Dear Readers,

It is with great pleasure that we bring this latest issue of CCNR digest which has by now become a house hold name in our organisation. As in previous issues we have strived hard to bring to you all the activities that had happened in our centre or with our involvement. We are privileged to get the collaboration and support from different centres in the organisation and agencies outside the state. You will find its manifestation in each of the items that we carry in this issue. We believe it is only through collaboration and networking that conservation programmes can be implemented.

Our activities revolve largely with the GEF project where we are providing the services of Technical Support Group and as the NPMU. We have narrated the several activities that are being taken up under this project. These include work related to outcome 1, outcome 2, outcome 3 and outcome 4. There has been progress in component dealing with long term threat assessment, prioritisation of medicinal plants suitable for cultivation under different government programmes, Medicinal plant conservation areas, sustainable harvest related training, efforts for PBR, and so on.

This period also saw the conduct of the most crucial meeting of the National Project Steering Committee (NPSC) at FRLHT that had taken decisions for approving AWP, expenditure and budget for the current year. Similarly in Arunachal Pradesh a SPSC meeting also got held where Ms. Nandini from CCNR participated.

In our cover story we are dealing with value addition possibilities in the medicinal plant sector that will address livelihood issues too. This issue carries our experience with the Karnataka Forest department and in other states.

In our usual features we showcase an important RET species viz. *Butea monosperma* var. lutea which is a significant find in the field. In this matter Dr. K. Ravikumar from RMR and Mr. B. S. Somasekhar too took part in the survey. Mr. Pradeep Pant IFS has been at the helm of affairs in the SMPB which is the nodal office in implementing the GEF project. His association with FRLHT is highlighted in our feature on friends of IAIM.

Implementing the DBT project we could carry out propagation studies on *Embelia, Adhatoda*, etc. We were able to collect the fruits of *Embelia floribunda* from Arunachal Pradesh. The seeds are provided to CPPP for molecular profiling. Ms. Geetha with the help of CHG and specially Dr. Ganeshababu completed a very short project supported by Sacred seeds an international agency. Under this we worked for propagation of *Oroxylum indicum* and *Pterocarpus santalinus*. A video of the process documentation is uploaded in the sacred seeds website.

As always we are involved in extending our expertise to other centres that include in this period CPPP, RMR, CEI, CCR and so on. We involved ourselves in capacity building programmes, exposure visits, trainings, seminars and symposiums. You will read more in the text dealing with each of it. There are also glimpses of our HR related actions that happened during this quarter.

We appreciate your continued support and help in maintaining the publication of CCNR Digest. Your suggestions will help us to improve.

As we enter into the summer and festival time we extend our good wishes to our esteemed readers.

Happy Reading.

Dr. K. Haridasan
Medicinal plants have played a significant role in various ancient traditional systems of medicine in many countries especially in China and in India. The importance and value of traditional and indigenous herbal medicine was the subject of a campaign of the World Health Organization (WHO). Despite advances in modern western medicine, medicinal plants still play significant role both in preventive and curative treatments. About 18% of the world’s top 150 prescription drugs are derived from plant sources (Kate, Laird 1999). Medicinal Plants also generate income to the local dependent communities in many countries who earn their livelihood from selling collected materials from the forest or by cultivating in their farms.

Medicinal Plant Sector in India

India is one of the richest countries in the world as regards to genetic resources of medicinal plants. It is home to around 6200 ethno-medicinally important plant species and is ranked 6th (sixth) among 12 mega diversity countries of the world. In India, 9,500 registered herbal industries and a multitude of unregistered cottage-level herbal units depend upon the continuous supply of medicinal plants for manufacture of herbal medicines under Indian Systems of Medicine (ISM). In addition to the industrial consumption, significant quantity of medicinal plant resources are consumed in the country under its traditional health care practices at the household level, by traditional healers and by practitioners of ISM. About 960 medicinal plant species are being traded and forming the source of 1,289 raw drugs, of which 178 species are consumed in volumes exceeding 100 MT per year, with their consolidation accounting for about 80% of the total industrial demand of all botanicals in the country (Ved and Goraya, 2008).

Sustainable Harvest

Sustainable harvest is the amount of Non-Timber Forest Produce/Medicinal Plants that can be collected from the forest without disrupting the regeneration of that species, or causing damage to other parts of the ecosystem. It is important to consider the whole ‘population’ (total number of individuals and correct balance of old and young individuals) of that plant in the forest rather than an individual. This includes the timing of harvesting, materials to be harvested, harvesting techniques, harvesting equipment and storage. Some of the general instructions for sustainable harvest include collection of material at the right season and collection of only 50-60% of the yield.

