

**A STUDY ON  
POTENTIAL AND MARKETING OF SELECTED  
MEDICINAL PLANTS  
AT  
VASUNDHARA, BHUBNESHWAR**

*A Dissertation Report Submitted in Partial Fulfillment  
of the Requirement for Post-Graduate Diploma in*  
**RURAL DEVELOPMENT**

By  
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**XAVIER INSTITUTE OF SOCIAL SERVICE  
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## APPROVAL SHEET

This is to certify that the dissertation entitled “**A study on Potential and marketing of selected medicinal plants**” has been prepared by **Jayita Sen** in partial fulfillment of the requirement for the Post Graduate Diploma in Rural Development.

This embodies data collated and analysed by the student under the guidance of **Fr. L. Francken**, Director, Research, XISS, Ranchi and it is hereby approved as indicating the proficiency of the candidate.



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*Jayita Sen*  
**Jayita sen**

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**CHAPTER 1**

**1.1 Introduction**

**1.2 Relevance of the topic**

## INTRODUCTION

The knowledge of medicinal plants is indigenous. From time immemorial Indian are practicing their traditional medicine system in which herbal medicines are frequently used. It finds its application even in the epic Ages.

Today when the world is facing the menace of the ill effect of the modern medicine and people are desperately searching for an alternative herbal medicine seems to be the befitting solution.

This medicine system is not only gaining its ground in India but also abroad now the Western world prefers using herbal medicine to allopathic medicine with this latest development in the world of medicine the medicinal plants are now frequently exported abroad where it is fetching high price because of its were increasing demand. This has lured many businessmen to enter this trade causing huge amount of export of these medicinal plants from our country.

Orissa is a state rich in endowment of these medicinal plants and from this gold mine regular trade of and export is taking place, which has lead to extinction of many valuable species, but it has not been able to improve the lot of the primary collectors. They still continues to be in their wretched condition, nor has it been able to augment the state's income

## **RELEVANCE OF TOPIC**

The relevance of this study is to find out what is the demand of these medicinal plants & how much it is met through the existing available & accessible natural resource, what is its monetary value and how much is it being able to solve the monetary need of those people on whom this entire trade of medicinal plants depends.

Then to look into the marketing system of these medicinal plants, whether it is an organised one or an unorganized one, whether it is a localized system or an open system. Further this study is carried out to look into different marketing aspects such as processing, adulteration, quality differentiation, whether there is involvement of middlemen in this sector or not, what impact does these aspects have on the overall marketing system of medicinal plants.

## **CHAPTER 2**

- 2.1 Species selected for study
- 2.2 Objective of the study.
- 2.3 Research Methodology.

## 2.1 Following are the medicinal species selected for study:

<b>Botanical name of the MFP</b>	<b>Local names</b>
Persea macarantha	Not known
Litsea monopetala (Roxb)	Masani challi
Litsea Glutinesia (Lour)	Ledha challi
Terminalia Arjuna	Arjun
Withania Somnifera	Ashwagandha
Andographis Paniculata	Bhuinimba
Sapindus Mukorosis	Ritha
Acacia Concinna DC	Shikakai
Curcuma Zedoria	Palua
Woodfordia Fruiticosa	Dhatuki
Rauvolfia Serpentina	Patalgarud
Hemidusmus Indicus	Anantamula(sugandhi)

## **2.2 The objectives of the study are as follows:**

1. To identify the current potential areas in terms of availability of the selected plant species.
2. To identify the activity areas i.e. where collection of these plants is carried out. (legal and illegal).
3. To trace the trade route of the medicinal plants from the primary gatherers level to the end market.
4. To study the importance of the medicinal plants as source of livelihood for the poor.
5. To study the propagation/cultivation practices of the medicinal plants.
6. To identify the restriction imposed at government as well as non-government level on the trade/extraction of the medicinal plants and its effect on the livelihood of the dependents on them.
7. To study the processing details at the primary collector's level.
8. Recommendations for sustainable livelihood methods and better trading.

## **2.3 RESEARCH METHODOLOGY:**

### **UNIVERSE**

A total number of eight villages were included for our study which comprised of people or collectors solely engaged in the collection of these selected species from different walks of life.

### **SAMPLING DESIGN:**

The sampling design used for this study was “Purposive sampling method” for people collecting these species.

A total of 50 respondents were selected for survey. The respondents i.e. the primary collectors belonged to 8 different villages. The basic purpose of taking this method was to amplify the researcher objective, which was to survey only those families who are directly dependent on the selected species for their livelihood. The divisional forest officers, traders, middlemen and wholesalers were those who were dealing in these species in different areas were also included in the sample.

### **METHODOLOGY ADOPTED FOR DATA COLLECTION**

The design of the study was exploratory in nature, based both on qualitative approach as well as quantitative data.

To study the objectives spelt out inferences have been drawn mostly from the primary sources and for comprehending the conceptual framework, use of secondary source has been used as extensively as possible.

**(a) SECONDARY SOURCE**

*-Documentary data made available from Forest Office,  
Magazines, Books, Journals and periodicals.*

**(b) PRIMARY SOURCE**

To elicit complete information on the subject, methods/tool used to gather primary data were:

**(1) SURVEYS**

❖ *Three sets of Interview schedules were used.*

*Semi-Structured Interview Schedule for Primary Collectors*

*Semi Structured Interview Schedule for DFO's*

*Semi Structured Interview Schedule for Traders*

The Interview Schedules were pre-tested and suitably modified before administrating them to the sampled respondents.

❖ *Personal Observation*

❖ *Interviews.*

**(2) CASE STUDY**

To probe the phenomenon deeply and analyse it intensively with a view to substantiate the findings from interview schedules case study method was taken up.

## INDICATORS AND TOOLS USED.

PARAMETERS	VARIABLES	TOOLS USED*
ECONOMIC	Forest inventory	SSI
	Resource area	SSI
	Income of primary collector	SSI
	Market channel	SSI
	Pricing structure	SSI
	Cultivation	SSI& CASE STUDY
	Processing details	SSI& CASE STUDY
	Organization/ cooperatives	SSI& CASE STUDY
POLITICAL	Governmental Policies	SSI
SOCIAL	Caste	SSI
	Awareness	SSI& CASE STUDY
	Knowledge about medicinal plants	SSI& CASE STUDY

NOTE \* SSI Semi-structured interview schedule

## **Description and purpose of the data gathering methods/tools used during study.**

### **Surveys**

Surveys are used to collect a broad range of information (qualitative and quantitative) about a population. The emphasis is more on quantitative data that is further used to help in interpretation of quantitative findings.

#### **INTERVIEW SCHEDULE:**

The interview is an important technique in empirical research. Formal interview is taken with structured interview schedules. It is a guided interview. It contains a fixed set of questions, which are asked and filled by the interviewer in a face-to-face situation with another person. The advantages are that the interview guide can be tested, there is also a scope of comparison and personal biases are limited.

The interview schedule was used to seek three types of information: -

- ❖ Information on availability of the selected medicinal plants in different parts of Orissa.
- ❖ Substantive information focused on the different aspects of dependence of the primary collectors on the selected medicinal plants for their livelihood.
- ❖ Additional information to support information gathered from other sources.

### **INTERVIEW:**

Interview is verbal questioning of the respondents. Though it is unstructured and controlled by the researcher, it is related to specific research questions for specific research questions.

The purpose of conducting interviews was to collect information to get an insight into the nature of the economic and social reality existing there.

### **OBSERVATION:**

Observation is a method that employs vision as its main means of data collection. It is accurate watching and noting of phenomena as they occur as regard to the cause and effect.

### **Case study:**

Case study is an intensive study of a case, which may be of an individual, an institution, a system, a community, an organisation, or even an entire culture.

## **CHAPTER 3**

### **3.1 Organizational profile**

## **3.1 ORGANISATIONAL PROFILE**

### **OPERATING PHILOSOPHY**

**Vasundhara' outlook and approach is defined by the following beliefs:**

- **Local communities have the greatest stake in sustainable management forest and other natural resources.**
- **Local communities have the capability to manage forests and other natural resources on a sustainable basis.**
- **Local natural resources can be used as a base for village development and sustainable livelihoods.**

### **MISSION**

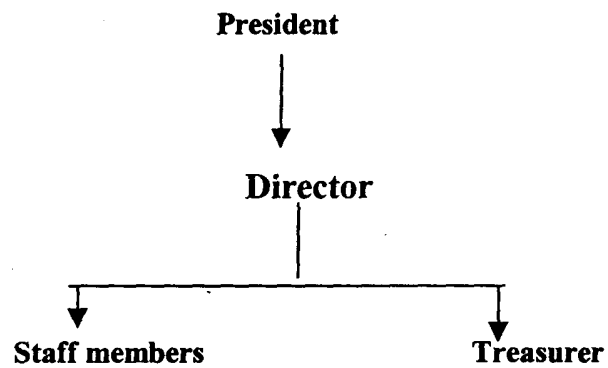
Vasundhara's broad goals are sustainable management of natural resources, especially common property resources, which have an important role to play in rural development. It believes that local natural resources can be better managed locally by increasing local people's in its development.

Vasundhara is focusing its attention on forests at present. Forests resources are under high pressure, provide multiple products and services and impact the status of other natural resources as well. Forests are also a resource having intricate links with local livelihoods and are a resource for which community concern has begun to emerge. Local communities have on their own taken initiative to develop these resources, Vasundhara believe that community based forest management system are a viable resource management option. Vasundhara is trying to facilitate changes in the direction of evolving stable and sustainable community based forest resource management system.

## **VASUNDHARA TEAM**

Vasundhara has a team of professionals with diverse background .The team has person specialised in forest management, development planning, rural development and environmental science.

### **Governing body:**



## **CHAPTER 4**

### **4.1 Data analysis.**

**4.1.1 Potentiality of selected medicinal plants**

**4.1.2 Livelihood dependence**

**4.1.3 Marketing channels**

**4.1.4 Primary processing**

**4.1.5 Cultivation and propagation**

### **4.2 Case study**

## **Introduction To Chapter 4**

This chapter deals with data analysis which is based on the information elicited from the primary collectors regarding their caste, species which they collect, the amount they get on selling these species, the form in which they sell it, the problem faced by them in collection and selling, whether they have bargaining power or not, to whom do they sell their collection, the monthly income derived from the sale of these species and whether they have awareness regarding the government minimum price fixed for each species, the end price and the end use of these species. This information helps in deciding their dependence on these species.

