

Pilot Project

FORESTRY OF MEDICINAL AND HERBAL PLANTS FOR THE SOCIO-ECONOMIC DEVELOPMENT AND HEALTH CARE OF THE PEOPLES OF JHARKHAND.

BACKGROUND:-

The use of herbs, trees and parts of these viz fruits, leaves, roots and bark etc. As source of medicinal value in our country can be traced back to remote past. The earliest mention of use of plants for medicinal purpose is found in "RIGVEDA" one of the oldest sources of knowledge going back to 4500 & 1600 B.C. Among the later works, the "AJURVED" details properties of various drugs in detail. "SUSRUTA SANGHITA" which was written not later than 100 B.C., contains comprehensive chapters on Therapeutic practice and surgery and "CHARAK SANGHITA" written earlier, gives remarkable descriptions on the lines of Materia Medica, as ancient Hindus knew it. Later during Buddhist period, considerable progress was made and medicinal plants were cultivated under the direction of highly qualified specialists such as "Nagarjuna", the most prominent physician and Botanist of the age. Further contacts with Greece and Rome and still later with Arabia and Persia, contributed to the enrichment of the Indian Materia Medica and a large number of vegetable and other products came into use for treatment of diseases under Ayurvedic and Unani systems of medicine.

It is worth mentioning that Nagarjuna was the first Botanist, who undertook planting and developing many of the herbs, shrubs and plants in the area extending from Rajgrih to various parts of which is now the state of Jharkhand. This area was used by Nagarjuna and his contemporaries from ancient Nalanda University as Herbarium of medicinal plants. A host of species are still found in plenty within this area. The climate and atmosphere of the together with its location with its location and approach made it the choicest place for use ancient herbarium.

It will not be out of place to mention that out of 2000 drugs and derivatives mentioned in the Indian Medical literature, 90% are derived from vegetational sources, only 10% are of mineral or animal origin. The Materia Medica has been built up in the course of centuries and every region of India has contributed to its development. The practitioners of various systems of Indian medicine, in different parts of India, have tried to utilize the locally growing plants as far as possible and accepted those which were found useful after trials, for treatment of diseases and ailments. But in the course of time the modern system of allopathic medicine has shaken confidence of practitioners as well as forest dwellers. Use of local and traditional system is therefore becoming rare. Traditional knowledge base is depleting day by day. The species, which were

revered till very recently have become weeds or “ghas-plus” resulting in their reduced availability out of sheer ignorance. Availability of medicinal plants has suffered in the process. Poor forest/village dwellers have not been able to take advantage of escalating demand of herbs and shrubs witness recently. At the same time they are losing a lot on account of medical expenses. Confidence building by reviving traditional knowledge would go a long way towards empowerment of such population.

The Project envisages imparting knowledge of medicinal plants to 100 members of various Van Suraksha Samitis of **Bokaro Forest Division** each year along with the establishment of a **Training Centre** and **demonstration Nursery**. A model for enrichment of natural forest with medicinal and herbal plants would be developed on a demonstration plot of 75 acres. The aim of the project is enhancement of functional capability of forest dwellers by training them in **identification, collection** and **processing** of medicinal plants, for their own use and for meeting the demands of the market, along with increase in the availability of medicinal plants in natural forests. There is a great demand for such forest species in various forms in pharmaceutical (Unani, Ayurvedic, Homeopathic, Allopathic) industries besides other industries. A holistic approach will improve the prospects of development of several cottage industries, e.g. preparation of diverse cosmetic items, herbal oils, pesticides, preservatives of cereals, aromatic material for enhancing the taste of food recipes, agricultural uses and fodder for domestic animals. The empowerment of forest and rural population would ensue. The people. The groundwork for the project is in progress.

GROUNDWORK:-

With the help of **Desi Chikitsa Vikas Parisad**, a general survey was carried out in the Petarwar Forest Area and problems related to medicinal plants and herbs were identified. As stated earlier medicinal plants and herbs are found in abundance in the forests of this division. There is however almost complete ignorance among the forest staff and younger generation of local people about it. It is felt training in the identification, collection and the uses of medicinal plants and herbs to the local people and forest staff will go a long way in the popularization of traditional systems of medicine and conservation and development of medicinal plants and herbs in the forests of this division. Two workshops were held at Petarwar (proceedings are enclosed for kind reference) in this connection. Three more workshops would be held during this year as part of the preparatory arrangement. At the same time, forest staff is also being motivated to work towards introduction of such species, which have medicinal uses and are indigenous to the area (List of such species is enclosed).

OBJECTIVES :-

- a) To create awareness about the existing flora and fauna and their application in health care among the local people.