Value Addition

Value addition of the medicinal plants in general can be achieved directly by improving the quality of cultivated or collected plant materials and indirectly by quality assurance of the plant material or the semi processing of the material to a value added product. A few examples of the plant species with the value chain and the Value addition is given in Table-1

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the species</th>
<th>Value Chain</th>
<th>Value Addition</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td><em>Decalepis hamiltonii</em></td>
<td>40% raw consumed, 40% consumed by herbal industry, 20% is substituted</td>
<td>Dry the roots and powder</td>
</tr>
<tr>
<td>02</td>
<td><em>Limonia acidissima</em></td>
<td>60% raw consumed, 40% consumed by herbal industry</td>
<td>Pulp Processing into: Juice, Jelly, Jam</td>
</tr>
<tr>
<td>03</td>
<td><em>Garcinia gummi-gutta</em></td>
<td>50% raw consumed, 50% consumed by herbal industry</td>
<td>Dry the fruits and powder (fuel efficiency)</td>
</tr>
<tr>
<td>04</td>
<td><em>Terminalia chebula</em></td>
<td>60% by tannin and dye industries, 40% consumed by herbal industry</td>
<td>Removing of seed and powder</td>
</tr>
<tr>
<td>05</td>
<td><em>Myristica dactyloides</em></td>
<td>20% raw consumed, 40% consumed by paint industry, 40% consumed by food industry,</td>
<td>Dry the arils in shade</td>
</tr>
<tr>
<td>06</td>
<td><em>Embelia tjserium-cottam</em></td>
<td>10% raw consumed, 40% used as spices and 50% consumed by herbal industry</td>
<td>Dry the seeds and powder</td>
</tr>
</tbody>
</table>
General Sustainable Collection and Processing Approach

- **Underground parts and whole plant**
  - Collect whole plants after seed shedding
  - Collect underground parts when mother plant is fully mature
  - Dry fleshy parts before packing and storing. Cut into small pieces for the larger part

- **Bark and Stem**
  - Do not harvest from immature plants
  - Collect from the branches instead of main trunk
  - Strip the bark longitudinally & not all over the circumference of Trunk/Branches
  - Cut into small pieces for complete drying
  - Harvest only the mature branches/stems

- **Leaves, Flowers, Fruits, Floral Parts etc.**
  - Harvest only mature parts
  - Do not collect from unhealthy plants
  - Do not collect plant parts infested with microbes/insects
  - Dry flowers and floral parts in shade. Fleshy flowers may be dried in sun
  - Separate rotten and diseased fruits

- **Gums, Resins, Galls etc.**
  - Make vertical incisions only on some portions of the tree
  - Do not collect the gums or resins from the tree continuously
  - Dry & harden gum/resin
  - Place in an open basket

**Glimpses of the Projects on Sustainable Harvesting and Value Addition by CCNR, FRLHT, Bangalore**

- **A Study for development of Methodology for sustainable harvesting of Medicinal Plants in India and Nepal (April 2003—March 2006):**
  - Studied on six important medicinal plant species viz., *Gymnema sylvestre, Garcinia gummi-gutta, Limonia acidissima, Cinnamomum sulphuratum, Vateria indica, Decalepis hamiltonii* in Agumbe and Savanadurga, Karnataka
  - Developed sustainable collection methodology and adaptive management for the six species mentioned above

- **Sustainable harvest, Augmentation and Marketing of selected Medicinal Plants through FDA Structure of Forest Department (July 2007—September 2010):**
  - Built capacity among the community and front line forest department staff on Sustainable collection in five villages viz. Kaduboranahalli, Adinayakanahalli, Anupanakunte, Thimlapura and Nagojipalyathrough multiple trainings in their respective project site and at forest division office, Tumkur
  - Pilot tested the sustainable collection regimes for 3 species Viz., *Terminalia chebula, Buchanania axillaris, Decalepis hamiltonii*
  - Value Addition for the harvested produce of the 3 species & marketed through FDA at competent price in Karnataka, Andhra Pradesh & Kerala

