



H.P. State Biodiversity Board **UNEP-GEF MoEFCC ABS Project**

PROCEEDINGS ON:

“National Conclave of Biodiversity Management Committees (BMC) for Experience Sharing on Access and Benefit Sharing (ABS) and 2nd National Level Dialogue on Traditional Knowledge (TK)”

2nd, May, 2017 to 4th May, 2017
At: Hotel Holiday Home, Shimla, H.P.

Proceedings for:

“National Conclave of Biodiversity Management Committees (BMC) for Experience Sharing on Access and Benefit Sharing (ABS) and 2nd National Level Dialogue on Traditional Knowledge (TK)”

The National Biodiversity Authority (NBA) is an autonomous body under the Ministry of Environment, Forest and Climate Change, Government of India. NBA Chennai is currently implementing a project on “Strengthening the implementation of the Biological Diversity Act (2002) and Rules (2004) with focus on its Access and Benefit Sharing Provisions” in ten states of India namely: Himachal Pradesh, Gujarat, Kerala, Karnataka, Andhra Pradesh, Goa, Sikkim, Telangana, Orissa and West Bengal.

Under this project a second National Level Dialogue on Traditional Knowledge (TK) and Access and Benefit Sharing (ABS) was organized by Himachal Pradesh State Biodiversity Board in technical collaboration with National Biodiversity Authority, Chennai to highlight some of the major activities relevant to traditional knowledge, innovations and experience on ABS associated with bio-resources National Conclave of Biodiversity Management Committees (BMC) for Experience Sharing on Access and Benefit Sharing (ABS) and 2nd National Level Dialogue on Traditional Knowledge (TK) was attended by Scientists/ Innovators/ Knowledge holders on Traditional Knowledge associated with reputed laboratories/institutions/universities from the states of India, the Chairpersons and Member Secretaries of the states along with officers and Biodiversity Management Committees members from 9 states of the country.

The objective of the dialogue was to discuss state specific traditional knowledge/ information/ innovations leading to patents associated with biological resources and to share experiences among the experts on the issues associated with ABS.

The National level dialogue was held at Shimla, Himachal Pradesh from 2nd of May, 2017 to 4th of May, 2017 at Hotel Holiday Home (HHH), Shimla, Himachal Pradesh. The inaugural session was presided by Sh. Tarun Kapoor, the worthy Additional Chief Secretary (Env. Sc. & technology), Government of HP and attended by Dr. G.S. Goraya PCCF (Wildlife); Dr. Rakesh Shah, Chairman Uttarakhand State Biodiversity Board, A.K. Shrivastava, Chairman Telangana Biodiversity Board, Smt. Archana Sharma, Director (Env., Sc., & Tech.), Sh. Kunal Satyarthi Joint Member Secretary, Himachal Pradesh State Biodiversity Board, Mr. Ishwar Poojar, Project manager UNEP/GEF MoEFCC ABS Project, NBA, Chennai, Staff of UNEP/GEF MoEFCC ABS Project and HP State Biodiversity Board, Shimla.

On 2nd May, 2017, the first day of Conclave Dr. Murari Lal Thakur and Sh. Kunal Satyarthi, Joint Member Secretary, H.P. State Biodiversity Board welcomed all the dignitaries; Sh. Tarun Kapoor, Additional Chief Secretary (Env. Sc. & technology) cum Chairman H.P. State Biodiversity Board and other dignitaries; Dr. G.S. Goraya PCCF (Wildlife), Dr. Rakesh Shah, Chairman Uttarakhand State Biodiversity Board, Smt. Archana Sharma, Director (Env., Sc., & Tech.) cum Member Secretary H.P. State Biodiversity Board, K. Gopinath, Member Secretary of Andhra Pradesh Biodiversity Board, Dr. Virender Singh, Member Secretary, Karnataka Biodiversity Board, Dr. Pradeep, Member Secretary of Goa, Biodiversity Board and Dr. P.L. Gautam, Former Chairman National Biodiversity Authority, Chennai. Chairperson of National Biodiversity Authority and Secretary, National biodiversity Authority joined the proceedings later on via skype. Sh. Sh. Kunal Satyarthi addressed and welcomed all the participants, the resource persons from Himachal Pradesh and others who had come from different states, all the Chairman's of different Biodiversity Management Committees and Traditional Knowledge holders and explained how important this occasion was in terms to share their experiences between different BMCs of the country namely from the states of: Andhra Pradesh, Gujarat, Orissa, Goa, Karnataka, Telangana, Sikkim, West Bengal and Himachal Pradesh. He also told that Tripura because of the celebration of their Bengali New Year could not attend this National Event. Sh. Kunal Satyarthi in his welcome address mentioned the role and importance of this present day national event for BMCs experience sharing on ABS and other issues and also how critical Traditional Knowledge (TK) holder's role in terms of conservation and sustenance of valuable bioresources.

Sh. Tarun Kapoor, Additional Chief Secretary (Env. Sc. & technology) cum Chairman H.P. State Biodiversity Board was requested next to share his wisdom and bless all the participants from his words of encouragement. In his address he pointed out the role and importance of biodiversity and need for its conservation. He also briefed about the rich and varied biodiversity of Himachal Pradesh. He also talked about the importance of the current National Event and how critical and fruitful the feedbacks would be from this event. Sh. Tarun Kapoor briefed about the forest wealth of the state and educated about the role and responsibilities of the communities that are living very closely with the forest land and in relation to the rich biological wealth of the State provided with the fact that with 90% of its population residing in rural areas and more than 2/3rd of the land under forest jurisdiction (25% forest cover) and also it is a state where rural people of interior areas rely heavily on medicinal plants with around 500 medicinal plants used by local for curing the ailments, a number medicinal plants are also in heavy demand in industries hence accounting for a very high annual trade of medicinal plants in addition it was also noted that horticulture sector of the state alone generates around 4000 crores annually. So in his speech after pointing out the importance and scope of biodiversity he laid stress on how and why this valuable biodiversity should be conserved. He also informed everyone about the indigenous communities of Himachal Pradesh and TK that is with held within these communities.

Mr. Ishwar Poojar, Project manager UNEP/GEF MoEFCC ABS Project, NBA, Chennai, was requested next to discuss the purpose of “ National Conclave on Biodiversity Management Committees (BMCs) for experience sharing on Access and Benefit Sharing and National Level Dialogue on Traditional Knowledge (TK)” and also to provide with programme details. Mr. Ishwar Poojar on behalf of UNEP, GEF, MoEFCC and NBA welcomed all the dignitaries and participants. He proceeded by telling everyone about how and why the UNEP/GEF MoEFCC ABS Project was conceived and how ten states were included in this project. He explained that the purpose of the current event was to engage the stakeholders in order to succeed in what the convention has to offer. He gave brief information and background of the UNEP/GEF MoEFCC ABS Project and its related activities. He briefly described the functions of State Biodiversity Boards and Biodiversity Management Committees. He also promptly addressed patent issues and also process of filing for ABS. he informed about the value of Traditional Knowledge (TK) and why it is very important to conserve such valuable information in form of TK and how primary health care sector could get a boost from doing so. He elaborated on how this two day event will run as both the events National Conclave on Biodiversity Management Committees (BMCs) for experience sharing on Access and Benefit Sharing and National Level Dialogue on Traditional Knowledge (TK) were to run parallel in separate halls.

Smt. Archana Sharma Director (Env., Sc., & Tech.) cum Member Secretary H.P. State Biodiversity Board was requested next for her special address. After welcoming all the dignitaries and participants she brought focus on the event’s agenda. She stressed out on the wellbeing of rural communities and livelihood options that may arise because of Access and Benefit Sharing provisions and through conservation of valuable bioresources. She also told that by conserving bioresources/biodiversity the options for earning and making rural population economically sound are many and the aim to achieve such sound rural economic status is possible by implementing Biological Diversity Act, 2002 and Rules, 2004 and ABS provisions. She addressed the threats that are associated with the unsustainable use of valuable bioresources and pointed how sustainable use could bring a better future for generations to come. She also said that with the loss of biodiversity the loss of associated traditional knowledge is also inevitable so she urged all to be aware of the benefits that are being derived from the bioresources and to take suitable measures simultaneously to conserve such rich and varied biodiversity. She requested everyone to stop overexploitation of bioresources and stressed on its sustainable use by conserving it at the same time.