- b) To train the people within forest areas in identification, propagation and conservation of the medicinal trees, herbs and shrubs.
- c) To train the members of Van Suraksha Samitees (either male or female) in such activities and introduce them to the income generating technology bases on forest produce found in Jharkhand.
- d) To imbibe the spirit of co-operation among forest dwellers and create awareness among them as to how they can protect the forest and take advantage of the forest produce without legal problems.
- e) To revive the scientific temperament behind the use of herbs, medicinal plants and traditional methods for health care and cure.
- f) To revive the practice of educating rural people in the art of living with natural and to create awareness about the use of indigenous materials.
- g) To organize seminars and meetings for dissemination of knowledge regarding Herbal Medicines and their use in health care.
- h) Training of forest staff and local people in artificial enrichment of natural forests with medicinal and aromatic herbs shrubs through other related forestry schemes. This may be incorporated in micro plans of the respective forests.
- i) To develop a demonstration Nursery for medicinal plants (List of the species enclosed)
- j) To develop a demonstration plot (seventy five acres) for enrichment of natural sal forest with local medicinal and herbal plants.
- k) Empowerment of the people in general and association of members of Van Samiti in the management of forests and its resources in particulars.

ACTION PLAN:-

- i) Training of 100 members of the Van Suraksha Samiti and forest staff in identification, collection and conservation of medicinal plants and herbs and their uses based on traditional system of medicine. Training will be held twice in a month at Petarbar Training Center. Training program (curriculum) is enclosed.
- ii) Providing a well equipped training center at Petarbar with a demonstration nursery for medicinal plants and herbs.
- iii) Training in nursery technique for medicinal plants and herbs at the demonstration nursery.

- iv) Training in technology and domestication of cultivation of medicinal plants.
- v) Providing medicinal plants saplings for plantation for propagation on private land of the local people. (50 thousand saplings each year.)
- vi) Organizing Seminars and workshop for entrepreneurs for cultivation of medicinal plants and herbs so also develop market linkages.
- vii) Survey and documentation of medicinal and aromatic plants presently available in Bokaro Forest Division will be undertaken with the help of resource persons. Forest staff shall also be trained in this activity.
- viii) Establishment of Demonstration plots for enrichment of Natural sal forest with different species of local medicinal and herbal plants.
- ix) Study and dissemination of information with regard to best period of harvesting, harvest techniques, storage and packaging.
- x) Dissemination of information regarding Commercial viability, market demand and linkages.

PROJECT SITE:-

PETARWAR, Range Head Quarters
BOKARO FOREST DIVISION, BOKARO

DURATION OF PROJECT :-

FIVE YEARS (2001-2002) to (2005-2006)

PROJECT COST:-

1st Year (2001-2002)

(Amount in Lakh)

1. Building (Training Center plinth area 2500 sqft. Area)	-	10 Lakh
2. Audio-Video System	-	0.50 Lakh
3. Training Materials for 2001-2002	-	0.25 Lakh
4. Training cost per participant (@ Rs. 100) (two workshops every Month, Feb & March)	-	0.40 Lakh
5. Honorarium to chief investigation (@6500 p.m.) (Dr. Shyam Bihari Tiwari Ayurvedic Graduate & managing Director Deshi Chikitsa Vikas Parisad	-	0.13 Lakh
6. Honorarium to Co Investigator (@6000p.m.) (Dr. Sarveshwar Tiwari Ayurved Ratna & Member Deshi Chikitsa Vikas Parisad	-	0.12 Lakh
7. Nursery – Non-Recurring Expenditure	-	3.0 Lakh
Recurring Expenditure (Details enclosed)	-	0.60 Lakh
8. Fencing of demonstration plot for enrichment of Natural Sal forest with different species of local medicinal plants (3100 m @162/meter)	-	5.0 Lakh
Total	-	Rs. 20.00 Lakh

2nd Year (2002-2003)

(Amount in Lakh)

- | | | |
|---|---|-----------|
| 1. Furniture and Fixture for Training Center | - | 3.0 Lakh |
| 2. Training material per year | - | .25 Lakh |
| 3. Training cost (Rs. 100/ participants and
Two workshop per month for 100 participants) | - | 2.4 Lakh |
| 4. Seminar & Meeting (Twice in a year) | - | .80 lakh |
| 5. Honorarium to chief investigation (@6500 p.m.)
(Dr. Shayam Bihari Tiwari Ayurved Graduate
& managing Director Deshi Chikitsa Vikash Parisad | - | .78 Lakh |
| 6. Honorarium to Chief Herbalist (@6000 p.m.)
(Dr. Sarveshwar Tiwari Ayurved Ratna
& Member Deshi Chikitsa Parishad | - | .72 Lakh |
| 7. Survey and documentation
of medicinal and aromatic plants presently available
in the forest area of division will be taken quarterly
Consisting of resource person, trainees as well as forest staff. | - | .40 Lakh |
| 8. Nursery (Detail enclosed) | - | 3.80 Lakh |
| 9. Enrichment of Demonstration Plot (25 acre)
with local medicinal plants (ploughing, sowing
other related activity) | - | .50 Lakh |

