacting a tune of Rs. 15 crores, which is an important yardstick of *small efforts of entrepreneurship which often leads a great one.*

To validate his statement he explained five important formulas *for success and sustainability of the entrepreneurship in the long run.*

1. Maintenance of Quality
2. Revolving of the capital in a proper manner
3. Self-Dependency
4. Honesty
5. Hygienic

**Ruchi**, is also producing different new innovative products through SHGs - like *Piece from Wheat flour* which is a substitute of Ice-Cream, wet rice, fish fry with hygienic packaging. Now the SHGs are maintaining small scale industry. Once again, he reiterated that, better quality and maintenance of hygienic atmosphere was a milestone which stands behind his success. He strongly espoused that for a thumping success, there is no need of a special brand name, huge investment, wider advertisement etc., if the better quality and hygienic packaging is to be maintained.

Mr. R.C.Roy from CTCRI, BBSR was expressed his view on value addition of sweet potato and its products like curd and **rasavali**. He encouraged the participants to initiate the process by SHG members, which is rich in vitamin, mineral starch as stabilizer to any body.

**Mr. Promod Chandra Patnaik, Secretary, KASAM**, Phulbani has encouraged the participants for cultivation of Turmeric with organic farming, where as KASAM is promoting the organic farming process getting organic certification and paying Rs. 2 lakhs per annum as a royalty. Due to organic certificate, they are capable of exporting ample quality of turmeric powder getting better output which ensures the intensive employment opportunities to the SHGs. Quality is the main weapon for the success behind KASAM, as he told.

**Dr Attri, NRCWA**, was expressed about the cultivation of various products with organic process. They are marketing their products with low cost technology with polythene packing without using chemicals and processing.

He also expressed about the storage of vegetable and fruits with low cost technique of zero energetic cell.

**He beautifully defined the Methodology of Zero energetic cells as follows.**

- Cell measurement : 67 cm deep X 150 cm length X 120 cm width
- Materials used : Bricks and Sand
- Cooling procedure: Pouring water daily on the bricks.

In this process, each brick absorbs 600 – 700 ml. of water which helps to maintain cool and the vegetable remains fresh up to 15 days. The cost of the cell is Rs. 2000/- to Rs. 2500/- only.

**Mr. G. C. Mohapatra**, food specialist also narrated his experiences in food processing and promotion of the horticulture products and the various expertises on the preservation and effective storage of the products inciting vivid examples, which was very attractive.

The various value added horticulture products like Jack fruit dry-slices, pineapple slices, jack-fruit, lemon, ginger and mango pickle, seedless tamarind and cashew RTS nectar, processed cashew packets etc., prepared by the tribal women SHGs of CCD in the CPHP Zone, were also displayed in the workshop which was the moot point of attraction, highly appreciated and encouraged by the participants for such an efforts of the groups.

**CPHP technology and value added product demonstration:**

Both OUAT & Ruchi displayed CPHP related technologies such as groundnut decorticator, instrument for plucking mangoes, climbing coconut tree, instrument for coconut decorticating and other value added products like drinks, custard, dried fruits etc.

**Lastly, Mr. Raju, Secretary, CCD** expressed his deep gratitude and obligations to the participants of the workshop, coming from the remote corners of Orissa and beseeched their help and co-operation in such efforts of CCD further to emanate in a better conducive way, appraising through a vote of thanks .

**PARTNER (USER) ORGANIZATIONS WORK PLAN FOR ADOPTING  
PROJECT OUTPUTS**

The growers in the form of their SHGs and federation of SHGs i.e. Gajapati Women Self Help Cooperative Ltd have plans to continue with the business of value added products and will continue its search of finding new business partners with the guidance of CCD.

M/s OMFED and M/s Arren Foods have committed to purchase both raw and processed horticulture produces for the growers through their SHG federation.