Dr. Rakesh Shah (PCCF), Chairman Uttarakhand State Biodiversity Board was requested next to address the gathering. He gave his presentation on Traditional Knowledge and ABS in India. He explained the importance of BD Act and also informed about the actual meaning of Biodiversity and Traditional Knowledge in terms of BD Act, 2002 explaining all the misnomers associated with the terms. He informed all about how biodiversity is depleting from the face of earth and how much actual loss till date has occurred. He told that the ideal of conservation of biodiversity is very old and is even included in our Vedas and Purans so it is now time to revisit

our old traditions for efficient conservation of biodiversity of which we all speak today. He told that the biodiversity and Traditional Knowledge is not limited by political boundaries in fact species that are present in Himachal are present in Uttarakhand and Uttarakhand species are also found in China and all the way across the globe in Costa Rica. After speaking about the very rich and varied biodiversity of the country and value of Traditional Knowledge associated with bioresources he later on in his presentation touched on some major subjects like Biodiversity, Law associated with it, Biological Diversity Act, Traditional knowledge and how the system of implementation of BD Act is working in the country. In the end of his very interesting and meaning full presentation he addressed how important it is to build and update digital knowledge library incorporating all the traditional knowledge and information of valuable bioresources found in the country, he also stated that by building such library we can provide a counter measure for bio-piracy and false patenting issues. Lastly he touched on the challenges that are linked with the implementation of Law (BD ACT, 2002 and Rules, 2004) and conservation of Traditional Knowledge. Lack of understanding of biodiversity and lack of awareness of BD Act, 2002 and Rules, 2004 impose a major threat towards its implementation. He also spoke about some reforms that could be brought in beurocracy sector for efficient implementation of the BD Act and Rules. He also urged for proper sensitization of the Government line departments for smooth implementation and functioning of the BD Act and Rules and also the lack of synergy between the line departments could be countered. So in his final part of presentation he addressed these issues and laid stress on capacity building and proper awareness of all the stakeholders especially including industries sector.

Sh. A.K. Shrivastava, Chairman Telangana Biodiversity Board, was requested next to share experience from his State of Telangana. He briefly touched on role of National Biodiversity Authority, State Biodiversity Boards and Access and Benefit Sharing Provisions under the Biological Diversity act, 2002 and Rules, 2004.

Dr. G.S. Goraya PCCF (Wildlife) was requested next to address the audience. In his address he briefly mentioned the importance of the present dialogue and event. He flagged only one issue related to Access and Benefit Sharing about the terminology and expressed his views on issues. He mentioned that Access should lead to conservation of resource and benefit sharing should lead to the benefits to the communities. He then informed everyone about the medicinal plants. He told that the work that he did in field of medicinal plants while he was in Foundation for Revitalization of Local Health Traditions (FRLHT), Bangalore was to gather information about which of the medicinal herbs were used in commercial quantities in the country, how many of these medicinal herbs are under threat and subsequently try to develop methodologies for long term conservation of valuable medicinal plants/herbs so as to ensure their sustainable availability. Siddha, Yunani, Tibetan and Ayurvedic medicine along with Homopathic plants usage information was provided by Dr. G.S. Goraya. He told that around 9000 species of plants out of 18000 higher plant species are being used for ethno-medicine purpose. He briefed about the summary of total database related to medicinal plants that was developed during his work in FRLHT, Bangalore.

He talked about knowledge based benefit sharing and showed his concerns about shrinking data available on Traditional Knowledge associated with the valuable bioresources.

After the inaugural session the participants were divided into two groups, one was for Dialogue on traditional Knowledge (TK) and other group comprised of participants for Access and Benefit Sharing experiences.

Dialogue on traditional Knowledge (TK):

From the State of Andhra Pradesh State Biodiversity Board Anki Reddy and Ramanna shared their experience on Traditional Knowledge specific to State of Andhra Pradesh.

Dharani Forestry & Orchards Limited, is an organic and sustainable dryland horticulture based firm, which provides cultivation and production of organic herbal plantation and medication located in a remote area where dryland cultivation is required i.e., Punugodu village, Kanigiri (Taluk) a remote area of Prakasam District in Andhra Pradesh, India. In this remote area, our beloved founder of Dharani Forestry & Orchards Ltd, Mr. S Anki Reddy with his endless love towards the environment & living species put his outstanding effort for developing sustainable Dryland Horticulture & Organic farming. This is a farm of 400 hectares and it is world's first largest soap nut (*Sapindus trifoliatus*) cultivation of herbal plantation in 300 hectares of Soap Nut and 150 hectares of Amla.

In the later stages of farm development his increasing zeal towards development of sustainable and Eco friendly goodies to prevent the growing hazards to Humans, environment and other livestock made him thoughtful in development of many organic herbal formulations to meet raising demands of humans, who were constantly looking at chemical alternatives for the entire living and their later on hazardous effects to both environment and themselves, thus leading to the discovery of several organic sustainable goodies like organic fertilizers which are completely herbal based herbal Amla tea for meeting growing demand of nutrition deficiency, herbal based dish washing agent and detergent powder.

Mr S Anki Reddy is a native of Doddampally village, near Giddalur, whereas his traditional knowledge about agriculture has come from his forefathers who are farmers and from nursery experience of 20 years in landscaping, drafting and budding. Giddalur is the small village in Nallamala forest area and one of the finest ranges in Eastern Ghats, where a treasure trove of medicinal plants is available. Being a native of that locality and besides the age old practices of traditional knowledge in implication of agriculture and protecting nature has been congenially derived to Mr. S Anki Reddy. So, his knowledge of the medical herbs and his keen observation of some of the traditional implications in agriculture brought his confidence to work with herbal plants to create ecofriendly and sustainable organic goodies. His traditional knowledge of Ayurveda has given him outstanding results in attaining some of his successful formulations. His basic enthusiasm towards nature friendly products has made him to do an extensive research for 30 yrs in developing these formulations. He followed many ayurvedic

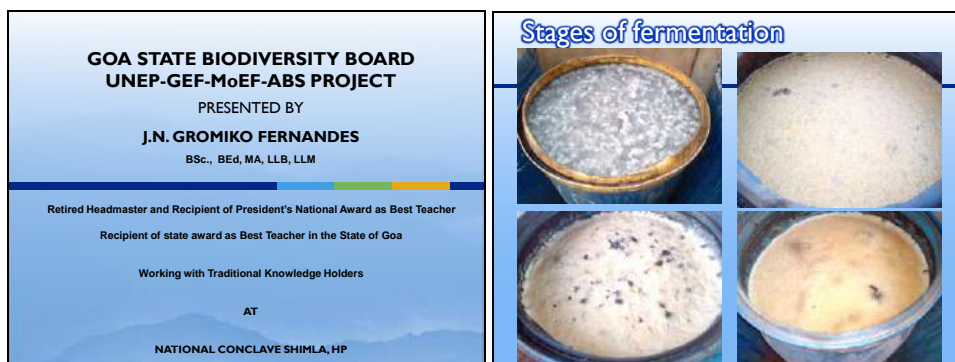
journals and also our extensive research and scholarly articles towards the herbs which he strongly believes in doing great miracles in our life for our well being given him ideas for such great formulations. Also his social movements with several great scholars and scientists of our India have helped him to ease his compliments and several doubts during his formulation development.