Total - Rs 12.65 Lakh

3rd Year (2003-2004)

(Amount in Lakh)

- | | | |
|---|---|-----------|
| 1. Training material per year | - | .25 Lakh |
| 2. Training cost (Rs. 100/ participants and
Two workshop per month for 100 Participants) | - | 2.4 Lakh |
| 3. Seminar & Meeting (Twice in a year) | - | .80 lakh |
| 4. Honorarium to chief investigation (@6500 p.m.)
(Dr. Shayam Bihari Tiwari Ayurved Graduate
& managing Director Deshi Chikitsa Vikash Parisad | - | .78 Lakh |
| 5. Honorarium to Chief Herbalist (@6000 p.m.)
(Dr. Sarveshwar Tiwari Ayurved Ratna
& Member Deshi Chikitsa Parishad | - | .72 Lakh |
| 6. Survey and documentation
of medicinal and aromatic plants presently available
in the forest area of division will be taken quarterly
consisting of resource person, trainees as well as forest staff. | - | .40 Lakh |
| 7. Nursery (Detail enclosed) | - | 2.60 Lakh |
| 8. Enrichment of Demonstration Plot (25 acre)
with local medicinal plants (ploughing, sowing
other related activity) | - | .50 Lakh |

Total - Rs. 8.45 Lakh

4th Year (2004 - 2005)

(Amount in Lakh)

1.	Training material per year	-	.25 Lakh
2.	Training cost (Rs. 100/ participants and Two workshop per month for 100 Participants)	-	2.4 Lakh
3.	Seminar & Meeting (Twice in a year)	-	.80 lakh
4.	Honorarium to chief investigation (@6500 p.m.) (Dr. Shayam Bihari Tiwari Ayurved Graduate & managing Director Deshi Chikitsa Vikash Parisad	-	.78 Lakh
5.	Honorarium to Chief Herbalist (@6000 p.m.) (Dr. Sarveshwar Tiwari Ayurved Ratna & Member Deshi Chikitsa Parishad	-	.72 Lakh
6.	Survey and documentation of medicinal and aromatic plants presently available in the forest area of division will be taken quarterly consisting of resource person, trainees as well as forest staff.	-	.40 Lakh
7.	Nursery (Detail enclosed)	-	2.60 Lakh
8.	Enrichment of Demonstration Plot (25 acre) with local medicinal plants (ploughing, sowing other related activity)	-	.50 Lakh

Total - Rs. 8.45 Lakh

5th Year (2005-2006)

(Amount in Lakh)

- | | | |
|---|---|-----------|
| 1. Training material per year | - | .25 Lakh |
| 2. Training cost (Rs. 100/ participants and
Two workshop per month for 100 Participants) | - | 2.4 Lakh |
| 3. Seminar & Meeting (Twice in a year) | - | .80 lakh |
| 4. Honorarium to chief investigation (@6500 p.m.)
(Dr. Shayam Bihari Tiwari Ayurved Graduate
& managing Director Deshi Chikitsa Vikash Parisad | - | .78 Lakh |
| 5. Honorarium to Chief Herbalist (@6000 p.m.)
(Dr. Sarveshwar Tiwari Ayurved Ratna
& Member Deshi Chikitsa Parishad | - | .72 Lakh |
| 6. Survey and documentation
of medicinal and aromatic plants presently available
in the forest area of division will be taken quarterly
consisting of resource person, trainees as well as forest staff. | - | .40 Lakh |
| 7. Nursery (Detail enclosed) | - | 2.60 Lakh |
| 8. Assessment of outcome of the project | - | .50 Lakh |

Total - Rs. 8.45 Lakh

ABSTRACT OF BUDGET:

1 st Year	2001-2002	20.00 Lakh
2 nd Year	2002-2003	12.65 Lakh
3 rd Year	2003-2004	8.45 Lakh
4 th Year	2004-2005	8.45 Lakh
5 th Year	2005-2006	8.45 Lakh

Total :- Rs. 58.00 Lakh

COURSE CONTENT :