- **National Program on promoting conservation of Medicinal Plants and Traditional Knowledge for enhancing Health and Livelihood Security (May 2006-March 2010):**
  - Studied on six important medicinal plant species viz., *Ailanthus triphysa, Piper nigrum, Myristica dactyloides, Mammee suriga, Salacia chinenis, Embelia tsjeriam-cottam* in 2 villages; Illemane and Siragunji, Karnataka
Developed sustainable collection methodology for the six species mentioned above

Value Addition for the harvested produce of the 3 species & marketed at competent price in Karnataka

♦ International Standards for Sustainable Wild collection of Medicinal and Aromatic Plants (December 2007 - March 2010)
  - Applied standards for the four medicinal plant species viz., Ailanthus triphysa, Myristica dactyloides, Mammea suriga, Salacia chinensis at 2 villages; Illemane and Siragunji, Karnataka
  - Field tested International Standards on Sustainable collection

♦ Design and development of Community to Community Training (CTCT) on development of methodology for sustainable collection and adaptive management of species (2006 to 2010)
  - Developed CTCT manual, piloted in Madhya Pradesh – 210 Joint Forest Management Committees (JFMCs) and 1100 members trained and Karnataka – 105 JFMCs and 1957 members trained
  - Capacity building programme for model village development under Samrudha Hasiru Gram Yojana of Government of Karnataka on Conservation Sustainable use, Cultivation, Marketing and Value Addition of Medicinal Plants in Karnataka (February 2011- December 2011)
    - Organised training programmes in 36 JFMCs of Karnataka on Conservation, Sustainable use, Cultivation, Value Addition and Marketing of Medicinal Plants
    - Assessed the resources during the training program

♦ “Sustainable collection, value addition, warehousing and marketing of selected species in 14 JFMCs (Village Forest Committees - VFCs) of Karnataka”(January 2011- December 2014)

Through the experience of the earlier projects Centre for Conservation of Natural Resources (CCNR), FRLHT has extended its support for Conservation, Development and Sustainable Management of Medicinal Plants to 14 JFMCs/Panchayath for Value Addition, Warehousing and Marketing. The Project under Central Sector Scheme of NMPB is taken up by Foundation for Revitalization of Local Health Traditions (FRLHT) in collaboration with Karnataka State Forest Department and local NGOs viz., CORDEA & BHOMI for addressing the livelihood benefits as well.

Livelyhood Benefits

India’s turnover in drugs used in traditional systems of medicine is around Rs. 2,400 crore. The present global trade in herbal products is estimated to be around 60 billion US $ and is predicted to reach the figure of 5 trillion US $ by 2050 (Samsher et al. 2009).

In view of the Indian and global scenario, motivation and training for Value Addition of the species collected in wild and commercial cultivation of selected medicinal plant species inter linked with market chain helps to improve the livelihood benefits among the rural population. At the grassroots a chain of competent NGO, Cooperatives, Producers Company and Community Based Organizations can be established for benefit sharing.
Concluded Village Botanists Course for the Biodiversity Management Committee (BMC) members and folk healers of Manipur

The Indian Biodiversity Act, 2002 calls for the documentation of biodiversity elements in the form of People’s Biodiversity Registers (PBRs) through Biodiversity Management Committee (BMC) members. The folk healers depend on medicinal plants for health and livelihood security. Through this six months course, CCNR has attempted to build the capacities of selected BMC members and folk healers in Manipur on resource identification, documentation, conservation and sustainable use. This endeavor is the first time in the country for the BMC members.

Evaluation of participants’ learnings during the course was conducted on 21st – 23rd March 2013 in Imphal, Manipur. On 23rd March, the valedictory function was graced by Mr. D.S. Poonia, IAS, Chief Secretary, Govt. of Manipur, Mr. P.C. Lawmkunga IAS, Additional Chief Secretary (Forest & Environment), Govt. of Manipur, Mr. A.K. Rana, IFS, Principal Chief Conservator of Forests, Manipur Forest Department and middle and top level forest department officials. CCNR had prepared a state specific manual for this course. This manual was released during the function. The chief guests gave away the certificates to the participants who had successfully completed the course. An exhibition was organised displaying the assignments undertook by the participants such as herbarium sheets, raw drugs and seeds, reports, value added products, photographs, etc.

Interactive Workshop on Medicinal Plants Conservation Areas (MPCAs) in Madhya Pradesh,

The Madhya Pradesh State Minor Forest Produce Federation organized two days interactive workshop on MCPA network established in the state under CCF II-UNDP project “National Programme on promotion of conservation of medicinal plants and enhancing health and livelihood security” on 28th and 29th January 2013 at Central Institute of Tractor and Farm Technology, Budhni, Sehore district, Madhya Pradesh.