Later on they talked about their company, Dharani Forestry & Orchards Limited which is the first largest Organic & Sustainable Dryland Horticulture Farm in India, located in 400 hectares at Punugodu Village, Kanigiri (Mandal) a remote area of Prakasam District, Andhra Pradesh, India was established in 1995. Dharani Forestry and Orchards Limited one of the world's first largest Soap Nut (*Sapindus trifoliatus*) cultivators of herbal plantation and formulations of herbal medicines. They are producers and manufacturers of Herbal & Ayurveda bulk drug products for the local market and international market. Their largest farm in India has 36,000 Soapnut trees, 2,400 amla trees, 2,000 Neem trees, 5,000 Teak wood trees, 5,000 Red Sandal trees which are 100% Organically cultivated and chemical free. The Soapnut, Amla and Neem plantation at Dharani, which reap the highest yield, reflects the greatness of the agro technical methods applied. Their Horticulture farm achieved the greatest savings in Fossil Energy Consumption and thus in Co2 emissions by adopting labour intensive production techniques within the system of Organic Farming, with a noble idea to improve Dry land into Agro Forest as an antipollution_measure and to reach the Optimum level of Environmental safety and Ecological protection. The mixed plantation methods adopted at Dharani helps 100% Biological Control in Horticulture management.

Gromiko Fernandes, Retired Headmaster and Recipient of President's National Award as Best Teacher and Recipient of state award as Best Teacher in the State of Goa currently working with Traditional Knowledge Holders of Goa presented next. During the presentation it was mentioned that Goa is a well renowned having 105km long coastline with an area of 3700km square and smallest state of India with a population of about 14 lakhs. Portuguese arrived in India in 1510 leaving an indelible mark on the history and culture of Goa and its tradition. Goa is basically an agricultural and fishing state. People of all religion live in perfect harmony and take

active part in all religious and cultural activity. During the presentation Traditional Nutritional food varieties were discussed alongwith TK associated with unique traditional drinks of Goa.



Few processes involves in Distillation of Cashew Fenny, Traditional Extration of juice from cashew apple, Mechanical extraction of juice and stages of fermentation and distillation including Distillation of coconut fenny was also discussed. Case study of local traditional healer's was also brought forward mentioning a disease: Sarpin (Herpes) – Disease caused by virus known as Herpes Simplex Virus (HSV) and was mentioned that many types of herpes diseases are found in Goa. This is an embarrassing and uncomfortable group of viral infections to say the least, and sometimes can be life threatening. The issue of concern was that as per the available information, there is no known definite cure for the herpes virus with the use of pharmaceutical medicine but local traditional healers have been healing it from a long time.

Sh. Rajendera Kerker from Goa presented next on Traditional knowledge related with bio-resources from Goa. Inhis presentation he mention many valuable bioresources that are found in the state of Goa and also taked about the Tradiotional knowledge associated with some of the prominent and valuable bioresources.



Dr Deepak Acharya, Director (R & D), Abhumka Herbal Pvt Ltd, Ahmedabad, Gujarat presented on the topic: Translation of Tribal's Traditional Herbal Knowledge into Finished Products with special reference to Special Reference to DudhNahar- An Herbal Cattlefeed Supplement

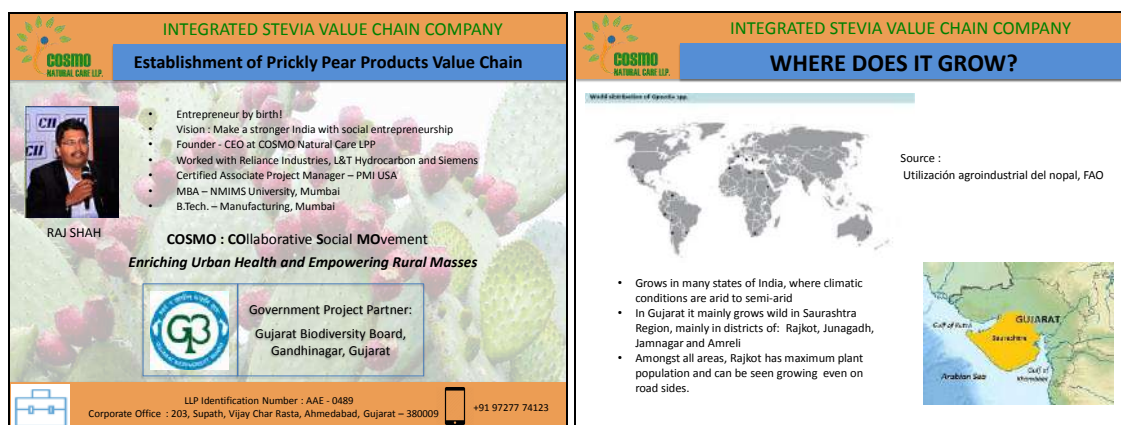
Abhumka Herbal is a social enterprise company deeply engrossed in discovering & translating tribal traditional herbal knowledge into healthcare products. The legacy of researching nature and traditional herbal knowledge of the Indian tribesmen through modern scientific tools laid the foundation of Abhumka. It is perhaps the only company in both the hemisphere that financially acknowledges tribal healer's community to raise their socio-economic status and creating livelihood opportunities.

He specifically talked about a product Dudh Nahar which is a cattle feed supplement, 100% herbal, based on indigenous knowledge, derived from age old practices of Dangi People and contains no toxic, no steroids and bacterial contamination with no side effects on cattle fertility. The main ingredients of the product included: Gum Acacia (*Acacia nilotica*), Giloy (*Tinospora cordifolia*), Cumin Seeds (*Cuminum cyminum*), Jivanti (*Leptadenia reticulata*), Cock's Comb (*Celosia cristata*), Fennel Seeds (*Foeniculum vulgare*), Indian Asparagus (*Asparagus racemosus*) and Dill Seeds (*Anethum graveolens*). The features of the product is that it is 100% herbal and natural product, increases milk yield, improves general immunity of the cattle and works as a toxin binder for aflatoxins, ochratoxins and T2 toxins. It maintains the acid-base balance of the gut and binds mycotoxins present in the feed.



Raj Shah from Gujrat Entrepreneur and founder - CEO at Cosmo Natural Care LPP presented next on: Establishment of Prickly Pear Products Value Chain. A genus of cacti producing a fruit, commonly known as the prickly pear due to the spines on it's body. Scientifically, the plant belongs to *Opuntia* family, is termed as *Opuntia Ficus Indica*. It grows in various arid and semi arid areas of the world. It has been used by many tribes for food and other purposes. Some common names are; Nopal and Tuna.

Benefit of *Opuntia ficus-indica* for human and animal consumption is its water content in an arid environment. Containing about 85% water is an important source for wildlife. The seeds contain 3-10% protein and 6-13% of fatty acids; mainly linoleic acid. The red color of the juice is due to betalains. The plant also contains flavonoids. Grows in many states of India, where climatic conditions are arid to semi-arid. In Gujarat it mainly grows wild in Saurashtra Region, mainly in districts of: Rajkot, Junagadh, Jamnagar and Amreli.



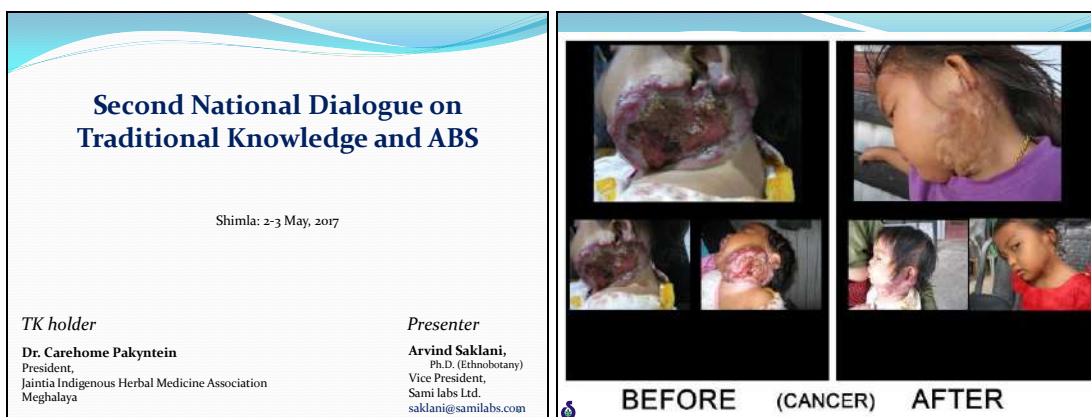
TK and Agro Knowledge associated with the bioresource was included. Medicinal Knowledge / Usage included: used by pregnant women and commonly it is eaten raw, some tribes convert to syrup added with sugar.