Not only this the chapter also deals with the potentiality of these species in various parts of Orissa i.e. division wise potentiality or availability, the seasonality of availability these species and also the marketing aspects i.e. the trade channel, the prices that exists at various levels as the good passes through various hands before reaching the end market. These information are elicited from the divisional forest officer and also the middlemen, local trader, and wholesalers.

This information helps in determining the trade route and also the pricing system that exists for these species in the market.

### 4.1.1 Potentiality of selected medicinal plants

Table – 1 DIVISION-WISE POTENTIALITY OF SELECTED M.F.P. ITEMS

NAME OF THE CIRCLE/M.F.P. ITEMS	ANGUL	ATHAGAH	ATHAMALLIK	DHENKANAL	KEONJHARR
BHUINEEM			12 QTS.		
DHATUKI			135		
LODHA, MEDHA, PHEN-PHENA		400 QTS.			60 QTS.
PALUA			1 QTS.		
RAULFIA SERPENTINA			1 QTS.		10 QTS.
RITHA			2 QTS		
SIKAKAI			13 QTS.		25 QTS.

NAME OF THE CIRCLE/M.F.P. ITEMS	KALAHANADI	KHARLAR	BOLANGIR	RAYAGADA	JEYPORE	NOWRANGPUR
ARROWROOT				5 QTS.		12 QTS.
BHUINEEM			100 QTS.			
DHATKI	100 QTS.	580 QTS.	100 QTS.	300 QTS.		70 QTS.
SHIKAKAI	20 QTS.	20 QTS.				300 QTS.
RITHA				100 QTS.		2 QTS.

NAME OF THE CIRCLE/M.F.P. ITEMS	BALLIGUDA	BOUH	Ghorawal..NORTH	Ghorawal.south	NAYAGARRH	PARLAKHEMUNDI	PHULBANI	PURI
ARROWROOT	50000 QTS.		1 QTS.				1.34 QTS.	
LODHA, MEDHA, PHE NPHENA								
RAULFIA SERPENTINA				2 QTS.				
SIKAKAI			50 QTS.					

NAME OF THE CIRCLE/M.F.P. ITEMS	BARIPADA	KARANJIA
ARROWROOT	20 QTS.	16.3 QTS.
BHUINEEM		86 QTS.
DHATUKI		113 QTS.

From the analysis of these tables it can be seen that ledha and medha are found in restricted circles and in both these circle i.e. in Atthagarh and Keonjhar it is found in abundance. The places selected for our study i.e. Devapota, Rajabasa, and Begunia are adjacent to Keonjhar and this is probably the reason why it is plentifully available here although it is scarce in rest of Orissa.

As per the data available on potentiality of dhataki and arrowroot it is plentifully available in Orissa but few species like rauwolfia serpentina is a scarce species in Orissa and is found in very few pockets of Orissa and that too in limited quantity.

As far as ritha and shikakai is concerned it is only found in the dry zones like in Kalahandi and Khariar. These species are also rare in Orissa.

There is practically no mention of ashwagandha; anantamul persea macrantha in the list of species available in Orissa, which reveals that these species are rare in Orissa. This table gives us a rough idea of the potentiality i.e. availability of these species in different parts of Orissa.



## **POTENTIAL AREAS AND ACTIVITY AREA:**

### **Litsea Monopetala:**

Athagarh, Keonjhar, Kalahandi, Khurda, Kapilash, Koronjia, Dhani forest, Puri div, Baripada, Baragarh. Bangriposi and Bisoi division.

- In Puri division the amount of Litsea Monopetala collected in 1999 from Raunpur is around 2 to 3 truck load but the official figure shows that there was no collection that year. Thus pointing to the fact that huge amount of illegal trade of this trade had taken place.
- From Thakurmunda 1 truck load of Masani chilli is being traded every week but officially the collection of this particular species is prohibited.
- From the Narsinghnath area there is a collection of at least 80 to 100 quintals of this particular chilli without having any official record of such collections.
- From Simlipal area i.e. from bangriposi and Bisoi division 10 to 12 truck load of this particular species is being traded every year without the consent of the forest officials

This shows the alarming rate at which the harvesting of this particular species is taking place without the consent of the forest official or the government.

### **Terminalia Arjun:**

Nimpara, Bank of Hadua river, Naugarh, Chandragiri, Barajora, Balwa range, Bangriposi, Bisoi range, Jossipore, Ganjam dist.

\*From Narsinghnath area at domestic and local level 5 to 6 quintals is consumed per year. Around 20 to 25 quintals of this bark is traded outside the state to Raipur, Amritsar etc.

\*From Simlipal area also huge quantity is being transported out without the consent of the forest officials but the exact amount of this chilli that is collected could not be ascertained.

**Bhuineem :**

Bolangir, Bamra, Dhuligiri, Bharatpur, Nandankanan, Bhubaneswar. Bangriposi, Bisoi, Tato. Narsinghnath.

Although it is available plentifully but it is not utilised so the area remains the potential area but not the activity area from where one actually procures raw material.

**Rauwolfia Serpentina:**

Keonjhar, Bamra, Attagarh, Kalahandi, Phulbani, Koraput, Simlipal area, Cuttak,

From these areas plenty amount of Rauwolfia Serpentina is available. Atleast 1 to 2 truck load is extracted from Attagarh region. Same amount is reported to have been removed from the Simlipal area.

**Curcuma Zedoria:**

Balliguda, Rayagada, Phulbani, Gaislat in Baragarh, Kiyapala, Ponosodhia, Raunpur, Balasore, Simlipal area., Koraput.

The wild variety is found extensively in these areas and it is processed by the Kharia tribe in the Simlipal area who exclusively collect this rhizome and process it through their indigenous method. The cultivated variety is found every where almost everybody who has a homestead land grows it in Baripada and Raunpur area.

**Acaia concinna DC:**

Bania bandh forest in Khuntuni, Jossipore, Panchlingeshwar near Balsre, Mahendragiri hills in Parlakhemundi,

**Sapindus Mukorosis:**

Daringbari, Atthamallik, Belguntha, Mundamarai.

Although it is found but it seldom used for commercial purpose as the Orissa variety is of inferior quality.

**Woodfordia Fruticosa:**

Atthamallik, Kalahandi, Khariar, Rayagada, Bolangir, Koronjia, Aska, Keonjhar, Mayurbhanj.

Although it is plentifully available but it is not used to its fullest extent as very often the demand is very low in comparison to its availability.



## **Persea macarantha**

The study on the current status of *Persea macarantha* in the state was inspired by the following report published in the Times of India, dtd. 19th July, 2000 which stated how a commercially important plant has become an endangered species in India due to over-exploitation:

**"Raw material shortage hits agarbatti exports**

**By Amrita Nair-Ghaswalla**

**By Business Times Bureau**

*"MUMBAI: Be it a boudoir or a boardroom, a solicitors chamber or a library, an office or a workshop, the alluring scent of agarbattis (incense sticks) is wafting its way through, cleansing body and spirit. The fragrance is also making a heady impact on foreign soils.*

*The judicious blend of perfumery compounds and other ingredients has ensured that the pleasant smoke emanating from the Indian agarbatti is carrying the enchanting perfume to more than hundred countries. Indian agarbattis have been spreading their fragrance across the globe to East and West Europe, Southern and West Asia, Africa, Canada and even the US.*

*Interestingly, the US is the top importer of Indian agarbattis with orders worth Rs 12 crore in the past year alone. The UAE with orders totalling Rs 9.84 crore and Saudi Arabia (Rs 6.92 crore), are close behind. Imports by Brazil notched up Rs 4.06 crore while UK brought in Rs 3.74 crore. Even Ethiopia with Rs 2.64 crore and Mauritius with Rs 2.44 crore have managed to get into the top 10 countries importing Indian agarbattis.*

*Though Indian incense sticks are all the rage abroad, according to the Federation of Indian Export Organisations (FIEO), "there is an urgent need to encourage the cultivation of the Persea Macarantha tree whose bark yields Jigat, a binding agent used in the manufacture of agarbatti."*

*Incense stick manufacturers are facing a serious problem of raw material shortage. While the problem of Jigat shortage is a long-standing one, manufacturers are also falling short of solvents such as di-ethyl pthalate (used as a dilutant for perfumes).*

*Acute scarcity of certain chemicals used by agarbatti manufacturers has pushed up raw material prices, insist officials of Chemexil (Basic Chemicals, Pharmaceutical and Cosmetics Export Promotion Council), thereby increasing production costs tremendously. They added that the*

*supply of di-ethyl pthalate (DEP) is dependent on the supply of phthalic anhydride (a major raw material for making DEP).*

While the supply of Jigat is turning increasingly problematic, producers admit that a search for a synthetic substitute is inevitable. Even if large-scale planting of the Macarantha tree is undertaken, they explain, it would be years before the yield comes in.

*Despite all the impediments, the industry has been notching higher exports each year. While exports in 1997-98 were to the value of Rs 90 crore, in 1998-99 they were Rs 121 crore. From April 1999 to January 2000, Indian exports of agarbatti notched up Rs 71 crore. xxx”*

The purpose of undertaking this study was to know if the people of Orissa are being or can be benefited from this situation (i.e., acute shortage and heavy demand of *Persea macarantha* bark).

*Persea macarantha* (synonyms: *Machilus macarantha*, *Machilus glaucescens*) is tree belonging to the Lauraceae family. It can be of various sizes. The leaves are aromatic, but it has become endangered due to its bark which is smooth with pale-brown colour and as the above-quoted report indicated, this bark is used in agarbatti making because of its glutinous properties.

#### **Potential areas:**

The plant was observed in the field in Orissa during the pre-independence period. British botanists have mentioned about the occurrence of this species at Mandibisi (in the Kashipur block of Rayagada district) as well as in Bonai (Sundargarh district). But it had already become 'rare' (Haines:1961) by that time and at present, there is no confirmation of its occurrence in the state. Lack of contemporary data about its present status in Orissa suggests that this plant has become extinct in the state. Even its local name is difficult to ascertain.