CCD being the local NGO has already processed its plan of setting a processing unit in the project area. It also has a plan to develop the capacity of the SHG members and their federation in terms of handling value addition activities and running the business. It also plans to develop and promote their brand name i.e. “Mahendragiri” for a range of value added horticulture products to be promoted over a period of time. Supply chain members such as traders and dealers are ready to stock the value added products since they saw the demand for such products during the testing phase. While the bulk of the orders will come from OMFED and other private processors, the local level demand will come from the processing unit that is being planned. CCD has plans of new product development with the technical assistance from technical institutes and consultants and then transfer technology to people.

IDEI having successful experiences of this project has decided to expand its CPHP activities in other areas.

OUAT having gained experience in this project is now looking for projects in collaboration with its counterpart agencies and other universities for developing and disseminating more and more appropriate and user friendly technologies for the benefit of the rural poor.



**FEED BACK ON THE PROCESS FROM PARTNERS AND USERS**

In the process of project implementation new relationships were developed with different organisations and individuals with interest and expertise to support our endeavour. The fact that the project focussed on under privileged tribal communities attracted special attention of different people, government and partners. This represented a substantial investment in the social capital that did not exist before.

CCD, being the local level NGO partner having close proximity with the people expressed satisfaction on the fulfilment of their long standing dream to initiate intervention in the rural marketing front for the benefit of the poor tribal growers. Being a part of the studies and analysis, the implementation of programme interventions became easy for them. For the first time they developed a commercial approach to people's poverty reduction due to this project.

OUAT, the technical partners was very much lab oriented earlier, but this project provided them an opportunity to get ideas from the field and realise the grower's/user's perspective on technology requirement. They experimented and tried hard to develop appropriate and user friendly technologies which was accepted and adopted easily. Going beyond academic boundary the scientists have shown interest to work with the NGO partners for appropriate and user friendly technology development, demonstration and promotion in the field for the benefit of the poor.

It was interesting to see that the tribal women growers organised in SHGs developed confidence in acquiring value addition skills and entering into markets. For the first time the tribal women sat in the exhibition stall in the district level Gajapati Festival, interacted with the customers and handled the sale of value added products. The formation of Gajapati Women Self Help cooperative ltd is a step further to strengthen their confidence and united effort in sustaining value addition and market linkage activities. There is full participation of men folk in this since they allow them to enter into this venture and cooperate with the partner organisations.

All partners have shown commitment to carry further the process initiated and introduced for the benefit of the poor.

## LIST OF REPORTS AND PUBLICATIONS

### Internal Reports:

- Manaktala, S., and Dixit, P. (June, 003). Livelihood Analysis
- Dixit,P., Barik, S.S., and Raju, A.J., (October, 2003) Institutional Analysis
- Dixit,P., Barik, S.S., (December 2003). CPHP Process Documentation Report, Oct- Dec'03
- Dixit,P., Barik, S.S., (September, 2003). CPHP Process Documentation Report, April-Sept'03
- Dixit,P., Barik, S.S., (December 2004). Institutional History: CPHP Orissa Coalition
- Dixit,P., (March, 2004). Reflection and learning on Partnerships for Innovation
- Dixit,P., Barik, S.S., and Raju, A.J. (October, 2004). Proposal for setting up a processing plant in Gajapati District, Orissa.
- Barik, S.S., (September 2003). Market Analysis
- Dixit,P., Barik, S.S., (December, 2003). Minutes of the Steering Committee Meeting
- Dixit,P., Barik, S.S., (April, 2004). Minutes of the Steering Committee Meeting
- Tripathy, P.K. (November, 2003). Consumer Survey and Market Analysis of Osmo-dehydrated Pineapple Slice by M/s Jagannath Merchandising Pvt. Ltd.

### *Other dissemination of material*

- Integrating Markets Products and Partners – A leaflet containing information on CPHP activities, learning and the coalition advantages etc published on the occasion of CPHP workshop by CCD, OUAT and IDEI.