Commercially in market during season of harvest, locals collect the fruit and sell on roadside

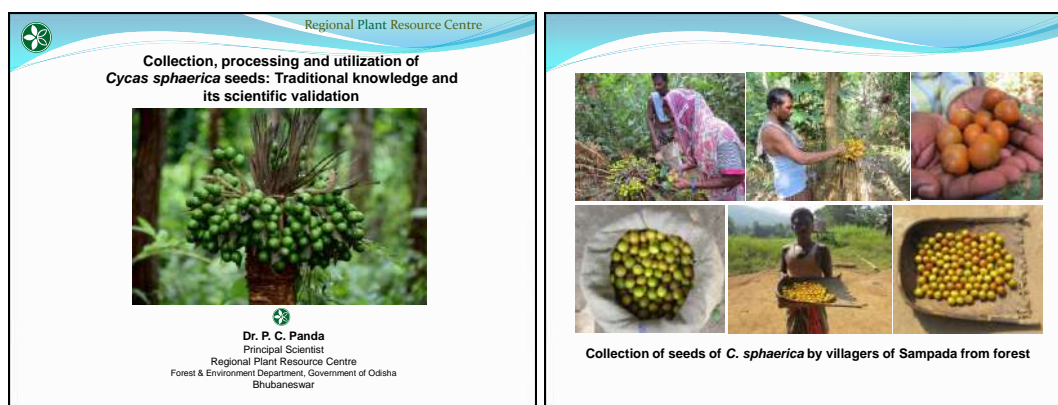
And in case of demand from a bulk buyer, material is collected by local community, they travel about 50km in case the fruit is rare

Challenges with current knowledge associated with the bioresource was discussed as it was told that there is a huge knowledge gap with no knowledge on large scale cultivation, no idea on crop disease and protection and lack of understanding of crop cycle, importance of irrigation

Dr. Arvind Saklani, Ph.D. (Ethnobotany) and Vice President, Sami labs Ltd. presented his presentation on TK holder Dr. Carehome Pakyntein President, Jaintia Indigenous Herbal Medicine Association, Meghalaya. It was told that Dr Carehome's family has been practicing the traditional medicines through generations in Jaintia Hills. The local community and people from outside have tremendous faith in Dr Carehome's treatment. He has cured over 100 cancer/ tumor / psoriasis and skin disease patients. Working closely with Dr Carehome, he shared the photos of treatment as well. He makes many polyherbal formulations for the treatment. Dr Carehome is well known for treating cancer, tumor and psoriasis and many other dreaded diseases using local herbs. The main ingredient (*Stephania hernandifolia*) used in his anticancer formulations has been studied. It was mentioned that the experience of Dr Carehome need to be studied, understood and documented systematically. A holistic approach need to be designed. Related government body should help him protect IPR, sustainability of plant resources and provide financial support to benefit masses.



Dr. P. C. Panda, Principal Scientist, Regional Plant Resource Centre, Forest & Environment Department, Government of Odisha presented next on a specific bioresource *Cycas spherica* Roxb. (Cycadaceae)(Syn. *Cycas circinalis* var. *orixensis* Haines). He talked about the distribution of this resource in Eastern Ghat (Odisha and Andhra Pradesh). He mentioned local name associated with the bioresource namely: Adanga, Aruguna (Kondha); Arguna, Odasamari (Odia). He also elaborated on its uses as its leaves are used for floral decoration, male cone as a bed-bug repellent and stem pith as an adulterant in baby food.



He also talked about the dependence of local community on TK associated with bio-resource (*Cycas sphaerica*). Seeds of *Cycas sphaerica* are a source of food during the period of food scarcity. Seed flour has high nutritional value (high carbohydrate and protein contents, energy values): consume as nutritional supplement. Tender leaves are consumed as leafy vegetables (rich source of protein and fibre, energy). Male cones of *C. sphaerica* are used in tribal houses as bed-bug repellent. The tribals use the whole plant and leaves to decorate their places of worship and in festivals. Scientific basis of toxicity of Cycad flour was also discussed as the Cycas seeds have high nutritional value, but they also contain active compounds, including cycasin (methylazoxymethanol-beta-D-glucoside) and BMAA (β -N-methylamino-L-alanine), which are known to be neurotoxic substances. Exposure to BMAA, a neurotoxic non-essential amino acid has been hypothesized as a cause of ALS (Amyotrophic lateral

sclerosis, Parkinson's and Alzheimer's diseases. BMAA was reported to be produced by cyanobacteria and could bio-magnify through the food chain. It has hydrophilic character. While Cycasin, a glucoside component, leads to hepatotoxic and carcinogenic effects but minimal neurological effects and it's easily removed after repeated flour washing. Possibly, the local tribals, have experienced the harmful effects of *Cycas* flour on human health, the water-soluble characteristics of the harmful factors and learnt the technique of their removal by repeated washing in running water. Commercial utilization of *Cycas sphaerica* was also discussed alongwith Possibility of ABS with local communities (TK holders). Possibility of ABS with scientific communities (Inventors) was also discussed.

Dr. Ghanashyam Sharma from Sikkim Biodiversity Board presented on Access and Benefit Sharing process in Sikkim. In his presentation potential bio-resources for ABS specific to State of Sikkim were discussed. General awareness on ABS and negotiation process adopted was also discussed.

List of bio-resources potential for ABS from the state of Sikkim included: Dhusi-Labre, or Yartsa Gunbu, or the caterpillar fungus (*Ophiocordyceps sinensis*), Achuk or the Seabuckthorn (*Hippophae silicifolia*), Bhakmilo (*Rhus Chinensis*) and Mel (*Docynia indica*).



Second national dialogue on Traditional Knowledge and Access and Benefit sharing, 2-3 May 2012, Shimla, Himachal Pradesh

Access and Benefit Sharing process in Sikkim

Ghanashyam Sharma PhD
Member Sikkim Biodiversity Board
Program Manager, The Mountain Institute India

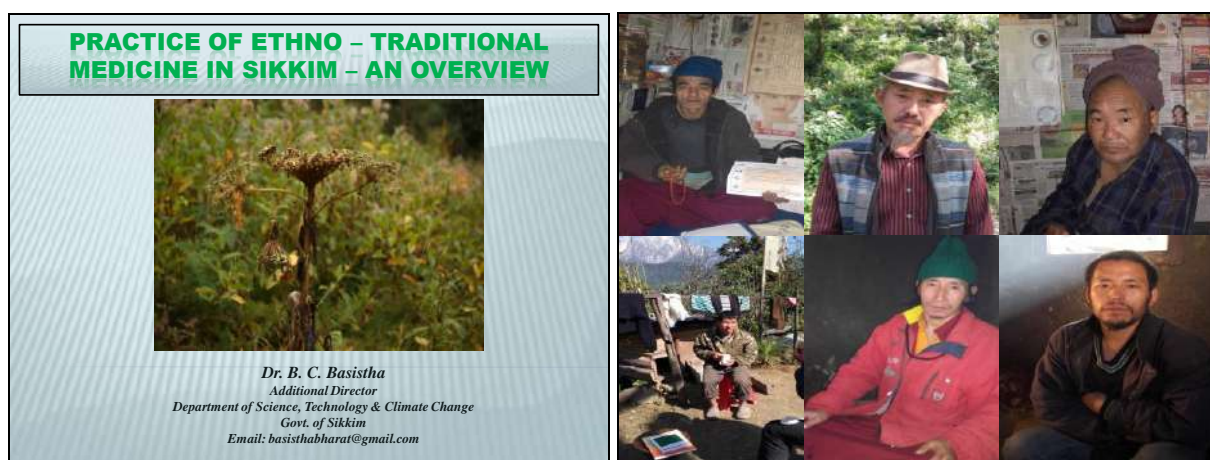
Dhusi-Labre (*Ophiocordyceps sinensis* Berk.)