**Scope for cultivation:**

*Persea macarantha* is an evergreen tree and has been observed to occur near ravines. Cultivation techniques of this plant has been elaborated by the scientists and it can certainly be said that there is enough scope for the cultivation of this species in Orissa.

**Table no. – 3 village wise distribution of primary collector by sex**

Areas/Village	Male	Female
Gondopalli	2	10
Talapatna	2	2
Kalasondhapur	-	2
Devapota	9	9
Rajabasa	9	9
Bolangir	8	1
Begunia	9	6
Narsingnath	6	4
Total	45	45

This table shows that people from either sex take active part in the collection activity. But there are places where there is more involvement of women than men like in Talapatna, Gondopalli and kalasondhapur and there are places where there is virtually no involvement of women at all. This exception can be attributed to various factors like employment opportunity, culture, etc. but on the whole men and women work hand in hand.

**Table - 4 Village wise distribution of respondents according to caste**

Areas/village	Schedule tribe	Others
Gondopalli	10	-
Talapatna	1	-
Kalasondhopur	1	-
Devapota	8	-
Rajabasa	8	-
Bolangir	-	8
Begunia	6	2
Narsingnath	2	4
Total	36	14

If we consider the percentage participation we see that as high as that of 72% of the total collectors selected for the study are tribal. Which points to the fact that three-fourth of the collection is done by tribal which is a pointer to the fact that the government policy which lays down that tribal should be employed for collection of all the NTFP'S in the state is strictly adhered to.

**Table - 5 showing the relationship between training received and thumb rule followed.**

Areas/village	Thumb rule followed		Training received	
	Yes	No	Yes	No
Gondopoli	-	10	-	10
Talapatna	1	-	1	-
Kalasondhopu r	1	-	1	-
Devapota	1	7	1	7
Rajabasa	-	8	-	5
Bolangir	5	3	5	3
Begunia	-	8	1	7
Narsingnath	3	3	4	2
Tótal	11	39	13	37

This table in an indicator to a vital fact that most of the collectors are unskilled labourers and that they practice destructive harvest threatening the existence of the very species on which they are thriving. It is probably due to this that species whose bark and roots are of medicinal importance are fast disappearing from the ground of Orissa. Very few collectors follow thumb rule and those who do so are the one who are associated with the organisation and have received formal training. Probably if every collector was given such training then the condition, which exists today where there is extinction of many valuable species, would not have occurred.

Table – 6 village wise distribution in terms of collection of medicinal plants

Areas /village	Persea macrantha	Litsea monopetala	Litsea glutinesia	Terminalia arjuna	Withania somnifera	Andrographis paniculata	Sapindus mukrosi	Acacia concinna D.C	Curcuma zedoria	Woodfordia fruticosa	Rauvolfia serpentina	Hemidusmus indicus
Gondopoli	-	-	-	10	-	10	-	-	-	10	-	-
Talapatna	-	-	-	1	-	1	-	-	-	1	-	-
Kalasondhapur	-	-	-	1	-	-	-	-	-	1	-	-
Devapota	-	8	8	8	1	1	1	1	1	8	1	1
Rajabasa	-	8	8	8	-	-	-	-	-	8	-	-
Bolanagir	-	3	4	6	3	5	-	-	-	-	6	-
Begunia	-	5	8	4	1	1	1	7	1	4	1	1
Narsinghath	-	4	5	2	-	-	-	-	3	5	3	1
Total	-	28	33	39	5	18	2	8	5	37	11	3

The table above makes it evident that there is no collection of *persea macrantha* in the village chosen for our study; it may be an extinct species, as it does not find any mention in the documents of forest office too. The collection of few species such as *sapindus mukrosi*, *Curcuma zedoria*, *withania somnifera*, *Hemidusmus indicus*, *rauvolfia serpentina* is virtually non-existent in most of the places either due to its limited availability or due to lack of order.

Few species such as *Litsea monopetala*, *Litsea glutinesia*, *Terminalia Arjuna* is collected extensively in certain pockets only. This can be attributed to the fact that it has extensive demand in the market and limited supply and probably where ever it is found it is harvested extensively to reap the benefit accruing from these rare and valuable species.

**Table - 7 showing the form in which goods are sold**

Areas/ villages	Sold in		
	Raw form	Processed form	Both
Gondopoli	10	-	-
Talapatna	1	-	-
Kalasondhapur	1	-	-
Devapota	7	1	-
Rajabasa	8	-	-
Bolangir	-	3	5
Begunia	7	1	-
Narsinghnath	-	-	6
Total	34	5	11

From the table above it can be seen that most of the primary collectors sell off their collection in raw form. These collectors are probably forced by their circumstance to do so, it is probably their economic vulnerability, which makes them handicap and prevent them from reaping the benefit of processing. Processing is both a costly and time taking affair and these primary collectors do not have the ability to wait for a delayed payment. Moreover most of these primary collectors do not have the skill and know how of processing and ends up in rendering them unfit for further use. Probably these are the reasons why the collectors are forced by the sellers to sell off their collection in raw form only.

Those primary collectors who sell their collection in processed form are the ones who have indigenous know-how of processing it and are the baidya's or the ones who are associated with the organization in Bolangir.

**Table – 8 showing buyers in different areas/villages**

Villages/areas	Buyers				
	Organization / Pharmaceutical	Commission Agents	Stockiest	Traders	Villagers
Gondopalli	10	-	-	-	-
Talapatna	1	-	-	-	-
Kalasondhapur	1	-	-	-	-
Devapota	-	7	-	-	1
Rajabasa	-	8	-	-	-
Bolangir	3	1	3	5	4
Begunia	-	6	1	3	3
Narsingnath	-	6	-	6	6
Total	15	28	4	14	14

From his table it can be seen that except in few places like Gondopalli, Talapatna, Kalasondhapur and Bolangir where there is a direct contact between the end users and the collectors in rest of the places it is the commission agent who does the transaction.

It is these commission agents who control the entire trade of these medicinal plants. At places they form the only source of market linkage like in Devapota, Rajabasa, Begunia and Narsingnath.

Seeing the dependability of the primary collector on the commission agent it can be said that they are indeed necessary evils. On one hand we cannot do away with them and on the other hand they appropriate major share of profit for themselves. In very few places there is direct contact between the seller and the buyer except in the case of pharmaceutical in Gondopalli, Kalasondhapur and Talapatna. The local baidya's who sell their collection in the form of medicine in the local villages and those primary collectors who are associated with the organisation "Sabuj biplav" in Bolangir.

Table – 9 Frequency distribution showing factors affecting collection in different areas

Villages/areas	Factors			
	Access	Availability	Fetches more price	Order
Gondopoli	-	-	-	10
Talapatna	-	-	-	1
Kalasondhapur	-	-	-	1
Devapota	1	1	-	7
Rajabasa	-	-	-	8
Bolangir	-	4	8	-
Begunia	1	1	3	5
Narsingnath	-	3	4	6
Total	2	9	15	38

Collection is guided by many factors but the most significant factor in this case being order as is obvious for the table. This indicates to an important attribute of this business that even if there is availability of raw material collection does not take place until and unless there is an order for it and this is the reason probably why the vast potential of Bhuineem and Dhatuki remains unutilized.

Not only this it also points to another very significant factor that collection of rare species such as ledha, medha and rauvolfia serpentina takes place disregarding government's policy ones the order for it have been placed. This also shows us that the buyers control the whole collection procedure. Availability factor and price fetching capacity guides or influences the collection of those primary collectors who have a direct linkage with the end user like in case of the baidya's and those who are associated with "Sabuj biplav"

**Table – 10 Frequency distribution showing the bargaining power of primary collectors**

Areas/villages	Price determined by		
	Buyer	Seller	Both
Gondopalli	10	-	-
Talapatna	1	-	-
Kalasondhapur	1	-	-
Devapota	7	1	-
Rajabasa	8	-	-
Bolangir	1	7	-
Begunia	5	2	1
Narsingnath	2	-	4
Total	35	10	5

As it has been seen earlier that the buyer controls the whole gamut and it is they who have an upper hand in determining the price. But in few occasion we see that the sellers are determining the price and they are the baidya's or the primary collectors who are associated with 'Sabuj biplav' in Bolangir.

This indicates that the buyers exploit the sellers a lot; these collectors do not even have a bargaining power. They practically have no say in determining the price of their own produce.

From the table it can be seen that only 30%of the have a say in determining the price which is a pointer or indicator of their vulnerability or helplessness. This indicates that the rights of the collectors are tampered with.

**Table – 11 Frequency distribution showing the monthly income of the primary collectors (Rs/ month)**

Areas/villages	<100	100-300	300-500	500-700	700-900	900-1100	100-1300	1300-1500	1500<
Gondopolli	10	-	-	-	-	-	-	-	-
Talapatna	1	-	-	-	-	-	-	-	-
Kalasondhapur	1	-	-	-	-	-	-	-	-
Devapota	-	-	-	-	-	6	1	-	1
Rajabasa	-	-	-	-	-	6	1	1	-
Bolangir	-	-	-	-	-	-	2	-	6
Begunia	-	-	-	6	-	-	1	-	1
Narsingnath	-	-	-	-	-	4	2	-	-
Total	12	-	-	6	-	16	7	1	8
Percentage	24%			12%		32%	14%	2%	16%

This table indicates towards the deplorable condition of the collectors on whom this entire trade depends. The very person who does the hard work who supplies the raw material gets but a miscue portion. Very few collectors get an income, which can sustain them, and those that earn it are the ones who are associated with “Sabuj biplav”. It can be seen that only 16% of the primary collectors gets a sustainable income from this occupation which can last them through the year. Those collectors who gets an income above Rs. 1500 per month does not depend only on collection but they take up cultivation of few of these species like *rauwolfia serpentina* and *ashwagandha*.