Perhaps, this is the first state among CCF II project states, called the team of people from MPCA sites to discuss the status, current activities and local interaction at MPCA. Purpose of the meeting was to review the current status of MPCAs and to plan for better interaction by building network among institutions, universities, colleges, research scholars, students, NGOs, community based organizations and local people.

Around 80 members attended the meeting from six MPCA sites along with representative from MP MFP federation, TFRI, FRLHT and MP forest department. Each MPCA site was represented by Forest Department, Local Management Committee members, NGOs and botanist and students from college/University near by the MPCA. Mr. Jagannatha Rao participated from FRLHT and shared strategies for sustainable management of MPCAs.

Out of detailed discussions held, following major recommendations have been drawn for periodic monitoring of MPCAs and also increasing interaction among different stakeholder groups for ensuring long term conservation of MPCA in the state.

- Essentially to provide four linkages for sustainable management of network of MPCAs such as administrative, technical, community and education linkages and to keep participation of different stakeholder in long term monitoring of MPCA.
- Review of Management plans and status of “hands off area” and link budget line from territorial division for maintenance of MPCA, provide additional areas to MPCAs as MPDA to provide better alternatives to local dependent communities.
- Integration of management plan into working plans of division and micro plans of Joint Forest Management committee.
- Preparation of comprehensive check list of medicinal plant diversity by reviewing existing list and also undertaking two seasonal surveys to update species distribution and availability.
- Maintenance of herbarium at designated location and send one copy of specimen to FRLHT.
Arunachal Pradesh braves logistics for medicinal plant conservation:
CCNR team consisting Dr. Haridasan visited Arunachal Pradesh during February 2013. Four of the seven MPCAs that are being established in the state under the GOI-UNDP-GEF project were visited. These MPCAs harbour some of the important GSMPs. It is indeed a treat to see the temperate MPCAs located at Ziro and Myodia. The plants include *Coptis teeta*, *Panax spp*, *Campylandra* and *Paris*. The MPCA at Wanu is a unique model of community owned forest conservation. However each of the site requires certain technical impoverishments for which CCNR is providing guidance. Each of these plots have been botanically surveyed by NERIST which indicate high species diversity. Dr. Ravikumar, Assistant Director, RMR, FRLHT had also joined the team as an expert botanist.

MPCA and more in Chhathisgarh:
As part of a programme related to Threat assessment in India, a team consisting of Dr. K. Haridasan, Sri. B.S. Somasekhar and Dr. D. Saha, and Dr. Ravikumar visited Raipur and Bandatola MPCA. The visit got significant with the spotting of a rare tree *Butea monosperma* var. lutea near Birjapur. Similarly a rich vegetation characterisaitic of the area with several RET species could also be observed. *Sterculia urens*, *Creteva magna*, *Stereospermum colais*, *Woodfordia*, *Schelichera* and several other plants made the vegetation significant for conservation.

RBM for GEF partners held at Bangalore.
As a part of MoEF-GEF-UNDP project, 2nd training on Result Based Management (RBM) was conducted at FRLHT, Bangalore on 18th January 2013 for project partners. Mr. Dharmendra from Sambodhi Research and Management Institute, conducted the Result Based Management (RBM) workshop to clarify the issues relating to implementation, evaluation and monitoring of project ‘Mainstreaming and sustainable use of Medicinal Plants diversity in three Indian States’. About 37 members participated and they were represented from SMPFs of Arunachal Pradesh, Utrakhand and Chhathisgarh, UNDP, MoEF, GEF team, selected staff from FRLHT, communication agencies and other project partners. Dr. Manoranjan Banja, APCCF, Andhrha Pradesh and Dr. Rakesh Shah, APCCF, Uttarakhand participated as experts. Dr. Ruchi Pant, UNDP coordinated this programme.

Undertake ecological studies in each MPCA site for better understanding on population structure, other conservation issues of flagship species.

Publication of MPCA booklets—site wise.

Organize VB course for selected candidates from 13 MPCA sites, may be in two batches in collaboration with local organization—modification to the course by its duration and more emphases on wild harvesting.

Establishment of interpretation centres at prominent sites, which have potential for eco-tourism—there by develop network among colleges, universities and research organizations — also set up R & D agenda for their interaction and involvement.