- *Yarsa Gunbu* or Himalayan Viagra has a long history of its use in Tibetan traditional medicine as well as in Traditional Chinese medicine as a powerful tonic and aphrodisiac
- Exhibits very broad biological and pharmacological actions in hepatic, renal, and cardiovascular diseases. It has effects on immunological disorders including cancer

Out of these bioresources case of Dhusi-Labre (*Ophiocordyceps sinensis*) was elaborately discussed. It was told that *Yarsa Gunbu* or Himalayan Viagra has a long history of its use in Tibetan traditional medicine as well as in Traditional Chinese medicine as a powerful tonic and aphrodisiac. It exhibits very broad biological and pharmacological actions in hepatic, renal, and cardiovascular diseases. It has effects on immunological disorders including cancer. Pharmacological actions of Dhusi-labre are primarily due to bioactive polysaccharides, modified nucleosides, and cyclosporine like metabolites. Demand has increased in the international market (US \$20,000 – \$40,000 per kg) for this Bioresource. Lachen valley (Green Lake, Muguthang, Thangu valley, Lashar valley), Lachung valley (Dombang valley, Yumeysamdong valley, Katao area), Dzongu valley (Tholung pass, Kishong area, Singho lake area) in north district and Rathong glacier along Indo-Nepal are rich in availability of this resource. Collection and Trade of this bioresource was discussed next. It was stated that indigenous Lechenpa,

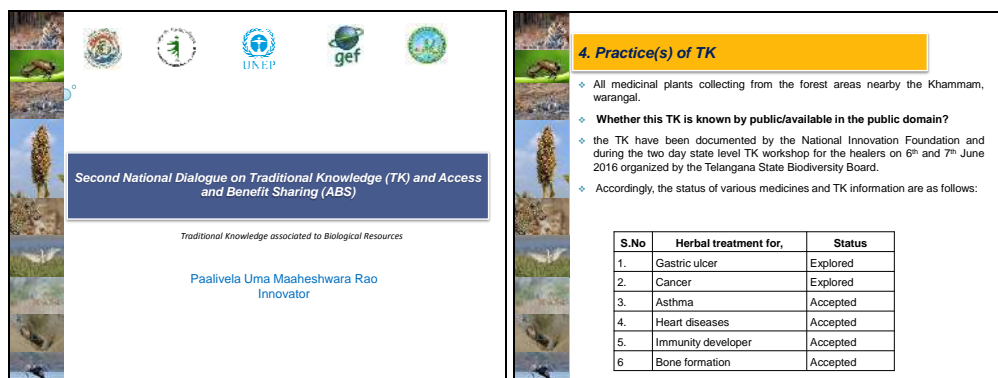
Lachunga and Lepcha collect and trade. Trade was not legal and no information of its commercialization was available publicly until 2015

Dr. B. C. Basistha, Additional Director, Department of Science, Technology & Climate Change, Govt. of Sikkim presented next on Practice of ETHNO – Traditional Medicine in Sikkim. He mentioned that Traditional medicine is the sum total of knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures that are used to maintain health, as well as to prevent, diagnose, improve or treat physical and mental illnesses. He also told that India is known for its valuable heritage of herbal medicinal knowledge, is home to more than 563 tribal communities having age old traditional knowledge through their long association with the forests. Its ethnic people and tribal living in the remote forest areas still depend to a great extent on the indigenous systems of medicines. India with its vast reservoir of vegetation, more than 2400 species of plant species are known to be used for treating various health related problems. In case of Sikkim it was told that Sikkim is inhabited by three major ethnic communities, Lepcha, Bhutia and Nepali.



Each community has their own forms of traditional practices and methodologies in using medicinal plants. The indigenous people possess immense knowledge of their environments, based on centuries of living close to nature and this is their intellectual property since ages. More than 400 recorded ethno medicinal plants used by herbalists of different communities. 31 families medicinal plant species have been studied. Herbalists locally known by different names representing different communities are well acknowledged and plays a key role in primary healthcare of the region. Traditional knowledge (TK) in human healing using medicinal plants are integral identity of most hill communities. TK in the ethnic community has been passing orally from generation to generation; there is no or less authentic documentation. He showed his concerns mentioning that the number of folk heal practitioners too has gone down now days and hence such important practice needs utmost priority to safeguard IPR issues and cultural identity of different sections of the society from getting extinct.

Paalivela Uma Maaheshwara Rao an innovator from Telangana presented on Traditional Knowledge associated to Biological Resources. He spoke on origin of TK and dependency of local communities on TK. He mentioned that the knowledge he had was received from his forefathers, especially his Grandmother, who used to give treatment for Jaundice and migraine and ladies disorders. He started practicing treatment with the help of seniors, old age practitioners in surrounding villages and books of Ayurveda, like Charaka Samhita, vastuguna deepika, vastuguna prakashika, basava rajeeyam and madava nidanam etc.



4. Practice(s) of TK

- ♦ All medicinal plants collecting from the forest areas nearby the Khammam, warangal.
- ♦ **Whether this TK is known by public/available in the public domain?**
- ♦ the TK have been documented by the National Innovation Foundation and during the two day state level TK workshop for the healers on 6th and 7th June 2016 organized by the Telangana State Biodiversity Board.
- ♦ Accordingly, the status of various medicines and TK information are as follows:

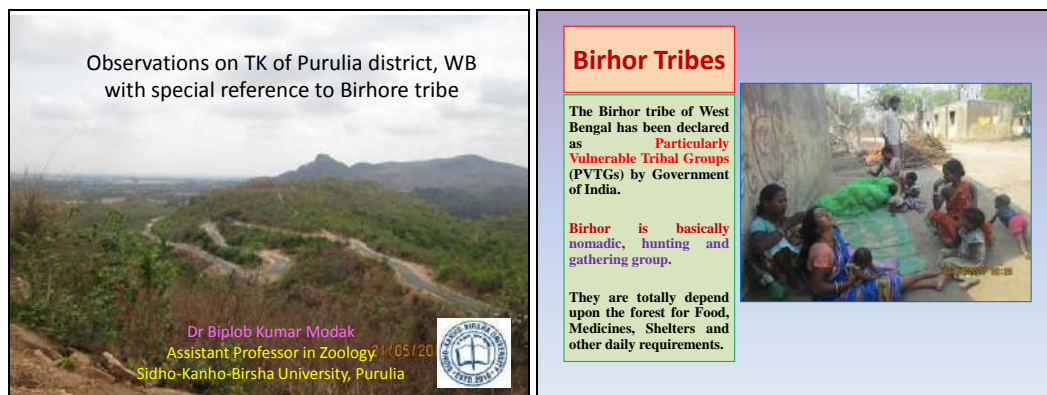
S.No	Herbal treatment for,	Status
1.	Gastric ulcer	Explored
2.	Cancer	Explored
3.	Asthma	Accepted
4.	Heart diseases	Accepted
5.	Immunity developer	Accepted
6.	Bone formation	Accepted

The treatment given to more than 1.50 lakh people for about (15) major diseases like herbal treatment for Gastric ulcers, cancer, asthma, heart diseases, immunity developer, bone formation, wounds, removal of extra hair, lipoma, kidney stones, menorrhea, joint pains and obesity etc. He has organized more than 200 Ayurveda meetings at various places and full demand is there for his medicine. Now a days most of the public representatives and Government officials of Telangana and Andhra Pradesh are using his medicine for curing various diseases. All medicinal plants are collected from the forest areas nearby the Khammam, Warangal area.