**Table – 12 Frequency distribution showing satisfaction from income**

Areas/villages	Satisfied	Not satisfied
Gondopalli	-	10
Talapatna	-	1
Kalasondhapur	-	1
Devapota	-	8
Rajabasa	-	8
Bolangir	4	4
Begunia	1	7
Narsingnath	1	5
Total	6	44

From this table it is seen that only 12% of the primary collectors out of the total strength of the primary collectors taken up for the study are satisfied, these are the ones who are independent sellers or those who are associated with the organization. The rest 88% of the collectors are not satisfied with the income, which they get from the collection of these species. This low satisfaction level among the primary collectors can be attributed to many factors such as low price realization, because of the exploitation done by the middlemen, traders & pharmaceuticals etc.

**Table – 13 Frequency distribution showing problem faced by P.C in selling**

Areas/villages	Problems faced			
	No	Yes		
		Inadequate price	Lack of buyers	Adulteration
Gondopalli	-	10	-	-
Talapatna	-	1	-	-
Kalasondhapur	-	1	-	-
Devapota	-	7	1	-
Rajabasa	-	8	-	-
Bolangir	5	3	-	-
Begunia	-	7	3	-
Narsingnath	-	3	3	2
<b>Total</b>	<b>5</b>	<b>40</b>	<b>7</b>	<b>2</b>

From the table above it is evident that most of the primary collectors do not face problem in searching buyers as they have fixed buyers like the pharmaceutical in Gondopalli, talapatna, and kalasondhapur and the commission agent in Devapota, Rajabasa, Begunia and the organisation in Bolangir. But those who sell it to pharmacy and commission agents suffers from the fact that they do not get adequate price for their collection.

Those primary collectors who lack buyer are the one who sells their goods independently and out of the clutches of middlemen but are often suspected of adulteration. The primary collectors who do not face any problem in selling are the ones who are associated with "Sabuj biplav". They get good price, they have fixed buyers and all the more it serves as a permanent and dependable source of income.

**Table – 14 Frequency distribution showing propagation/cultivation activities carried out in different areas**

Areas/villages	Propagation taken up	No propagation
Gondopoli	-	10
Talapatna	-	1
Kalasondhapur	-	1
Devapota	-	8
Rajabasa	-	8
Bolangir	4	4
Begunia	-	8
Narsingnath	-	6
Total	4	46

From the table it can be seen that very few primary collector has taken up propagation activity. As low as only 8% of the primary collectors are engaged in propagation and those who are propagating are the ones who have got training and know how from ‘Sabuj biplav’ and also buy back assurance. Moreover their income level has lured them to cultivate and propagate these species so that they can have a sustainable income even in the future. This not only benefits the primary collectors but also helps in conserving the environment.

**Table –15 Frequency distribution showing knowledge regarding end price.**

Areas/villages	End price known	Not known
Gondopoli	-	10
Talapatna	-	1
Kalasondhapur	-	1
Devapota	-	8
Rajabasa	-	8
Bolangir	4	4
Begunia	-	8
Narsingnath	-	6
Total	4	46

This table is an indicator of the awareness level among the primary collectors regarding the government's policy, the minimum government fixed rate, the demand of these species in the market and the market price, which is prevailing. This table points that as low as 8% of the primary collectors are only aware of the value of these medicinal plants, the governments NTFP policy, the minimum price fixed by the government on collection of these species, etc. these primary collectors who have knowledge regarding the end price are the one who have received training from "Sabuj biplav". Most of the primary collectors are ignorant about the end price prevailing in the market and that is probably the reason why they are cheated the most.

**Table -16 Frequency distribution showing knowledge of end use**

Areas/villages	End use known	Not known
Gondopoli	-	10
Talapatna	-	1
Kalasondhapur	-	1
Devapota	-	8
Rajabasa	-	8
Bolangir	4	4
Begunia	-	8
Narsingnath	-	6
Total	4	46

The value of this plants is known to very few collectors most of them collect to earn a living. The baidya's and the collectors who are associated with "Sabuj biplav" know its use.

## MARKETING CHANNEL

### TRADING FROM SIMLIPAL AREA:

#### Trade route



**This is the trade route followed for the transaction of all the raw material that takes place from this region . For banned items this is also the illegal trade route e.g. for *litsea monopetala*, *litsea glutenesia*, *Rauvolfia serpentina*, *Terminilia arjuna* etc.**

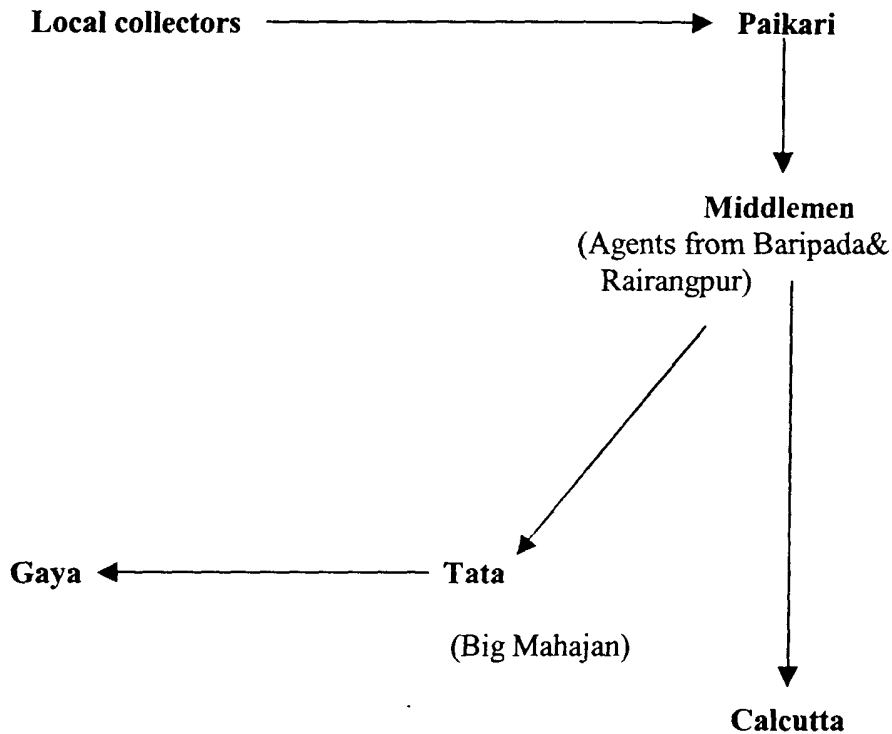
The pricing system followed in this region for the different items is as given below:(  
procurement price in Rs/Kg)

<b>PLANT SPECIES</b>	<b>collectors</b>	<b>local traders*</b>	<b>stockist</b>	<b>wholesellers</b>
<i>Litsea monopetala</i>	8-9	18-19	30-35	45
<i>litsea glutinesia</i>	2-3	7-8	10-12	15-17
<i>Withnia somnifera</i>	---	---	---	---
<i>Andro graphis paniculata</i>	0.50 - 1.00	1.5	---	3.00
<i>Sapindus mukorisis</i>	---	---	---	---
<i>Curcuma zedoria</i>	70	85-90	120	140
<i>Woodfordia fruticosa</i>	0.25 -0.50	2-2.5	5-7	10-12
<i>Rauvolfia serpentina</i>	---	50	85-90	110

\* Note:- The primary processing i.e. drying is done at this level

**Trading from Tato area:**

**Trade route**

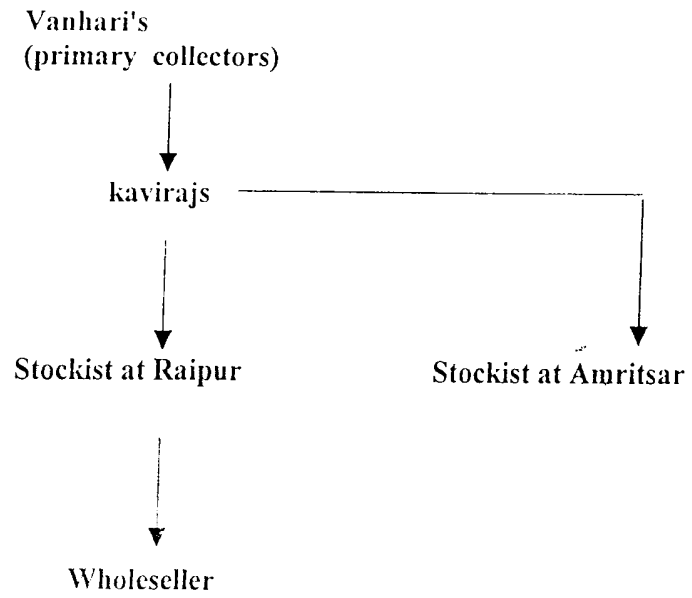


The pricing is the same as in case of Simlipal area . From this area only trade of masani challi takes place through the following trade route. Bhuineem is found in plenty in this area but there is no demand of it and if at all it is procured it is for local consumption and the payment is made in kind as in barter system.

Illegal trade takes place from this area .Most of the time these raw materials are packed in gunny bags and sent by bus during the night hours to Tata thus evading the official check-post.