Organize inter site visits for management personnel and also annual fair of MPCA for mass.

Organise quarterly review meeting headed by PCCF.
**GEF output 2.6 Nurseries to foster medicinal plant resource in Arunachal**

CCNR is finalising a project from SMPB Arunachal Pradesh for prioritising species for cultivation in the state. During this reporting period we have made one more field work to East and west Arunachal Pradesh. We could short list species for each of the district with each district having 3-5 species as flagship species. A total of 27 species are prioritised from a list of 67 species from the state. The visit could also identify four to five nurseries covering different altitudes. These are Chessa, Bomdila, Bomdir, Roing, Namsai etc. These have great potential to be central locations to source nursery plants for our GSMPs. We could also identify the requirement for exposure visit and capacity building of the concerned field staff in charge of nurseries.

**FRLHT senior management takes stock of GEF project implementation.**

Noting suggestions from UNDP and MoEF, Dr. Padma Venkat, Director along with Prof. Darshan Shankar, Vice chairman and Mr. Ved, Advisor, FRLHT took stock of the project implementation and progress vis a vis the AWP in a meeting held with the CCNR team. The meeting suggested action points for effective implementation and timely attainment of milestones. It was also decided to hold the review meetings every month. This certainly had a positive impact among the team members. Since then this is happening on a monthly basis.

**National Project Steering Committee (NPSC) meeting at FRLHT**

The NPSC meeting was held at FRLHT on 11th January, 2013 where in, the AWP for the year 2013 was approved and expenditure for 2012 and budget for 2013 endorsed. The meeting was chaired by the Addl. Secretary Mr. Hem Pande, IAS and coordinated by Dr. J. R. Bhatt, Advisor, MoEF. Prominent members participated including Dr. Ruchi Pant and other staff from UNDP, steering committee members, CEOs and other staff from the SMPBs and members from FRLHT.

**CCNR participated in GI workshop**

Ms. Nandini participated in the Geographical Indications Workshop held at Dehradun and Itanagar on 28th January and 5th Feb. 2013 respectively. She also participated in the 5th SPSC meeting in held at Itanagar, Arunachal Pradesh on 5th February.

**Field exposure visit for LMG/BMC members of Chhattisgarh**

To strengthen the capacity of various stakeholders on conservation, sustainable collection and management of medicinal plants in Chhattisgarh and as a part of series of workshops and trainings under Outcome 3 of the MoEF-UNDP-GEF project. A four days orientation cum field exposure visit was organised during 4th to 8th February, 2013 in Karnataka and Tamil Nadu.

The Purpose of this programme was to “orient and expose the community and frontline staff of the forest dept. on different models of conservation, sustainable harvest, value addition and marketing of medicinal plants to strengthen their capacity to take-up similar activities in their respective sites”.

As a part of this program, there was one day orientation on different concept at FRLHT and three days field visit to different places in Tamil Nadu, like Covenant Centre for Development (CCD) – GMCL, Madurai; Lakshmi Seva Sangham, Dindigul; Sustainable collection site, Thavasimadai; Herbal raw drug market at Dindigul and MPCA in Kodaikanal. During this visit, team could interact with forest dept. officials, collectors, traders and manufacturing industries. This training programme was attended by community members, forest dept. officials of seven MPCAs and two sustainable collection areas of Chhattisgarh. The CEO and other staff of the State Medicinal Plants Board of Chhattisgarh attended this training programme. The training programme provided technical guidance on above said activities. Mr. Jaganntha Rao, Dr. Abdul Kareem, and Mr. Suresh coordinated this programme. Ms. Deepa, Dr. Noorunnisa Begum and Dr. Subrahmanya Kumar were resource persons from FRLHT.
GEF Updates

Visit to Chhattisgarh:

Ms. Nandini and Mr. Suresh from CCNR visited Chhattisgarh along with Ms. Anika from UNDP during 23rd to 26th March 2013. The purpose of this visit was to conduct meeting with the SMPB, community at 2 MPCA sites and sustainable collection area to understand the progress of the UNDP-GEF project activities and to give technical assistance to deliver the set outcomes.