The second day i.e. 3rd of May, 2017, of National Conclave of Biodiversity Management Committees for Experience Sharing on Access and Benefit Sharing (ABS) and 2nd National Level Dialogue on Traditional Knowledge (TK) was carried forward under supervision of Sh. Kunal Satyarthi (IFS), Joint Member Secretary, H.P. State Biodiversity Board. Few sessions were chaired by Smt. Archana Sharma, Director Env. Sc. & Tech. held at Hotel Holiday Home. On the second day of workshop experiences on Traditional Knowledge and Access and Benefit Sharing (ABS) were shared by experts from the Northern region of India namely: Himachal Pradesh and state delegates who made presentations were Dr. NS Chauhan, Dr. Vinay Bhardwaj and Dr. Lal Singh, followed by Eastern region covering West Bengal and delegate were Dr. Shubashis Panda and SH. Biplob Modak. Delegates from Odhisa were Dr. P.C. Panda and Dr. Shrustidhar Rout. Western region delegates from Gujrat were Sh. Raj Shah and Dr. Deepak Acharya. Sh. Rajendra and Gromika Fernandis represented Goa and North-East region Sikkim was represented by Smt. Shova Devi. The delegates represented ten different states namely: Himachal Pradesh, Gujrat, Kerela, Karnataka, Andhra Pradesh, Goa, Sikkim, Telangana, Orrisa and West Bengal. Parallel to the 2nd National Level Dialogue on Traditional Knowledge (TK) and Access and Benefit Sharing

(ABS) there was another workshop being organized as on National Conclave of Biodiversity Management Committees (BMC) for Experience Sharing on Access and Benefit Sharing (ABS) where BMC members from 9 States shared their experiences on ABS provisions and issues. In addition the workshop was attended by officials from National Biodiversity Authority, Chennai, Scientists/ Innovators/ Knowledge holders on Traditional Knowledge associated with reputed laboratories/institutions/universities from the States of India, the Chairpersons and Member Secretaries of the states along with officers of various boards and Biodiversity Management Committees members.

Dr Biplob Kumar Modak, Assistant Professor in Zoology, Sidho-Kanho-Birsha University, Purulia showed his observations on TK of Purulia district, West Bengal with special reference to Birhore tribe. He stated that Purulia district is one of the twenty three districts of West Bengal in Eastern India and in the year 2006, the Ministry of Panchayati Raj stamped Purulia as one of the country's 250 most backward districts (out of a total of 640). The district of Purulia of West Bengal is endowed with rich ethnic culture as well as immense biological diversity. The district is mostly inhabited by the poorest of the poor rural and tribal communities. Present investigation mostly record the indigenous knowledge regarding non-timber forest products (NTFP) with special emphasis on ethnobiology of Birhore Tribe.



Next he provided information on importance of Purulia as a place for Ethnobiological observation. He stated that the major tribals of this district are Bhumijis, Birhores, kherias, lodhas, Mundas, Oraons, Paharias, Santals etc. Their habitat scattered all over the district, especially around the remote hilly region and forest areas. He talked about numerous valuable bioresources of the state and brought focus on TK associated with these bioresources where he stated that TK helps in maintaining the livelihoods of folk healer. Local people are getting treatment at minimum cost as the ingredients are available at free of cost. Next he provided information on five species of *Dioscorea* that are available in Purulia namely: *Dioscorea belophylla* (Baola), *Dioscorea bulbifera* (Gnethi), *Dioscorea hamiltonii* (Baola), *Dioscorea oppositifolia* (Pani alu) and *Dioscorea alata* (Kham-alu). The palatability of *Dioscorea alata* is high due to less bitterness. It is grown as tuber crop for economic values by rural and tribal farmers. However, tribal people generally use all the species of *Dioscorea* available of in their daily

diet, particularly in critical conditions like famine, off-agriculture periods and during shortage of food. According to tribals of Purulia, one full course dish of genthi provides sufficient energy to work all through the day. They also believed that this food keep them away from malaria and filarial infection.

TK Information associated with the bioresource was discussed next. One of the most important staple food crops of the tribals. Tribal people generally use all the species of *Dioscorea* available to them in their daily diet, particularly in critical conditions like famine, off-agriculture periods and during shortage of food.

Dr. Subhasis panda, Associate professor of botany, Angiosperm taxonomy lab from Maulana Azad College, Kolkata, University of Calcutta presented next on topic: Exploring & documenting new indigenous traditional knowledge (ITK) and their problem of Access & Benefit Sharing (ABS) he also presented a case study undertaken with the Nepalese of Darjeeling hills in the state of West Bengal. He also talked about various bioresources and TK associated with these bioresources.

"2nd National Dialogue on Traditional Knowledge (TK) & Access & Benefit Sharing (ABS) at Shimla, Himachal Pradesh on 2nd & 3rd May, 2017"

**EXPLORING & DOCUMENTING NEW
INDIGENOUS TRADITIONAL KNOWLEDGE (ITK)
AND THEIR PROBLEM OF ACCESS & BENEFIT
SHARING (ABS)-----A CASE STUDY
UNDERTAKEN WITH THE NEPALESE OF
DARJEELING HILLS IN THE STATE OF WEST
BENGAL**

Subhasis Panda
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Formerly in Darjeeling Govt College
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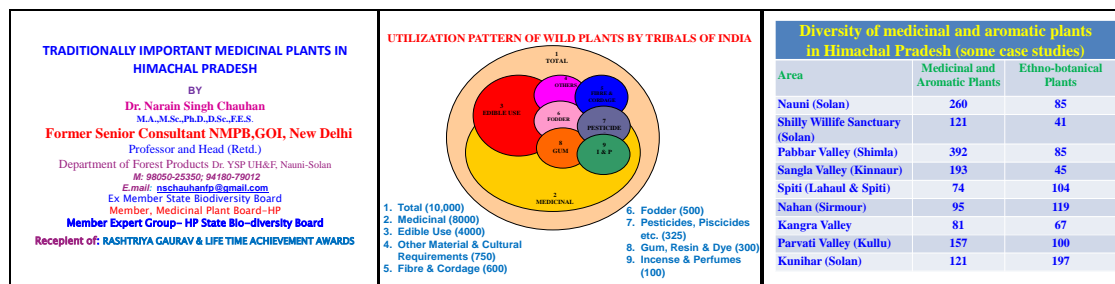
This Brush is also used for finer painting purpose.....

Mr. TEJ THAPA, Jungle Busty Village, ALUBARI, DARJEELING

BRUSHES ARE USED FOR FINER PAINTING PURPOSE!!!!

Brief Outputs from the Himachal Pradesh included presentations by three delegates representing state of Himachal Pradesh: Dr. N.S. Chauhan, Dr. Vinay Bhardhaj and Dr. Lal Singh.

The session was started with the presentation of Dr. N.S. Chauhan former consultant at National Medicinal Plants Board, former Prof. & Head, Y.S. Parmar University of Horticulture and forestry. He started with the saying of Charak and went on emphasizing on beneficial medicinal properties of medicinal plants found in the state. He laid stress on their sustainable use. He gave many examples of State specific valuable and commercially important bioresources especially medicinal plants. He informed all about how rich the state of HP was in terms of medicinal plants repository. He included information on Ashtavarba herbs, Temperate region and Cold Desert herbs.



Next delegate was Dr. Dr. Vinay Bhardwaj from Center for Potato Research Institute (CPRI), Shimla. He gave the history and background of Potato and how it was introduced in India. He also provided with the information related to Potato that was relevant to India. He gave information that about 10,000 different species of potato is present and out of which 250 Species only bears tubers and other not. He gave information on all the patents that CPRI has done till date. He informed all on the technology that CPRI possess and is available with institute and commercialized simultaneously.

Technology vault at ICAR-Central Potato Research Institute, Shimla

Vinay Bhardwaj, PS, ICAR-CPRI Shimla

3. Processing of potatoes into Chips, French Fries & other products:

- The technology was developed for small scale industries.
- The potatoes can be processed into chips and French fries incurring low cost.
- The method can be easily adopted by small and large scale farmers.
- It has been licensed to M/s Goliwala Foods, Ahmadabad, Gujarat on non-exclusive basis.

Approximately a total revenue of about 50,000/- has been generated.

Seed and planting material: 4 technologies

- Hi-tech seed production through micro propagation:**
Developed for the production of virus free potatoes to maximize the potato yield and minimize the diseases load.
- Plant holding & lifting mechanism:**
This invention relates to the field of aeroponic & involves the holding and lifting of plant along with planting trays.
- Plant Holding Unit:**
This invention relates to the field of aeroponic. It is a kind of plug and jacket system which gives freedom of inserting plants with lot of roots for early completion of crop cycle.
- Grow box:**
This invention relates to is a reinforced brick-concrete structure developed for producing potato minitubers in aeroponic system.