Trading from the Narsinghnath area( Gandhamardhan)

Trade route



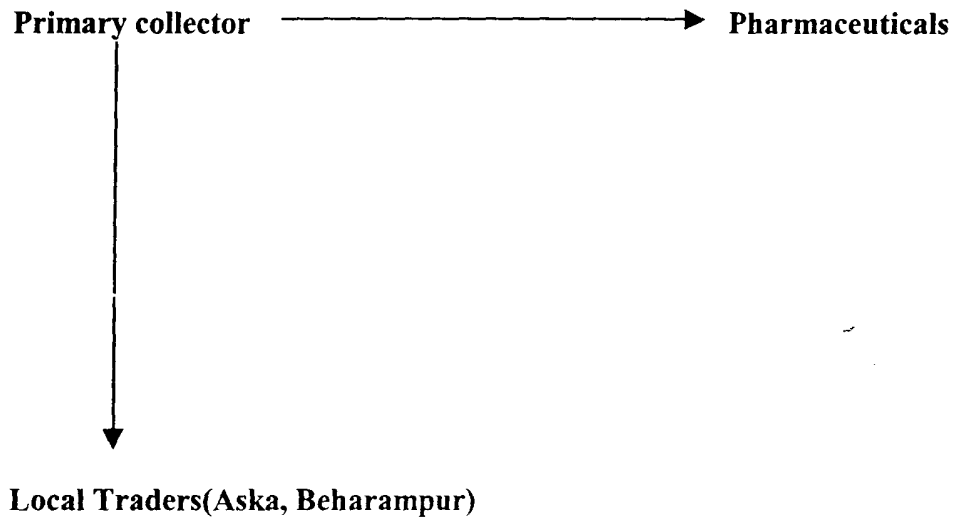
**Procurement prices of different species in Rs./Kg**

<b>Plant species</b>	<b>Primary collector</b>	<b>Kavirajs</b>	<b>Stockist</b>
<b>Litsea Monopetala</b>	<b>6.00</b>	<b>10.00</b>	<b>35.00-- 40.00</b>
<b>Litsea Glutenesia</b>	<b>2.50 -- 3.00</b>	<b>7.00 -- 8.00</b>	<b>10.00 -- 12.00</b>
<b>Termanallia Arjuna</b>	<b>2.00 -- 3.00</b>	<b>5.00 -- 6.00</b>	<b>10.00</b>
<b>Woodfordia Fruticosa</b>	<b>0.50 -- 1.00</b>	<b>2.50 -- 3.00</b>	<b>10.00 -- 12.00</b>

**Note:- This is the price list for Narsinghnath region. In this region the transaction at collector's level is not done on standard measuring scale. The trader makes the payment according to his rough estimate of the weight of the raw material collected. All the materials from this region goes to Raipur and Amritsar.**

**Trade taking place in the Bolangir and Aska:**

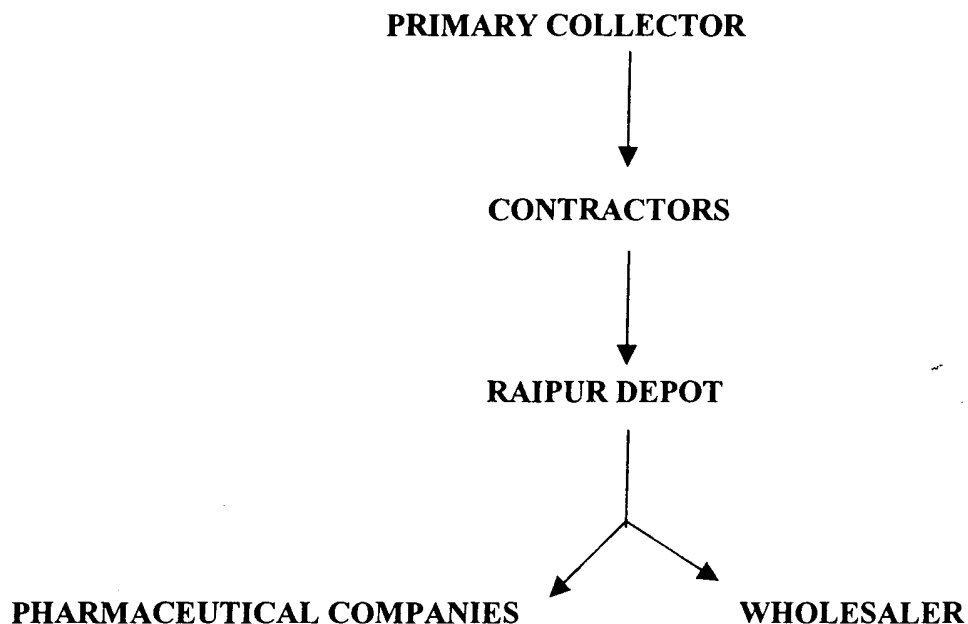
**Trade route**



**There is no involvement of middle men in this trade in this region . The families which are engaged in collection are entirely dependent on this collection it serves as their primary occupation When there is no order placed by the pharmaceutical then these primary collector to meet their daily demand sell their raw material to local traders of nearby areas.**

## **TRADE ROUTE OF CURCUMA ZEDORIA:**

### **Trade route**

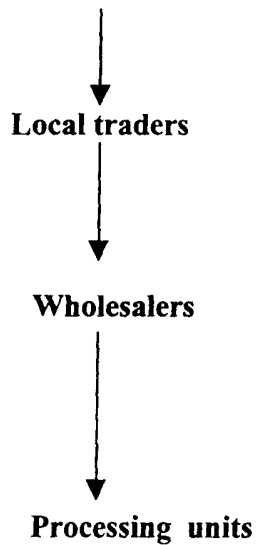


**This trade route is for the raw material collected from Aska and nearby areas. The price paid by the contractor to the primary collector is Rs.7-8 per kg. The contractor is offered Rs.35 per kg. The contractor does the primary processing and then sells it to the stockist at Raipur who then sells it to the pharmaceutical and wholesalers @ Rs 50/Kg which in turn is sold by the wholesalers to the retailers @ Rs 60/ Kg.**

**Trade from Ranpur of Palua:**

**Trade route**

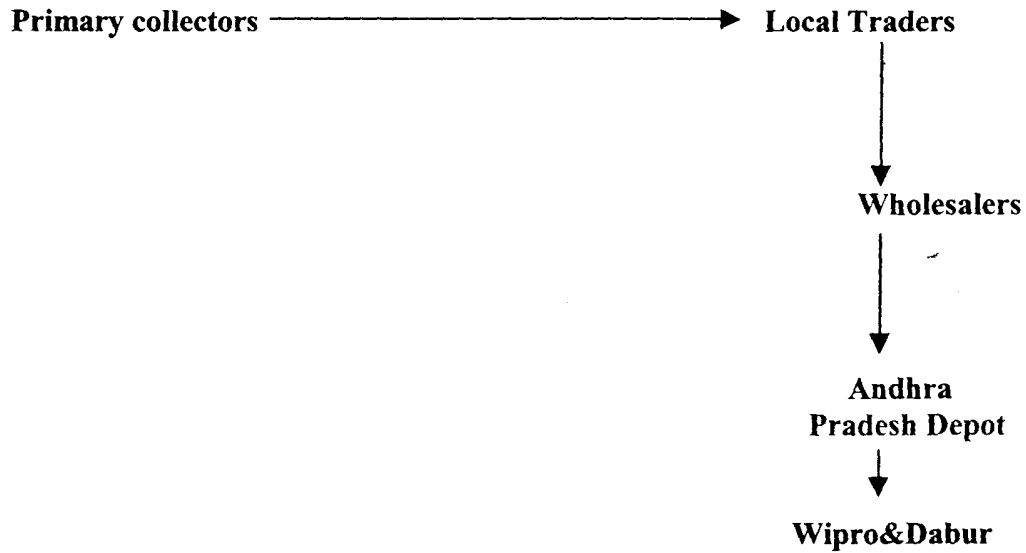
**Cultivators**  
**(from Ponosodhia, Kiyapala, Balarampur)**



**The cultivators from Balarampur ,Ponosodhia, Kiyapala sells their products @Rs.7-8 per Kg.to the local traders who in turn sell these product to the wholesalers in Chandpur and Sunkhela having gaddi @Rs.10-12 per kg. these wholesalers either own their individual processing unit or they sell it to some processing units from where it reaches the market in the processed form for direct consumption.**

**Acacia concinna DC:**

**Trade route**



The Orissa variety is considered inferior in comparison to those that is obtained from Amritsar and Raipur and hence it is cheaper than those variety but still it is procured by Wipro and Dabur from Andhra Pradesh depot . Although it is inferior in quality but still it is used because it costs less in terms of production cost and in the processed form i.e powdered form, it can't be differentiated from the superior quality.

## **NTFP POICY:**

According to the recent NTFP policy there is a ban on the collection of all the species whose bark and root have medicinal property like let sea Monopetala, let sea Glutinesia, Termenalia Arjuna, rauvolfia serpentina.

Moreover the policy gives recommendation for sustainable extraction of NTFP items to have sustainable of these items, besides this 67 items have been now shifted from the DFO's jurisdiction to gram sabha.

Now people desirous of purchasing MFP from primary gatherers have to apply for registration to the concerned gram panchayat. The dealer registered have to furnish monthly return to concerned range officer indicating the item of MFP procured, quantity procured and the gram panchayat from which procurement was made for a year form the first date of October to the last date of September the following year.

Collection of all MFP by primary gatherers will be subject to reasonable control to be exercised by DFO in accordance with the e provision of law and sound silvicultural practices laid down for Forest working plan.

A gram panchayat can cancel registration of dealers, trader or may refuse to grant registration for subsequent season if it is satisfied that the dealer, trader has procured ay MFP from the primary collector at a lower rate than minimum procurement price.

Certain items, namely Sal leaves, gums, resins, of different trees, e.g. khair, and catechu the bark, the climbers, and roots of various species which have medicinal or other uses will not be leased out, as the collection of these items have adverse effect n the sustainability of that particular species.

In particular localities, however on sound assessment of silvicultural availability and enforcement of appropriate collection procedure, any of these lease barred items may be allowed to be collected either directly by field organisation of Forest department on a government undertaking.

The remaining MFP items will be allowe4d t be traded by dealer4s who have registered

Seeing this NTFP policy collection four of the species, which have been selected for our study, is prohibited. Ritha, shikakai, dhatuki, Bhuineem and anatumul are the species, which can be collected. Thus we can conclude that the trade followed by traders in trading masani challi, ledha challi and arjun challi are all illegal trade routes, whereas the same route followed for trading other species becomes a legal for this purpose, one.

## **PRIMARY PROCESSING:**

*Litsea Monopetala, Litsea Glutinesia, Termenalia Arjuna:*

These all species do not require any primary processing other than sun drying this is done to reduce the moisture content of the bark so that fungus or other microorganism does not infect it.

In the case of Arjuna challis shade drying is recommended.

*Withania Somnifera:*

In case of this medicinal species also sun drying is done to remove the moisture content of the root so that it can be stored for long time without being infected by microorganism.

*Andographis Paniculata:*

This plant species is usually sun dried but on being exposed to the direct sun rays it often loses its volatile alkaloids which have much medicinal value so shade drying is preferred.

*Curcuma Zedoria:*

This is a rhizome, which is found in the wild & is also cultivated. This rhizome is first washed and then grinded with stone and then a paste of it is made which is then gathered in piece of cloth and then put in a pot of water the finer particles settles at the bottom of the pot and the coarser part remains in the cloth, this cloth acts as a sieve. Then the water from the pot is decanted without disturbing the sediment this process is repeated to remove the bitterness this sediment is then sun dried and this is the arrowroot, which we get.

*Woodfordia Fruticosa:*

This particular plant species is also dried but drying in the shade is recommended as it would help maintaining its pigment, which is used in the dyeing industry and this, will also prevent the escape of the volatile alkaloid present which on sun drying escapes quickly.

*Sapindus Mukorosis, Acacia confina:*

These fruits are sun dried. Most of these are left on the tree to dry up before it is plucked.

## **Adulteration:**

### *Litsea Monopetala:*

This bark when put in water develops a glutinous feeling. But often the bark of another plant is used in its place whose bark develops a glutinous feeling but to a very less extent and that too after prolonged soaking in the water. This particular plant species is known as GOGUL.

### *Litsea Glutinesia*

This species have a white outer part and red inner part this the only test by which quality can be assessed.

### *Termenalia Arjuna:*

Its brick can identify this particular bark  
Red color. No significant adulterant.

### *Curcuma Zedoria:*

This is white powder in which often rice powder and sometimes curcuma *Anguistifolia* is mixed as an adulterant. This reduces its price in the market this adulterants have lesser medicinal value and properties. *Curcuma Zedoria* is the natural growing variety which is costlier & less found but to meet the need often the cultivated variety is mixed with which is less bitter and more abundant known as *curcuma Anguistifolia*.

### *Rauvolfia Serpentina:*

The adulterant of *Rauvolfia serpentina*, which is commonly used, is *Rauvolfia tetraphylla* and it is easy to use it because after drying the difference between these two species cannot be detected

### *Hemidusmus Indicus:*

This particular species is not procured from Orissa. There is wrong perception among the people that Orissa variety is of not good quality since the quality of the species is judged by the superficial looks and its fragrance where the Madras variety wins although alkaloid property is more or less the same.

## **CULTIVATION AND PROPAGATION OF THE MEDICINAL PLANT SPECIES:**

### **Rauvolfia Serpentina:**

**SOIL/CLIMATE:** It is grown in wide variety of soil. Alluvial loam to red-laterite loam, stiff -dark loam under shade /partial shade /open Acidic & neutral soil is well suited.

Hot and humid tropical condition is well suited for their growth. Temperature of 10-38 degree centigrade is favourable.

### **Field preparation**

Deep ploughing of the field is done before monsoon in the month of May. 30 to 32 cartload of farmyard compost is added per hectare. Then ploughing is again done for the second time. Thus is the field prepared for the cultivation of this species.

### **Propagation:**

The propagation takes place by seed as well as through vegetative method by using root cutting and stem cutting.

The seed needs pre sowing treatment; it is soaked in 10% sodium chloride solution. It is then sown in nursery under shade. The seed is put in 0.6cms deep pit for germination in the nursery condition.

For propagation from root cutting we require 100Kgs. of root cuttings per hectare of land and each root cutting should be around 12 cms in length.

For propagation from stem cutting well-irrigated field is required and the stem cutting should be of 15-23 cms in length and it takes 45 to 60 days for it to strike root and become a self-dependent plant

In  $\beta$ -indolyl acetic acid it initiates roots within 15 days.

Transplantation is done when the seedling is 7-12 cms in length. The spacing between plants is 1 m.

## **FERTILISER**

Basal (K<sub>2</sub>O)- 30 kg /ha.

## **HARVESTING:**

Harvesting is done after 2-3 yrs in December. Each plant yields around 100 GMS of root. The roots are air-dried and it can be polythene packed.

## **Cost factor:**

Each stump costs Rs.3

4000 plants can be planted in one acre.

Thus the cost of plantation in one acre of land is Rs. 12000.

The fertiliser used is usually decomposed Kendu. Leaves, rice mill husk, cow dung.

Except cow dung the other fertiliser used do not cost much.

There fore the total cost incurred is Rs. 2000.

Each plant yields 100 grams of the root hence total amount of root obtained per acre is  
 $100 * 4000 = 400 \text{ KGs.}$

Each Kg costs around Rs 40. -45

Hence gross profit accrued is  $45 * 400 = \text{Rs. } 18000$

Therefore the net profit incurred is  $\text{Rs. } 18000 - 12000 = 6000$  per acre.

**THIS PROFIT IS FOR THE FIRST YEAR.**

In the second year the cost involved is very less and profit margin is more.  
This happens because the stump is made by the farmers or cultivator themselves.

## **ASHWAGANDHA:**

### **SOIL AND CLIMATIC CONDITION:**

Ashwagandha can be cultivated at any type of soil but it is best cultivated in red soil then the yield would be fantastic. The pH value of the soil should be between 5-8. There should not be any water logging.

### **Propagation:**

Wild- Seed is considered to be the best for propagation .It has yield of 5-6 quintals while the local varieties has yield of 3-4 quintals.

Requirement of seed per acre is 8 KGs.

Cost of 1Kg of seed is Rs. 100.

Total cost involved is RS 800.

### **Fertiliser.**

Requirement of fertiliser per acre is 10 KGs.

Requirement of cow dung per acre is 200 KGs.

Cost of 10 kg of UREA is Rs 60 @Rs 6 per Kg.

Cost of 200 KGs of cow dung is RS. 600 per kg @ have Rs 3 per kg.

### **Irrigation:**

Irrigation only if needed generally is not required.

Cost of irrigation is Rs. 500/acre.

### **Weeding**

Every fortnightly minimum of 6 times weeding is required

2 labourers can weed 1 acre of land, which means 12 man-days.

Total cost of 6 weeding is Rs, 480. @ 40 man days

### **Fungicides and Pesticides:**

Bio spring 1Kg

Neem khol 60 KGs Rs. 600

Total cost of fungicides is RS.800

**Labour Charges:**

Total Labour charge: Rs. 600

For digging, cleaning, packing, loading. Suppose 15 man-days are required.

**Fencing:**

Cost of fencing per acre Rs1000.

**Monitoring cost:**

Cost of supervision for 6 months RS 1200.

Thus total expenditure is Rs. 6750.00

The above mentioned calculation is based on the assumption that only Ashwagandha has been cultivated. If Ashwagandha is cultivated as inter crop then the above mentioned expenditure would become halved.

Yield of dry root per acre: 700 KGs.

Yield of seeds per acre: 20 kg.

S.P. of 1-kg seed: Rs. 50.00

S.P. of 40 kg dry seeds: 2000.00

S.P. of 1 Kg root: Rs. 25.00

S.P. of 400 Kg of dry root is: Rs. 10000

Total return is: RS. 10000 +Rs.2000 - Rs. 6750 = Rs 5250(Net profit)

## **CURCUMA ZEDOARIA:**

### **Soil and Climatic condition:**

Light soil is required, humus and moisture maintenance is required .Dry hard place is not suitable.

### **FERTILIZER:**

Potash is required for Palau and ash is used for this purpose.

As Palau is grown in homestead land along with other plants or in the rice field along with rice hence it does not require any separate fungicide or weedicide management.

### **Cost factor:**

There is practically no cost involvement as most of the time the remains of the rhizome is used for propagation.

From each homestead 30-35 kgs. Of Palau is obtained.

S.P. of each kg of Palau is Rs .7-8/kg.

Therefore total profit from each homestead land is  $7 * 35 = \text{Rs } 250$

## **Litsea Monopetala, Litsea Glutinesia, Termenalia Arjuna:**

The cultivation of the following species is not taken up because these species have high gestation period and cannot be taken up for cultivation on individual basis. Cultivation of these species is only possible if the forest department and that take it up too in in-situ condition.

## 4.2 CASE STUDY

### Case study of Bolangir

This is a case where it has been found that most of the primary collectors are quite happy with the income they have received training and are engaged in processing, cultivation, and propagation of a few species such as Ashwagandha, Patalgarurd and Arjun. All these are possible only due to the presence of an NGO functioning in Bolangir "SABUJ BIPLAV". S

#### Development plan through self help group:

These SHG group become the main instrument for organising poor people both in rural and urban areas for the development activities and attaining self-reliance.

Bolangir has great potential of raising medicinal plants in its vast areas of wasteland and upland. In Bolangir a concentrated effort has to be taken to find out ways to utilise these natural resources towards developing enterprise based on medicinal plants at SHG level. So with increased production of raw material and semi-processed materials there is a need to have a network of corporate set up which will meaningfully provide marketing and secondary processing support.

#### **GOAL:**

- To develop a viable integrated medicinal plant based development programme.

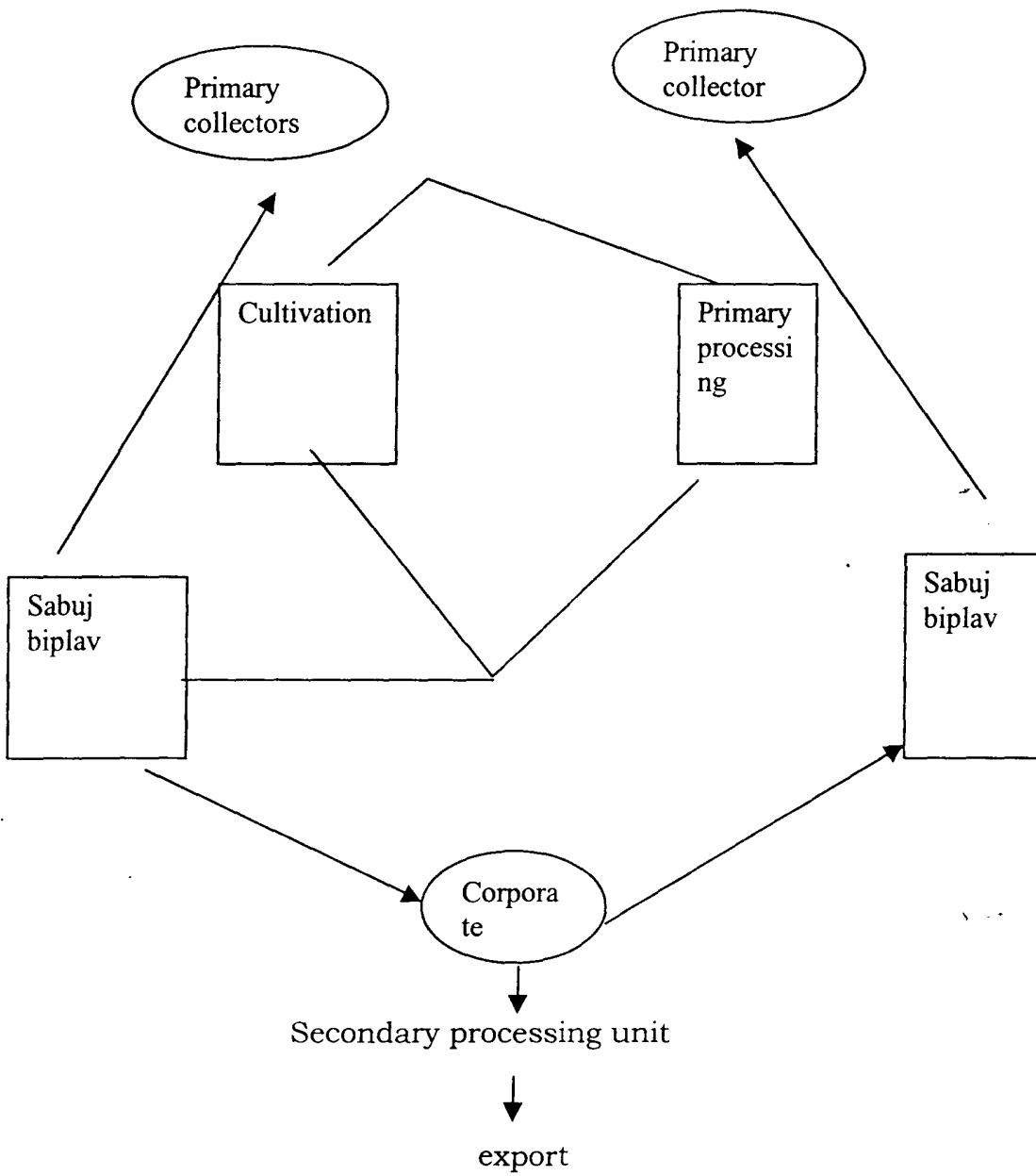
#### **OBJECTIVE:**

- To promote cultivation of medicinal plants of economic importance.
- To develop primary processing mechanism at SHG level.
- To develop marketing network among the SHG production nodes
- To develop linkage with corporate dealing with medicinal plants.

#### **RISK**

- There are mainly the following constraints in developing medicinal plant
- Based industry sector.
- Development of resource base, which is the foundation of the entire sector.
- Impoverishment of rural and tribal people who are the stewards of the resources and the keepers of ecological knowledge through inequitable marketing channels

**STRATEGY:**



A good number of the primary collectors involved in this mission took up cultivation the know how of which was provided by the NGO. These primary collectors also carried out processing of the species collected by them and these were then procured by the NGO and supplied to a factory i.e. the secondary processing unit and then the forward linkage with the market both domestic and international market was also established by the organization.

Thus the organization in Bolangir was very effective in establishing both forward and backward linkages, which helped the primary collectors to reap the benefit of their collection, and produce. the organization also helped them in realizing a handsome price for their produce, which was otherwise not possible

This has also helped them to reap the benefit of processing which in turn helps them in realizing a good amount for collection and also a sustained income. The other benefit which they have had after being associated with this organization is that they do not face any problem in selling their produce and the other fact which is of great importance is that they are free from the clutches of the middlemen who used to exploit them a lot and used to thrive on the hard work put in by these collectors.

Moreover they could not reap the benefit of harvesting few rare and valuable species such as Patalgarurd and Ashwagandha earlier, which has now become possible after getting associated with this organization.

There is a remarkable change in the lives of the collectors. in the past these collectors were the ones who had a meager monthly income of around Rs. 1000-1200 and that too for a few months they had to rely heavily upon the middlemen for the sale of their produce so much so that they did not even have a say in determining the price of the collection. These had rendered the primary collectors highly dissatisfied with income. Now being associated with this NGO they are satisfied with the income they are getting which is a handsome amount of around Rs. 4000-5000 thousand.

## **CHAPTER 5**

### **5.1 Finding analysis.**

### **Finding analysis:**

This chapter deals with the analysis of the findings and it tries to correlate the entire finding with the objective of the study to fulfil the purpose for which this study has been conducted. The analysis is done selecting each area.

#### **Gondopoli , Talapatna, Kalasondhopur:**

The species, which have been selected for the study of the researcher, are scarce in this area and the little which is available is also not used to its optimum level. From the study it has been found that collection of these species is guided by the order placed before them by the pharmaceuticals. The buyers usually demand for species such as Bel, Phenphena, Pasaruni, Patalgarurd, Koonya, Dhatuki, BabulArjun, Basanga, Bhuineem and Chitaparur. But after the introduction of the recent NTFP policy which prohibits harvesting of few species whose bark and root are of medicinal importance, species such as arjun and patalgarurd is no more collected by the primary collectors. The women folk are engaged in collection and there is very little participation of men in collection they are mostly engaged in other occupations.

These women are mostly tribal (khadals) who have received no formal training and nor do they follow any thumb rule while collecting these species. The species collected are directly sold to the pharmaceuticals in raw form eliminating the role of middlemen altogether. Although there are no middlemen to eat up the profit yet the primary collectors are not being able to realize the full price. This can be attributed to the fact that these primary collectors do not have bargaining power. Their vulnerability can be attributed to the unorganised market that exists. These primary collectors are indirectly forced to sell their collection to the pharmaceutical at a price rate much below the government fixed price. These primary collectors earn a meagre monthly income of Rs. 100 only on selling these species. Probably this low income is the reason for their dissatisfaction. Not only this the low price realization has left very little motivation among the primary collectors to either to propagate them or to sustain them so that it can give them a regular income in the future.

### Devapota and Rajabasa :

This region lies in the northern part of Orissa and is endowed with rich flora and fauna. Few species which has been selected for our study are plentifully available but the collection of these species is not in accordance, the reason being the apathy of the middlemen who find it less lucrative to deal in, e.g. being bhuineem and dhatuki. but species which fetches more price like ledha, medha and patalgarurd are profusely collected due to its price fetching capacity. Thus often the endangered species continues to be exploited and the abundant species remains unutilised.

The middlemen play a crucial role in this trade and control the entire gamut. He being the sole buyers manipulates the price according to his wish cheating the innocent tribal who does the entire hard work. They are cheated on dual ground i.e. one on account of their ignorance about its end price, the government fixed price and the other for they being unorganised. These all have led to low price realization by the tribal and they earn a meagre amount of Rs. 900 per month during the collection period only. Moreover they being unskilled labourers cannot reap the benefit of processing and increasing their income. This makes the collection activity unreliable and non-lucrative source of income. But for the middlemen it really serves well as they does the primary processing and charges the double amount from the local traders. These local traders in turn sell them to stockist of Kolkata who in turn sells it to wholesaler of different places.

### Bolangir:

Bolangir is a place, which is edaphically suitable for the cultivation of few valuable species like patalgarurd and ashwagandha. But species such as ledha, medha, shikakai, ritha and anatumul are not found or can be said to be as rare species. But dhatuki and Bhuineem are abundant in this region. The primary collectors of this region are free from the clutches of the middlemen and the collection is guided by availability and its price fetching ability. But as few valuable species are rare in this region the collectors other have to travel to far off places in search of them..

Most of the collectors are the roadsides baidya's. These primary collectors are mostly the roadside Baidya's who sell medicines hence most of them sell their goods in processed form and they have a say in determining the price. Despite of this fact they are not satisfied with their income the reason being that they do not get adequate price this can be attributed to the fact that they do not have collective bargaining power which results in the dissatisfactory price realization from their produce.

Beside them there are few baidya's who are engaged with an organisation this organisation is linked up with a secondary processing unit and it engages the primary collector in the work of processing and also enables them to earn a handsome amount from their collection. Not only this they are imparted training as to how to harvest, how to cultivate to be able to have a sustainable income form these valuable species. Thus primary collector of this region took up cultivation of few species like patalgarurd and ashwagandha, which helped them

Most of the primary collectors are the roadside Baidya's who sell their collection in processed form i.e. as medicine. Although these Baidya's have a say in determining the price but they feel that they are not adequately compensated as they do not have a collective bargaining power which results in the dissatisfactory price realization from their produce.

Beside them there are few baidya's who are engaged with an organisation this organisation is linked up with a secondary processing unit and it engages the primary collector in the work of processing and also enables them to earn a handsome amount from their collection. Not only this they are imparted training as to how to harvest, how to cultivate to be able to have a sustainable income form these valuable species. Thus primary collector of this region took up cultivation of few species like patalgarurd and ashwagandha, which helped them in realizing a good price for their produce as these valuable medicinal plants are highly in demand and fetches a high price due to its medicinal value.

Not only this there is information dissemination among the primary collectors regarding the end use, end price, its value as medicinal plants and the impact of following the thumb rule. The awareness building has helped the primary collectors to strive for a sustainable harvest, thus these primary collectors associated with the organisation have a much greater dependence on these species than others who are dependent on middlemen or those who are exploited by the pharmacy.

### **Begunia:**

Begunia is a place close to Devapota and Rajabasa and has rich endowment of these medicinal plants but the monthly income of these tribal is comparatively less than those of Devapota and Rajabasa as they do not have fixed buyers. These people usually deal in medha and ledha challis which is in demand and shikakai which is although not much in demand is also traded from this region, the sellers here are ignorant about the government policy pertaining to the collection, government's minimum fixed price and propagation, adding to this is their vulnerability which causes them, to be highly exploited in the hands of the middlemen. Their vulnerability is due to their inability to contact potential buyers who will be their regular buyer and who will probably pay them adequately. These middlemen who usually deals in ledha and medha challis sells their collection to mahajan's in Tata and Baripada, who in turn sells it to wholesalers or agarbatti factory in Gaya and Ranchi. This trade route is an illegal one as the state government prohibits the collection of these species, which are traded through this channel.