The team visited Bhatwa village, Kondagoan district and discussed with community and SMPB staff on data collection process of CKR and PBR, visited MPCA and discussed on MPCA management activities taken up in the area. Other places like forest nursery in Makadi, the ‘Maanav Van’ and theme park created near Gangrel Dam and Dugli Forest nursery with the co-financed by MoEF-UNDP-GEF project, processing center of Chhatisgarh forest dept. were visited. Also visited traditional primary health care center and herbal medicine manufacturing unit run by Forest Department and upgraded with UNDP funds and had interaction with Raj Vaidya.

During the visit to Jabarra Village, Dhamtari district discussed about project activities related to sustainable collection, short film developed by SMPB on sustainable collection, community to community training programme, MPCA management and communication and awareness programmes conducted at Jabarra and other neighbouring villages.

On 26th March the team had interaction with CEO of the SMPB and his staff and discussed on various issues related to the project like Finance Release, MPCA management plan, Village Botanist Course, Home Herbal Garden, sustainable collection of MPs and Enterprise development and Videography, National symposium on sustainable collection, Community to Community training (CTCT), Cultivation, PBR and CKR, Syllabus for Forest Guard and Forester course, QPR and reporting and Staff capacity enhancement.

Long Term Strategy for Threat Assessment and Monitoring Conservation Status of Medicinal Plants

In continuation to the series of need assessment meetings, two more meetings were conducted in Arunachal Pradesh and Chhattisgarh during January to March 2013. The first meeting was conducted at NERIST, Arunachal Pradesh during 28th-29th January 2013 under the Chairmanship of Mr. T. Gapak, Member Secretary of State Medicinal Plants Board, Arunachal Pradesh. The second meeting was conducted at Pt. Ravishankar Shukla University (RSU), Chhattisgarh during 13-14th March 2013 under the Chairmanship of Prof. Shiv Kumar Pandey, Vice Chancellor, RSU, Chhattisgarh. Various issues related to the threat assessment, management and conservation aspects of medicinal plants were discussed among the participants.

These meetings were coordinated by Sri. B. S. Somashekar, Assistant Director and Dr. Saha, FRLHT. Dr. K. Haridasan, Joint Director and Dr. K. Ravikumar, Assistant Director from FRLHT had participated. These meetings were attended by many institutions such as NERIST, RSU, TERI, SFRI, Jabalpur, Arogyadham, Dindayal Research Institute, Chitrakoot, Govt. College of Science, and Indiragandhi National Tribal University.

These interactions were made possible under the outcome 1.6 of the GOI-UNDP-GEF Project which seeks to strengthen the capacity of the competent institute and developing action plan for the future activities in the State. The meeting also had a detailed discussion of the threatened medicinal plants of the concerned States.

Further, a link has been established with IUCN Red List Unit to excel the process of uploading the CAMP assessed species in their website. Efforts have been taken by Sri. D. K. Ved and Dr. D. Saha to understand the process of uploading the data using the IUCN Species Information Service (SIS) and communicated to Dr. Danna Leaman, Chair, IUCN-SSC Medicinal Plants Specialist Group and Dr. Caroline Pollock, IUCN Red List Unit to get their support in this regard.
Population studies completed for *Persea macrantha*

In continuation of a survey conducted during October other three surveys were conducted in the MPCA Charmady, Dakshina Kannada district of Karnataka by Dr. C.R. Jawahar during January–March, 2013. The area is situated in the eastern border of the district adjacent to Chikmagalur dt. which lies between 13°04.026’ N Latitude and 75°26.074’ E Longitude as well as between 13°04.530’ N Latitude and 75°28.077’ E Longitude. During the surveys, the team undertook regeneration studies on *Persea macrantha* (Nees) Kost., of the Lauraceae by locating new seedlings, estimating the presence and growth of the individuals recorded, and by painting the boundaries of the 14 quadrates. Mr. Nemanna, Mr. Lakshmana Gowda and Mr. Khader of Charmady village helped to complete the study. Logistic support was provided by Mr. Praveen Shetty, RFO; Mr. Nagesh Gowda, Forester and other forest dept. staff.

Sacred grove ecosystem service project

This project had a set back with one of the JRFs leaving the organisation and the other one entering to wedlock. However Ms. Geetha and Mr. Mujeeb carried out the work. They visited sacred groves in Karnataka and got water samples collected for analysis other than vegetation observation and phonological studies. During this period we could also get the previously collected soil and water samples analysed in the CPPP lab. Presence of nitrates in the water samples is intriguing according to Prof. Nagaraj Head CPPP, FRLHT. We plan to revisit the sites in the coming years too for confirmatory studies. Soil and water samples were collected from Sacred Groves of Uttara Kannada, namely; Rachammana bana, Kalyanapura bana and Mattigaru Chowdamman bana.

Checklist of Medicinal plants of selected sacred groves

Checklist of Medicinal plants of Sacred Groves of Karnataka and Kerala used for Health Care has been prepared, it contains the detailed information of medicinal plant present in the sacred grove, with some of the key information like habit, family, medicinal use and name of the sacred grove. Database also contain image of the plant.

DBT project news

Major work in this project are broadly concerning field work for studying distribution of species of *Embelia*, and propagation of medicinal plants through macro propagation on *Adhatoda* and *Embelia*. We could provide inputs for the implementation manual and on RET species. Samples were also given to CPPP for their studies in genetic profiling. Gathering of *E. floribunda* seeds from Arunachal Pradesh is a significant achievement in this period.

Tawang calls CCNR

For a DBT project related meeting the national coordinator of the DBT project summoned Dr. Haridasan to Tawang. During this trip Dr. Haridasan provided inputs related to RET species in western Arunachal Pradesh. The trip was memorable with the heavy snow in the Sela range and the profuse bloom of *Albizia arunachalensis*. *Illicium griffithii* too was in bloom. *Valeriana* was the other important medicinal plant seen in large scale flowering. Needless to mention *Rhododendrons* stole the show of the landscape with *Magnolia campbellii* along with *Prunus* and *Pyrus* spotting here and there.

Study on distribution of important species

As part of the DBT project (Preventing extinction of ), a field visit was undertaken for studying distribution of *Embelia ribes* and *Madhuca insignis* by Mr. Mujeeb and Ms. Geetha Suresh of CCNR. They visited Belthangady, Kudremukh National Park, Jog falls, Neelkund Ghat, Dandeli, Anshi Wildlife Sanctuary and Kulgi Nature Camp. They also visited the Forestry College at Sirsi to observe work undertaken by Prof Vasudeva in this area. During the tour different forest types, varying from dry deciduous, semi-evergreen to evergreen were observed. A good population, consisting of over 100 trees of *Madhuca nerifolia* (an allied species of *M. insignis*), was seen at Belthangady. These trees, which were at various stages of development, were observed between human habitation and plantations. It was learnt by interviewing the community members that the oil extracted from the seeds of this species had similar uses as that of *M. insignis*. However, according to them, seed oil is now rarely used in this region by the community. An inspection of the nearby oil mills was also done, where the mill owners and workers reflected the statements of the community, that as it was not the fruiting season, extraction of oil was not currently being done.

A few climbers of *E. ribes* were observed in the Kudremukh National Park and the Jog Falls region. However, *E. ribes* were not seen in Dandeli, Neelkund Ghat and Anshi National Park, although they have been reported in these areas earlier.

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Madhuca nerifolia
CCNR celebrated a year of working together.

On 4th January the CCNR team organised a get together along with the centre’s Monthly Review Meeting. In this event the Centre appreciated the contributions from each of the team member and dedicated for the centres next year’s programmes. A memento was also gifted to each one. HR Manager, FRLHT participated as an observer.

CCNR coordinated exposure visit for Doon University students.

On request from the Dr. J. K. Sarmah, Dean, Doon University CCNR organised an exposure visit for the PG students of Doon university. The Team was led by Dr. Kusumam Arunachalam, faculty from the University. Dr. Haridasan, Mr. Jaganath Rao, Dr. Kareem interacted with the students.

Members of RAHA, Chhathisgarh discusses health care sector in an exchange sharing meeting with CCNR.

Dr. B.N. Prakash from CCR, FRLHT coordinated a visit of members of an NGO called RAHA who worked for community health in different districts of Chhathisgarh specially managing Malaria. Most of the members visited were tribal representatives and women. Through this visit we could relate their work with the GEF project currently being implemented in Chhathisgarh.

TANUVAS students in FRLHT

DR. Haridasan took class for the PG diploma students of the TANUVAS – FRLHT programme. The participants were largely from Kerlala, Karnataka and Tamilnadu. The trainees were explained the need for conservation of medicinal plants. He drew attention to the medicinal plants used in ethno-veterinary practices.

CCNR exposes the Tibetan doctors’ team from Ladakh to Agar

A<sup>quilaria malacceansis</sup> is an important RET species from north east India which is also part of the GEF project In Arunachal Pradesh. Dr. Haridasan from CCNR acted as a resource person. The CEI coordinated training programme team evinced keen interest in the plant and shared their experience in herbal healing. Dr. Haridasan drew a parellael between the Agar tree and the Musk deer in term of their threat perspective and conservation status.

CCNR took part in the Festival of earth organised by >>>> and Srishti Sambrama

A major programme which was a week long programme had great discourses on environment and ecology of the state and Bangalore. The participants represented eminent professors, Wild life experts and photographers, senior officers from the Forest department, BBMP and other policy makers. Dr. Haridasan represented CCNR in this event and presented a paper on traditional practices in conservation of biodiversity.

CCNR participated in KaMPA workshop

A one day workshop on “Conservation, Cultivation and Sustainable Management of Medicinal Plants in Karnataka” organised on 27th March, 2013 at Aranya Bhavan, Bengaluru by KaMPA. Ms. Rajashree from CCNR participated in the event.

CCNR in the National workshop

A one day national level workshop and Training on “ Biodiversity status, conservation and Ethno-medicinal usage of Rare Endangered and Threatened plant species” on 11th and 12th March 2013 at AVK college, Hassan. Ms. Nandinin participated as a Resource person.
Butea monosperma var. lutea

*Butea monosperma* is very popular and come to use in many ways for the community. They are all trees, three foliate leaves and with crimson red flowers in profusion. The single seeded hanging pods are characteristic. The flowers are also used in making gular that is extensively used in Holi festival.

The medicinal uses of the plants are: Gum is used in treatment of diarrhea and dysentery, seeds are ground and mixed with lemon juice and then applied for itchiness in the treatment of eczema and ringworms, hot poultice of the leaves can be applied on boils, pimples, skin ulcers, swellings and bleeding piles and also leaves of Butea are used in treatment of leucorrhea and diabetes.

Standing singled out in the red flame of the forest is often one or two trees of Butea with bright yellow flowers. Botanically the tree is identified as *Butea monosperma var. lutea*. This species is adjudged as critically endangered in the CAMP report of MP and CG. Recently the CCNR team with RMR could locate two trees of this plant near Birjapur in Chhattisgarh. This is a significant find for the state. The GEF project could take advantage and try propagating the species in the forest nurseries.

*Dr. K. Haridasan*
The North Eastern Regional Institute of Science and Technology (NERIST) is a unique Institute of its own kind and established in 1983 by the Government of India. It is an autonomous, fully funded and controlled by the Ministry of Human Resource Development (MHRD), Govt. of India. The Institute was set up initially as a project of the North Eastern Council (NEC) for providing a system of education to create technical manpower at various levels for the development of the North Eastern Region of the country. The deemed university has many research and academic programme from starting from Civil Engineering to Agricultural Engineering and Forestry.

NERIST has been associated with IAIM-FRLHT for several years in conservation of medicinal plants, threat assessment, field botanical survey and skill development on related activities. Currently they are our partners in developing long term strategy for conservation of medicinal plants.

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Sri. Pradeep Pant belongs to 1982 batch of Indian Forest Service of Chhattisgarh Cadre. He is Additional Principal Chief Conservator of Forests and currently the Chief Executive Officer of State Medicinal Plants Board, Raipur, Chhattisgarh. He has been spearheading the GoI-UNDP-GEF project “Mainstreaming conservation and sustainable use of medicinal plant diversity in three Indian states” implementing in the state. He has taken several proactive steps to get the project move forward on the expected lines. FRLHT is proud to be associated with him and work together as Technical Supporting Group. He has taken special interest in getting capacity building programmes for the CG team in conservation and sustainable use of Medicinal Plants. His in-depth understanding of the forestry and biodiversity conservation has significantly contributed to the successful implementation of the project. We acknowledge his guidance and support for the same and look forward to our continued association with him and his team.

I-AIM is multi-disciplinary research, education and outreach arm of a public trust called Foundation for Revitalisation of Local Health Traditions (FRLHT). FRLHT was founded in 1993 by Mr. Sam Pitroda and Mr. Darshan Shankar.

The Ministry of Science and Technology recognizes the institute as a scientific and industrial research organisation. The Ministry of Environment and Forests and the Ministry of Health have designated it as a National Center of Excellence for medicinal plants and Ayurveda respectively.

For more information regarding the newsletter or CCNR contact suresh.m@frlht.org