He gave information on Aereoponic boxes which is used for seed production. He also talked on small scale technology processing units for manufacturing potato chips. Lastly he talked about a very interesting process of hydration of tubers. He mentioned that this process could be used for various purposes especially can be used by defense services like Army for maintaining adequate food supply in the area which are far off and unapproachable.

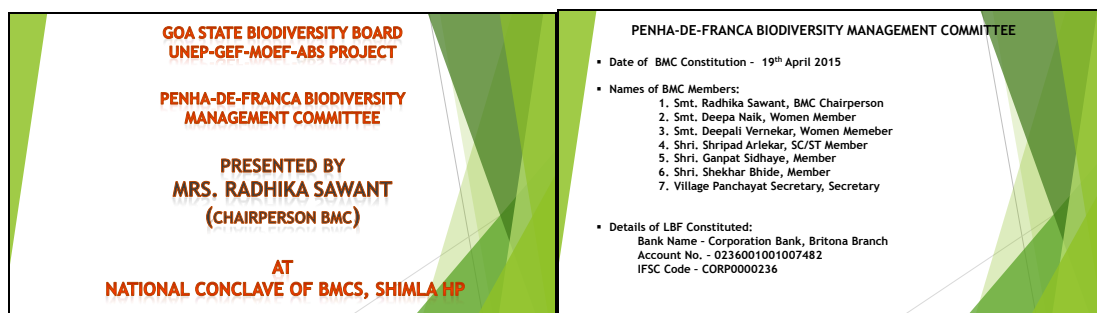
Last delegate was Dr. Lal Singh from Human Resource Group (HRG), Shimla. Right from the beginning of his presentation he emphasized on what unsustainable use of bioresources can do hence there is a need of conservation and knowledge sharing. This presentation was specifically based on one of a very valuable bio-resource of the state that is Swertia Chyriata.



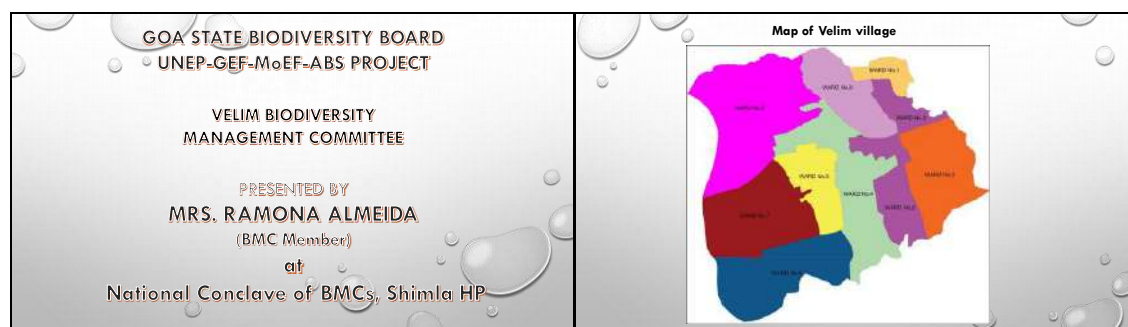
During his presentation he informed that this bioresources is native to Himalayas, is a purely pollinated crop and can only be seen in its flowering stage. He gave valuable information on Traditional knowledge associated with this bioresource. Dr. Lal in his talk also highlighted that how his organization was able to engage local communities in procuring the stock of this bioresources. He also talked about the challenges his organization faced as when they needed support from the industries none was to be found and hence a large amount of the procured bioresource became subjected to be dumped. But this failure opened a window for innovation for the organization and instead of dumping or selling the bioresource to some trader they went ahead and prepared a tea formulation form it which had several health benefits including: sugar, typhoid and indigestion.

In addition to the Traditional Knowledge concurrently National conclave on Access and Benefit Sharing for Biodiversity Management Committees was being held in a separate hall proceeding of the event are as follows: Day one event on Access and Benefit Sharing for Biodiversity Management Committees was participated by Goa, Gujrat, Telangana and Himachal Pradesh.

Mrs. Radhika Sawant,(Chairperson BMC) Penha-de-Franca Biodiversity Management Committee briefed up about the activities that her BMC has been engaged in and also talked about Peoples biodiversity Register which is under process finally she raised few issues: he stated that Panchayat Secretary and BMC Secretary should not be same for smooth functioning of the BMC. BMC is unique committee which imparts and conserves traditional knowledge and under BMC, activities such as plantation will be conducted in coming monsoons.



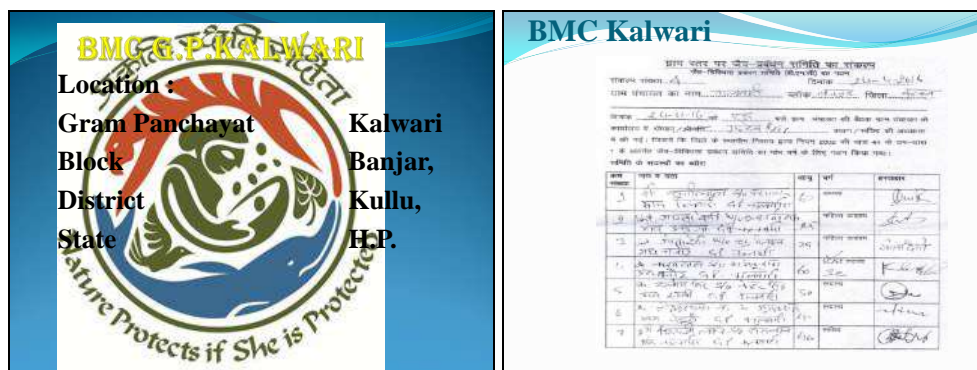
Mrs. Ramona Almeida (BMC Member) from Velim Biodiversity Management Committee present next. She briefed on the constitution of BMC and LBF released by the Goa State Biodiversity Board to their Velim Biodiversity Management Committee. She spoke about awareness generating programmes conducted for Velim Panchayat Members, Exchange Visit Program and Tripartite MOU with Goa State Biodiversity Board, Biodiversity Management Committee and Technical Support Group signed on 29th August 2016. She also briefed on ward-wise preparation of village resource maps. Lastly she raised few issues related to efficient and optimum utilization of funds for awareness, understanding and capacity building etc she also said that Panchayat Secretary and BMC Secretary should not be same.




Sahdvebhai Vasava from Gujrat, Adiaushadhi Group, Nivalda BMC, Dediapada - Narmada and Rameshbhai Chauhan, Golana BMC, Khambhat- Anand presented aactivities of their respective BMC's. They mentioned that participation of all local knowledge holders in PBR documentation process is of utmost importance, Gujarat Biodiversity Board encourage the BMCs and NGOs for place a proposal for plantation in wasteland under the Social Forestry. BMCs placed the proposals through NGOs and Social forestry division provided plants and fencing facilities. Plantation will be done by BMC members and women groups (1500 women) for environment awareness in all BMCs of Khambhat and Tarapur taluka of Anand District. After that it was discussed that during the process of formation of BMCs and PBR preparation, assistance of NGO, GBB formed Women SHG in Khambhat and Tarapur taluka of Anand District was very valuable and these groups played a very critical role in the process. At present 1500 women are associated with these SHGs. These groups work on environment awareness and other activities. Next year these groups will be joined with Gujarat Livelihood Promotion Company (GLPC) for financial support.



Sh. Chunni lal from BMC Kalwari, Kullu presented experiences from his BMC. He mentioned the bioresources that are available within their panchayat jurisdiction namely: Bio resources available: two patches of *Diar* forest 6.48Hcs & 6.88Hcs., one patch of *Cheer/Kail (Pine needles)* forest 11.52Hcs., *Kashmal* and other shrubs, apples and other fruit plants on 65% Agricultural land, one patch of forest having mix species like Sagban, Shirish, Chessnuts and *Daral/lenghts* 12.60 Hcs and *Walnuts, Phagu, Cheemu and Pear in Agro-forestry*. He informed about the start-up fund received by the BMC from H.P. State Biodiversity Board, activities held and planned by BMC were also discussed.