### **Narsingnath:**

In this region there is plenty of availability of different kinds of plant species, and being near to Raipur the collectors are often approached by stockist from Raipur. These stockist places the order to any one of the Kaviraj's that in turn hires other kavirajs to fulfil the order. These hired kaviraj's who work as wage labourers or as primary collectors are known as the vanhari's. These kaviraj's who are basically traditional medicine practitioners now acts as middlemen or collector in the trade channel and sell of their produce in raw form and at a price fixed by the stockist. In all the places dealt earlier the primary collectors as well as the middlemen were paid prices which was ascertained by the buyer in terms of rupees per kilogram but here in Narsingnath there is arbitrary fixation of price, they are paid a certain amount per bera, i.e. per gunny bag. Although the amount paid to these primary collectors and the middlemen's is more or less synonymous to what others get in rest of the places where the researcher had conducted the study, yet the scale of measurement is considered to be a distorted one. On account of

this distortion the middlemen as well as the primary collectors are often highly exploited at the hands of stockist. This stockist in fact appropriate more profit than those from Kolkata as they have a direct contact with the middlemen i.e. the kaviraj's and thus eliminating the very many levels of middlemen who stands to eat up much of their profit.

From a detailed analysis of the various activities that are carried out at the primary collectors level in different areas pertaining to these selected species it has been found in almost every place that the species whose collection has been prohibited by the state government are the ones which are traded or sold the most. Ex- arjun, ledha and medha. But species such as Bhuineem and dhatuki although plentifully available remains unutilized due to dearth of buyers. This has only led to exploitation of forest wealth at the hands of middlemen.

Although the government has taken up coercive measures and policies have been formulated but it remains in pen and paper and has only resulted in increase of illegal and clandestine activity, which has practically paved the way for further exploitation.

Further the objective that the collection these species can be a sustainable source of livelihood remains a distant dream as long as the middlemen plays a active part in the whole trading system and as long as the primary collectors remains ignorant about the government policies, the value of these medicinal plants, the methods of harvesting, cultivation & propagation, so that the forest resource can serve as a sustainable income base for them and the future generations.

Whatever the demand is, and whatever the value be, there is practically no change in the situation of the primary collection. They remain getting the nominal amount, which their employees or the middlemen wish to pay.

These primary collector are even deprived of the opportunity to processes their own collection, they are forced to part off or sell off their collection in raw form and this is prevalent in almost all the places where the study has been conducted except in few cases e.g.- in the case of khariar who have indigenous know-how in processing Palua, the

few primary collectors who are engaged with 'SABUT-BIPLAV' in Bolangir and the road side Baidya's.

Regarding propagation and cultivation practices at the; primary collector's level it is seen that as these collectors are solely guided by the profit earning motives, they are more interested in exploiting the forest resources till exhaustion. They are not aware of the harm they are causing to the environment & the species. They do not realize that they are ruining their own income base & earth's resources. It is only in Bolangir where the primary collection are imparted training on harvesting & cultivation technique that the collectors have taken up cultivation. The species cultivated by them are ashwagandha & patalgarurd, cultivation of other species which are rare such as arjun, ledha and medha are not taken up because it is a capital & time intensive venture, governmental support or organizational support can alone make it a feasible proposition.

Regarding the marketing channel, it is a highly complicated network consisting of numerous middlemen and tiers. Each area has its own tier and pricing system. But a broad outlook of the entire system reveals that there exists four levels the 1st level consisting middlemen, the 2nd level consisting of local traders, who in; turn have a linkage with stockiest in Kolkata or Raipur and finally from these stockiest the wholesalers procure for reselling it to retailers. Thus we see that it is a highly messy network and extremely unorganised sectors with each region having its own pricing system and trade channel.

Thus from this we can conclude that with few improvisation the collection these species can become a lucrative income generating activity for the primary collectors.

## **CHAPTER 6**

### **6.1 Suggestions**

## SUGGESTION

Seeing the deplorable condition of the collectors and the fast degradation of the forest wealth, the first and the foremost thing, which comes to mind, is that dissemination of knowledge. Awareness generating programme can alone prevent further degradation of forest wealth. Moreover awareness among these collectors regarding the forest policy can help them in getting their due rights, i.e. getting the minimum fixed price, assured employment in any collection work taking place from the forest, as the forest bill has provision which gives exclusive rights to the tribal on the NTFP and MFP.

The primary collectors lack a common platform from where they can fight against the exploitation met to them, so a co-operative should be formed and linked to the market so that the primary collector have a collective bargaining power but also a linkage with market and more avenues to channelise their goods or collection so that they do not have to depend upon the middlemen who at present serves the only linkage with outside world

Linking the primary collector with some secondary production unit as in Bolangir so that they can have a sustainable income and get a handsome amount for their collection. Moreover imparting appropriate know-how regarding secondary processing and collection activity so that these valuable plant species do not get extinct and continues to serve the mankind in the future.

## 6.2 Recommendations:

- To involve SHG's in this process of marketing.
- In case of those plants whose bark is extracted it is suggested to extract bark from the upper part of the tree and more over to extract the bark from 1/3 part of the tree leaving the 2/3 part so as to have sustainable harvestation.
- Multitier cultivation is suggested in order to have cultivation of big trees having high gestation period. In this form of cultivation the top most canopy would be formed by the big trees, the middle canopy would be formed of orchard trees which have gestation period of 1 to 18 months and the lowest tier is of agricultural crop which yield in 4 to 6 month.
- Organic manure should be used for herbal plants when cultivation is taken up.
- To make the Panchayat more accountable so that it performs better and the local collector can have more say in price fixation
- There is recommendation on primary processing for species like Dhatuki and Bhuineem
- Use of botanical name in trading so that illegal transaction could be checked.
- Himachal market can set an example to have organised market.
- Jaib Panchayat CPR concept can be used by the primary collectors of Orissa for sustainable harvesting of the medicinal plants.

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# APPENDICES-1

## INTERVIEW SCHEDULE

### COLLECTORS

1. Name:
2. Age:
3. Sex:
4. Caste:
5. Family - J/N/E
6. Village:
7. Forest division/range:
8. Number of family members:

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9. How many dependants are there in your house?

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10. How many person from a household are engaged in collection activity? {men/women/children}

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11. Is there any fixed rule regarding the quantity, which each individual can collect, or any thumb rule in the collection procedure? If yes do they follow it & what is their opinion about it?

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12. Did you receive any training regarding the method of collection and the tools to be used?

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13. Which species do you collect the most and why? (Accessibility/availability/ fetches more profit)

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14. What is the month or the season in which procurement is made?

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15. What are the various sources of collection?

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16. What are the various problem faced in the collection procedure?

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17. Do you sell the collection in raw form or is there any value addition done before selling?

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18. What is the price difference when sold in raw form and processed form?

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19. Does the availability of medicinal plants or its use in medicine preparation play any role in the price they get from the traders/middlemen/pharmaceuticals companies?

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20. On which species do you do processing?

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21. What are the various instruments and machinery's used in processing?

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22. Is there any common unit of processing at the village level or do they have to go to other villages for the same?

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23. Is there any storage facility and what are the species that are stored and why it is done?

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24. what is input cost involved in the collection procedure of medicinal plants in terms of:

- labour -----
- storage-----
- value addition-----
- Transportation. -----

25. What price do they get for their product? Is the price determined by the buyer or by the seller?

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26. Are they satisfied with the price they are getting?

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27. Is the income generated enough to sustain their living?

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28. Whether it is their primary source of income or secondary source?

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29. Is there any situation when the stock goes unsold? Explain.

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30. Do they sell their collection directly to the traders, whole sellers or middlemen?

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31. Are they self employed or hired labour?

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32. What are the problems faced by them in selling their products?

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33. Is there any co-operative system or any organisation, which helps in collection, value addition and selling of the medicinal plants? If yes, then what sort of help do these co-operatives gives?

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34. Is there any involvement of middlemen? If yes, then how many levels of middlemen are involved?

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35. What are the factors, which determines the value of the medicinal plants?

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36. What are the effects of the present forest policy on the procurement of the medicinal plants?

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37. What is the impact of the harvesting techniques used on the plant population?

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38. Do they practice any methods of propagation or regeneration of the plant species, which are vulnerable?

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39. Do they practice any organized cultivation of these medicinal plants?

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40. Do they have knowledge regarding the end use of the raw material they sell and the price of the end product?

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## APPENDICES-2

### INTERVIEW SCHEDULE (DFO/ACF/RANGER)

1. Name:

2. Rank/designation:

3. Forest division/range:

4. Area of the forest:

5. What are the areas where the following 12 species are found?

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6. Among these species how many species are found in your division /range?

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7. What is the status of availability of these species? (Scarce/extinct/abundant)

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8. Is there any collection of these species? (Past/present)

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9. Is there any legal procedure for collection of these species?

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What are the items on which lease is given from this division /range?

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10. Is there any restriction on collection of any species and why?

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11. What are the medicinal plant species, which are mostly leased out from this region?

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12. What is the role of forest department in collection of MFP items (medicinal)?

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13. Does the forest department check illegal harvesting or faulty practices of harvesting?

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14. What role does forest department play in regeneration of medicinal species, which are endangered?

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15. What is the trend in collection of species, which are leased out?

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16. Is the collection of royalty or the reporting of the amount collected regular?

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17. Who are the people engaged in collection of medicinal plants from the forest?

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18. Are these people the leaseholder or they are employed by the leaseholders?

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19. What is the minimum price fixed by the government on each of these species?

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20. Does the forest department provide any training to the primary collectors regarding thumb rule, processing, etc.?

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21. What changes have come in the role of forest department after introduction of New NTFP policy 2000?

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22. Does the forest department practice cultivation of species of medicinal value?

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23. What are the name of leaseholders and the species collected by them?

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24. What are your suggestions regarding improvement in collection, regeneration and trading of medicinal plants and various forest policies?

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