1. How is the human body formed according to Ayurvedic Physiology?
2. Introductory knowledge about: body, mind, energy, behavior, atmospheric change and its impact on healthy living and good health.
3. Course of disease – according to Ayurvedic Philosophy.
4. Balanced food, procurement of food from locally produced vegetables, plants and cereals.
5. Knowledge of locally available herbal and minerals, which are directly protective and immunizing the body.
6. Method of diagnosis according to Ayurvedic and traditional method and of the preparation of medicines from local herbs.
7. Method of raising the plants, preparation of the soil beds, pots etc.
8. Seasonal practices including timing of sowing seeds, determination of growth, behavior, harvesting period.
9. Number of plants appropriate for plantation per acre – cropping/intercropping system.
10. Nutrient requirement and method of preparing the manures.
11. Knowledge of commercial plantation.
12. Knowledge of identification, plantation, propagation, collection and method of preparing raw materials for industrial and other uses.
13. Best harvest techniques and storage/packing method.
14. Commercial viability as per market demand and linkage.

EXPECTED OUTCOME :

The perspective would be to cover the enhancing reliance of people on forest wealth especially the medicinal plants including herbs, shrubs, creepers, rhizomes and grasses along with sustained increase in their availability. In explicit terms we may expect the following outcome. :

1. The mercilessly rooting out of plants, shrubs, twiners, creepers, rhizomes and grasses of medicinal and food value be stopped.
2. Forest of Bokaro will be enriched through propagation and plantation of appropriate plants and will be restored as natural emporium of herbal wealth.
3. Joint forest management concept will be training into practice and village committees will be involved substantially leading to better protection and promotion of forest in the area.
4. Substantial population of forest dwellers of the Division will be able to earn their livelihood with the help of minor forest products. Their socioeconomic status will be raised.
5. Enhancement in the consciousness through this project will increase proper utilization of medicinal products like.

Brahmi	(HUDROCOTYLE ASIATICA)
Bhumi Amla	(PHYLLANTHUS NIRURI)
Makoi	(SOLANUM NIGRUM)
Shatavari	(ASPARAGUS RACEMOSUS)
Guggul	(COMIPHORA MUKUL)
Kalihari	(GLORIOSA SUPERBA)
Musli	(ASPARAGUS ADSCENDEN)
Majeeth	(RUBA CORDIFOLIA)
Shankhpushipi	(EVOLVULUS ALSINOIDES)
Bhringraj	(ECLIPTA ALBA)

Awanla	(EMBLICA OFFICINLIS)
Harre	(TERMINACIA CHEBULA)
Bahera	(TERMINALIA BALERICA)
Kapur Kachari	(HEDYCHIUM SPICATUM)
Nagarmotha	(CYPERUS SCARIOSUS)
Barahi Kand	(TACCA ASPERA)
Bidari Kand	(IPOMOEA DIGITATA)
Asgandha	(WITHANIA SOMNI-FERA)
Bach	(ACORUS CALAMUS)
Etc.	

These medicinal species will be extensively cultivated, processed and marketed also.

6. A well-equipped training centre with proper modern facilities will be available in Petarwar along with a demonstration nursery demonstrating the cultivation of rarely available costly medicinal plants on one-hectare land.
7. The training centre will be act as a bridge between modern experts and traditional herbal practitioners. The nursery will be their experiment ground.
8. The nursery will be distributing seeds, seedlings and plants to be utilized by village people, vaidyas and Hakims for enhancement natural medicinal wealth. Food and fodder items, which will beneficial to the local and the livestock, will also be available.
9. The people living in and around the forest are generally tribal and are economically backward. Although a lot of medicinal plants and shrubs are growing around them, they are not aware of their medicinal value and their applications in health care. They cannot take advantage of modern method of treatment due to economic limitations and its unavailability. The awareness provided will enable them to take advantage of the indigenous system of heath care.

10. Four hundred persons will be trained in the cultivation and use of medicinal plants. These persons will include vaidyas, members of forest protection committees and interested forest staff.
11. Traditional vaidyas will be scientifically trained in the training centre regarding preparation of useful medicines. Their traditional prescriptions will be documented also.
12. The training of different persons will be create the prospects of several home-industries like preparation of diverse cosmetic items, herbal oils, pesticides, preservatives of cereals, aromatic materials for enhancing the taste of food recipes, agricultural uses and fodder processing for domestic animals.
13. Petarwar will turn to be a very important market for herbal plants and its product.
14. The projects will increase the use of medicinal species along-with their sustained availability.

Submitted by :

Divisional Forest Officer,

Bokaro Forest Division,

Bokaro.