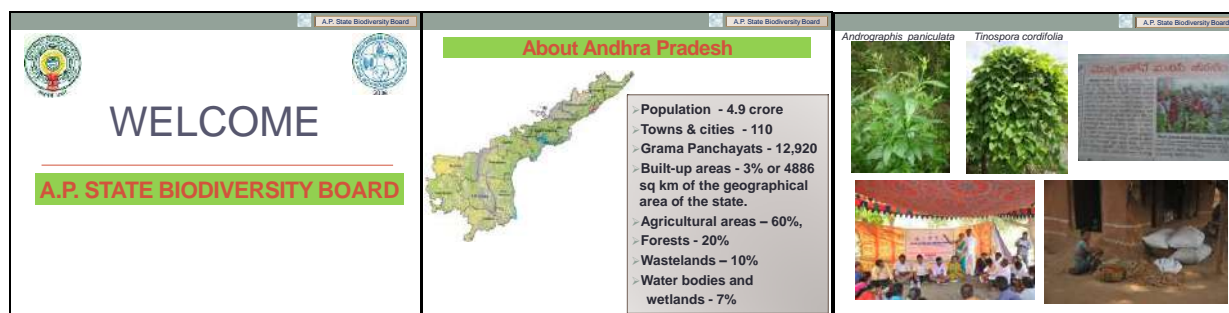
Next to present was Sh. J.S. Chauhan from Biodiversity Management Committee (BMC) and Gram Panchayat Jokhad, Block Chopal, District Shimla, Himachal Pradesh. After providing details about his BMC, through his presentation he provided with the information about few bioresources that are available in and around the BMC area in his village. He also talked about few Voids that are in his region and are practicing TK till date.

<div><div><div>Biodiversity Management Committee (BMC)</div><div>Gram Panchayat Jokhad, Block Chopal</div><div>District Shimla, Himachal Pradesh</div></div><div></div></div>	<table><tr><td>Name of Gram Panchayat</td><td>: Jokhad</td></tr><tr><td>Tehsil</td><td>: Chopal</td></tr><tr><td>Block</td><td>: Chopal</td></tr><tr><td>District</td><td>: Shimla</td></tr><tr><td>State</td><td>: Himachal Pradesh</td></tr><tr><td>Climate</td><td>: Gram Panchayat Jokhad of Development Chopal falls in Western Himalayan with the climate generally temperate with well marked seasons. Summers are pleasant while winters are severe with temperature going down to freezing point from November to March. Area experience snowfall during winter months. Monsoon breaks in the last week of June or in the month of July and continues till the end of August and September.</td></tr></table>	Name of Gram Panchayat	: Jokhad	Tehsil	: Chopal	Block	: Chopal	District	: Shimla	State	: Himachal Pradesh	Climate	: Gram Panchayat Jokhad of Development Chopal falls in Western Himalayan with the climate generally temperate with well marked seasons. Summers are pleasant while winters are severe with temperature going down to freezing point from November to March. Area experience snowfall during winter months. Monsoon breaks in the last week of June or in the month of July and continues till the end of August and September.	<table><tr><td>Name of BMC</td><td>: जैव विविधता प्रबंधन समिति, झोकाड</td></tr><tr><td>Location</td><td>: ग्राम पंचायत, झोकाड</td></tr><tr><td>Date of Constitution</td><td>: 24-04-2016</td></tr><tr><td>Name of Members</td><td>: 1. Chairman, J.S. Chauhan 2. Member, Pragu Devi 3. Member (BMC), Reena Devi 4. Member (BMC), Sohan Singh 5. Member (BMC), Prem Singh 6. Member (BMC), Ramanand 7. Secretary, Deep Ram</td></tr></table>	Name of BMC	: जैव विविधता प्रबंधन समिति, झोकाड	Location	: ग्राम पंचायत, झोकाड	Date of Constitution	: 24-04-2016	Name of Members	: 1. Chairman, J.S. Chauhan 2. Member, Pragu Devi 3. Member (BMC), Reena Devi 4. Member (BMC), Sohan Singh 5. Member (BMC), Prem Singh 6. Member (BMC), Ramanand 7. Secretary, Deep Ram
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Notably BMC members from Andhra Pradesh stood out as they gave the best example in channelizing the ABS process in their state. The BMC members from Andhra Pradesh who stole the show were Smt. Rani and Smt. Krupa Shanti who deliberated about effective management of biodiversity at local body level.

The Andhra Pradesh Biodiversity Board was established and notified on 20th May, 2006. The State Government have framed Biological Diversity Rules, 2009 on 21st August, 2009 and it's headquarter is in Guntur. Till date

A.P. Biodiversity Board have prepared 114 PBR's in 2545 constituted BMC's and has received 37 ABS applications and signed 11 ABS agreements. They also mentioned a successful case study of villagers of Pinakota Gram Panchayat village in Anantagiri Mandal, Visakhapatnam in India's rural Andhra Pradesh State that has found and maintained the delicate balance between benefiting from their rich biodiversity, while also ensuring its sustainability for future generations. One important source of income in Pinakota is the medicinal plants *Andrographis paniculata* (kalmegh) and *Tinospora cordifolia* (guduchi), used for curing malaria, typhoid, and all kinds of fever, and can control ringworm in the intestines of small children, so demand for it is high. Villagers and tribal communities in Pinakota and elsewhere in Andhra Pradesh collect kalmegh from forest areas; some is grown by farmers. Pinakota produces about two tons a year. Another medicinal plant currently being cultivated in the area is Madhunashini (*Gymnema sylvestre*). It was noted that people here have been using and conserving this resource very efficiently. Pinakota is just one of a number of villages benefiting from a biodiversity conservation project implemented by A.P. State Biodiversity Board through UNEP-GEF-MoEF&CC-ABS Project. The project brings together villagers who collect the bio-resources, traders, and business people (who arrange transport and process the plants before selling them on to pharmaceutical companies). "By knowing the powers of the BMC they were able to avoid middlemen in resource transactions and earn more income. The benefits accrued by way of levy fee helped them to think towards biodiversity conservation"



After all the presentations the next main agenda of the was Signing of tri-partite Memorandum of Understanding between HP State Biodiversity Board (HPSBB), Chairman, Biodiversity Management Committee (BMC), Municipal Corporation (MC), Shimla and Technical Support Group (TSG) of Himalayan Forest Research Institute (HFRI), Shimla for the preparation of Peoples Biodiversity Register of Municipal Corporation Shimla. National Conclave of Biodiversity Management Committees for Experience Sharing on Access and Benefit Sharing (ABS) and 2nd National Level Dialogue on Traditional Knowledge (TK) and Access and Benefit Sharing (ABS) being organized by HP State Biodiversity Board (HPSBB) under supervision of Sh. Kunal Satyarthi, Joint Member Secretary (HPSBB) witnessed a historic event of signing of tri-partite Memorandum of Understanding between HP State Biodiversity Board (HPSBB), Chairman, Biodiversity Management Committee (BMC),

Municipal Corporation (MC), Shimla and Technical Support Group (TSG) of Himalayan Forest Research Institute (HFRI), Shimla for the preparation of Peoples Biodiversity Register of MC Shimla.

The final day of the event i.e. 4th of May, 2017, witnessed field cum excursion visit to Shimla Catchment Wildlife Sanctuary of participants from 9 States of the country. The participants from 9 States namely: Himachal Pradesh, Gujrat, Kerela, Karnataka, Andhra Pradesh, Goa, Sikkim, Telangana, Orrisa and West Bengal were taken to a field cum excursion visit to Shimla Catchment Wildlife Sanctuary to inform the participants about the benefits of in-situ conservation and ecological services provided by the protected area under Shimla Catchment Wildlife Sanctuary. Forest officials of the wildlife division Shimla appraised the participants about the rich biodiversity of flora and fauna with special focus on the medicinal plants and technical/traditional knowledge found in the sanctuary area. Biodiversity and sustainable tourism is the theme for this year's International Day for Biodiversity (IDB) celebrations and in co-relation with IDB the participants were briefed about the recreational services and sustainable tourism dependent on the Shimla Catchment Wildlife Sanctuary.

Glimpses of the Event:















