



## UNDP Project Document

Government of India

United Nations Development Programme

### **Mainstreaming Conservation and Sustainable Use of Medicinal Plant Diversity in Three Indian States**

#### **Brief Description**

India's medicinal plant resources have great national and global significance. India has some 8,000 medicinal plant species out of a world total of 40-50,000) and is the world's second largest producer of medicinal plants and medicines. However, its medicinal plant resources, including globally significant diversity, is increasingly threatened by overexploitation to meet commercial demand. Over 95% of medicinal plants used by the herbal industry is harvested from the wild, primarily from India's forests, which are mostly owned and managed by the government. Despite this, wild harvesting is still largely uncontrolled and unmonitored. The objective of this project is to achieve the long-term conservation and sustainable use of India's medicinal plant diversity, particularly of its globally significant species, by mainstreaming these objectives into forest management policy and practice at the national, state and local level in three Indian states: Arunachal Pradesh in North-East India, Chattisgarh in Central India and Uttaranchal in North-west India, which provide a broad range of ecological conditions, and hence medicinal plant diversity as well a range of institutional arrangements relating to forest management.

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## Acronyms

CBD	Convention on Biological Diversity
CBO	Community based organisation
CCF	Country Cooperation Framework
CCRAS	Centre for Clinical Research in Ayurvedic Science
CIMAP	Central Institute of Medicinal & Aromatic Plants
CITES	Convention on the International Trade in Endangered Species
CO	(UNDP) Country Office
DANIDA	Danish International Development Agency
DBT	Department of Biotechnology
DFO	District Forest Officer
DST	Department of Science and Technology
FAO	Food and Agriculture Organisation of the United Nations
FPC	Forest Protection Committee
FGB	Forest Gene Bank
FRLHT	Foundation for the Revitalization of Local Health Traditions
FSI	Forest Survey of India
GoI	Government of India
GEF	Global Environment Facility
GSMP	Globally Significant Medicinal Plants
Ha	Hectares
HAPPRC	High Altitude Plant Physiology Research Centre
HRDI	Herbal Research and Development Institute
ICFRE	Indian Council for Forestry Research and Education
ICIMOD	International Centre for Integrated Mountain Development
IDRC	International Development Research Centre
IFA	Indian Forest Act of 1927
IPR	Intellectual Property Rights
ISM & H	Indian Systems of Medicine and Homeopathy
IUCN	The World Conservation Union
ITA	Information Transfer Agreements
IW	Inception Workshop
IWG	Implementation Working Group
JFM	Joint Forest Management
JFMC	Joint Forest Management Committees
LMG	Local Management Group
MAPPA	Medicinal and Aromatic Plants Program in Asia
MAPS	Medicinal and Aromatic Plants
MDG	Millennium Development Goals
MFP	Minor Forest Produce
MoEF	Ministry of Environment and Forests
MoF	Ministry of Finance

MoHFW	Ministry of Health & Family Welfare
MoRD	Ministry of Rural Development
MP	Medicinal Plants
MPB	Medicinal Plant Board
MPCA	Medicinal Plant Conservation Area
MTA	Material Transfer Agreements
NAPRALERT	NATural PROducts ALERT
NBSAP	National Biodiversity Strategy and Action Plan
NGO	Non-governmental organization
NMPB	National Medicinal Plants Board
NPD	National Project Director
NSC	National Steering Committee
NTFP	Non-Timber Forest Products
PCCF	Principal Chief Conservator of Forests
PF	Protected Forest
PIWG	Project Implementation Working Group
PPA	People's Protected Area
PMU	Project Management Unit
PRI	Panchayati Raj Institution
RCU	Regional Coordination Unit
RF	Reserved Forest
RRL	Regional Research Laboratory
SFD	State Forest Department
SFRI	State Forest Research Institute
SHER	Society for Himalayan Environmental Research
SMPB	State Medicinal Plants Board
TCM	Traditional Chinese Medicine
TFRI	Tropical Forest Research Institute
TK	Traditional Knowledge
TM	Traditional Medicine
UNDP	United Nations Development Programme
UNDAF	United Nations Development Assistance Framework
UT	Union Territory
VFC	Village Forest Committee
WHO	World Health Organization

## SECTION I : Elaboration Of The Narrative

### PART I: SITUATION ANALYSIS

#### *Context and Global Significance*

##### **A) The Biodiversity Significance and Economic Values of Medicinal Plants**

1. Medicinal and aromatic plants<sup>1</sup> (MAPs) are recognized as a major but increasingly threatened global resource. Between 40,000 to 50,000 plant species are known to be used in traditional and modern systems of medicine across the world. The World Health Organization (WHO 2002) estimates that the majority of the world's population, particularly in developing countries, relies on traditional health care based on medicinal plants. A conservative estimate of the annual value of the global medicinal plant trade by The World Conservation Union (IUCN) is in the range of \$40 to \$60 billion. China is the world's largest producer of medicinal plants and medicines, followed by India (Lambert *et al.* 1997).
2. The vast majority of medicinal plants are harvested from the wild, particularly from the tropical and subtropical regions of the world (where two-thirds of all plant species are found). Over 70% of the globally known medicinal plants occur in tropical forests (Shankar 1998) and there is growing international concern about the rates of local and global extinction (Klingenstein *et al.* 1997). There is no consolidated record of how many species of medicinal plants are threatened with extinction at present but extrapolations based on the Threatened Plants Database of the World Conservation Union (IUCN) and the NATural PRoducts ALERT (NAPRALERT) database suggest that at least 20% of medicinal plant species are threatened globally (Farnsworth & Soejarto 1991; Leaman 1998).
3. India is a member of the Group of Like Minded Megadiverse Countries, a group of 17 countries which together hold more than 75% of the world's biodiversity. India is particularly rich in medicinal plant resources, which have been used in traditional (codified) Indian health systems like *Ayurveda*, *Sidhha*, *Unani* and the Tibetan system for millennia. These systems are still very much alive today. Ancient medical texts also bear evidence of the use of plants for veterinary purposes, treating agricultural crop diseases and manufacturing vegetable dyes, cosmetics and perfumes – uses that are still prevalent today. The All India Ethnobiology Survey carried out by the Ministry of Environment and Forests (MoEF) in 1995 estimated that over 7,500 plant species are used by 4,635 ethnic communities for human and veterinary health care across the country.
4. In 1993, the Government of India (GoI) estimated that between 60-80% of India's population rely on medicinal plants for health care. Medicinal plants are particularly important to the rural poor, who are able to harvest these from the wild to meet their primary health care needs.

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<sup>1</sup> According to the WHO, medicinal plants include '...any plant which, in one or more of its organs, contains substances that can be used for therapeutic purposes, or which are precursors for chemo-pharmaceutical semi-synthesis'. Aromatic plants are essential oil yielding plants. Aromatic plants may be used as condiments and in the cosmetic/ beauty care industry. The term 'medicinal plant' is used in this document to refer to both medicinal and aromatic plants unless otherwise stated.

5. Low levels of subsistence-related medicinal plant harvesting generally do not pose a threat to the viability of harvested populations. There is, however, growing concern about the impacts on wild medicinal plant stocks of growing national and international demand for herbal products and the increasing commercialization of the medicinal plant economy. At least 10% of the 7,500 medicinal plant species used by local communities in India are also actively traded within India, with some 50 species also exported in the form of raw drugs and extracts (FRLHT 2003). In 1997, a National Consultation on Medicinal Plants organized by the MoEF revealed that over 95% of medicinal plants used by the herbal industry was harvested from the wild. Over 200 medicinal plant species in southern and northern India are classified as rare, endangered or threatened. The true number of threatened species, including globally significant species, is likely to be far higher, but the status of many species is insufficiently known.
6. Ninety percent of India's medicinal plants diversity is estimated to be found in its diverse natural forest habitats. The vast majority of such forests are owned and managed by state or Union Territory (UT) governments, mainly by the respective state forest departments (SFDs)<sup>2,3</sup>, although there is increasing community participation in the management of such forests through initiatives like the Joint Forest Management (JFM) Programme (see Annex 1). There are also forests owned by state revenue departments and, in a few areas, notably the north-east of India, there are also community-owned forests.
7. Despite the fact that most of India's medicinal plant stocks are found on government-owned land, harvesting is still largely uncontrolled and unmonitored (Leaman 1998). There is little systematic or effective regulation or management of the commercial trade in MAPs by the government or self-regulation by traders and herbal medicine companies. In some parts of the country there are cooperative societies, particularly in tribal areas, which are meant to ensure a fair price to collectors amongst other things, but these are acknowledged to have been largely ineffective in meeting their stated objectives.
8. The commercial MAPs trade is also poorly understood or documented. There are many links in the supply and demand chain between the collector and the end users of medicinal plant products. Thus, collectors rarely know what are the end products of the plants they collect, where these are retailed (and at what prices) or the end users. Equally herbal product retailers higher up the market chain and herbal product manufacturers rarely know the original source of their materials or the environmental impacts that their demands may be having.

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<sup>2</sup> India has a federal structure comprising 28 states and 7 UTs. For simplicity, henceforth, the term 'state' is used to refer to both states and UTs.

<sup>3</sup> The Indian Forest Act of 1927 (IFA), the principal legislation relating to forests owned by the SFDs allows the constitution of two main categories of forest: the Reserved Forest (RF) and the Protected Forest (PF). In principle, the RF category was intended for forests perceived as being commercially valuable and therefore subject to stricter protection from local consumptive uses than the PF category. In practice, different types and degrees of local natural resource uses and rights of way and settlement were permitted in these forests at the time of demarcation, as rights, leases or concessions and there was great variation in how the provisions of the IFA were applied by individual forest officers across the country. Thus, the issue of access to and rights over forests and forest products has been highly contentious since colonial times. The IFA also contains provisions for establishing Village Forests, which were intended to meet the natural resource requirements of local populations, but relatively few such forests were ever established.

- This project seeks to achieve the long-term conservation and sustainable use of India's medicinal plant diversity, particularly of its globally significant species. The project will do this by mainstreaming conservation and sustainable use objectives into forest management policy and practice at the national, state and local level in three Indian states: Arunachal Pradesh in North-East India, Chattisgarh in Central India and Uttaranchal in North-west India. Together, these states represent a broad complement of India's MAP diversity, including numerous globally significant species and populations (see Annexes 3 & 4 for further details on project sites and global significance).

### *Threats, root causes and barriers analysis*

#### **B) Threats to the Conservation and Sustainable Use of Medicinal Plants**

9. Sustainable management systems for MAP-supporting ecosystems were formerly widespread in India, but are now breaking down as traditional knowledge and local authority are eroded, leading to destructive, open-access or industrial forms of exploitation and the spread of new land uses that degrade and destroy MAP-supporting ecosystems. The precise way in which these changes are unfolding varies from place to place, and is never simple since multiple, interacting factors are always involved. Some of the key threats to medicinal plants and their underlying causes are described below.

##### **1. Erosion of traditional rules and knowledge**

- **Loss of traditional rules.** Traditional systems for natural resource management would often allow for each forest area to be divided up by agreement among different tribal settlements or communities. These arrangements used to persist even in forests that had been formally taken over by the government, but throughout India since Independence there has been an erosion of such systems. This is due to major demographic, socio-economic and cultural changes, and the associated break down of local political structures. Traditional systems have been increasingly replaced by centralized policies and laws that do not recognize traditional ways of managing and using natural resources.
- **Loss of traditional knowledge.** As traditional rules have been lost, so has traditional knowledge about medicinal plants, including appropriate harvesting practices. This is of particular concern as there is no comprehensive and reliable inventory of India's numerous medicinal plants and their varied uses.
- **Limitations of traditional knowledge.** Even in situations where traditional knowledge about MAPs persists, this may not be sufficient to determine appropriate levels of harvesting or the most suitable techniques at a larger commercial scale. Those who have traditionally harvested medicinal plants and other natural resources for subsistence purposes may not even fully comprehend the extent of actual or possible impacts of larger-scale commercial extraction on the sustainability of the resource. Furthermore, the range of products being collected in particular sites may well have expanded as a result of external demand and traditional collectors may not be familiar with harvesting these products on any large scale.

## 2. Alteration and redistribution of incentives

- **Increasing value of the resource.** An exponentially growing national and international demand for ‘natural’ products, particularly herbal products, has greatly intensified the exploitation of medicinal plants in India and across the region. The underlying reasons for this enormous growth in demand are complex and poorly understood or documented. They include the following:
  - *Demand in developing countries.* There is a long-standing and live tradition of using traditional medicines in most developing countries. Additionally such medicines are generally more accessible and affordable to rural populations.
  - *Demand in industrial countries.* There has been a recent resurgence of such interest in developed countries. The latter has been attributed to reasons such as: rising costs of more conventional health care and a greater interest in self-reliance and preventative health care both by individuals and national governments seeking to cut public spending on health care; the search for new drugs and cost-effective treatments for serious and allopathic drug-resistant diseases and renewed interest within pharmaceutical companies to isolate useful compounds from a wider range of plants; and more generally a greater interest in all things ‘natural’ and ‘organic’, which in turn has further stimulated the private sector to tap another new market. This interest in natural products is also shared by many urban elites in developing countries, notably in India.
  - *Limited consumer awareness.* There is little consumer awareness about the nature of the MPA trade (e.g. the poor prices paid to impoverished collectors) and about its environmental impact. There are so many links in the producer-consumer chain in the MAPs sector that few end consumers have any idea of the provenance of most plant-based products let alone the environmental or social implications of their choices. There is thus little incentive for the producers of these products to regulate the sources of their raw materials with the associate positive knock-on effects this would have further down the supply chain.
- **Commercialisation of harvesting.** Strong national and international demand for herbal products means that there is an increasing incentive for people to poach MAPs. This makes it harder for resource managers to maintain exclusive access, and is a key underlying cause driving the overexploitation of MPAs.
- **Income generation potential.** Medicinal plant harvesting is often one of the few income-generating sources of employment available to many poor, rural communities, particularly to the landless and to marginal farmers, notably to women, and also to tribal people generally, many of whom are among the most impoverished and marginalized in India. Even where this is not the primary source of employment, NTFP collection often provides a vital economic buffer in times of low employment (e.g. agricultural low season), crop failure and other periods of economic stress. In some places, the high but seasonal income-generation opportunities offered by certain types of medicinal plants have also attracted temporary immigrants for this purpose. These non-local medicinal plant collectors who often have absolutely no knowledge of the ecology of harvested species or local conditions generally, and also little incentive to practice sustainable

harvesting techniques as they are primarily motivated by the short-term income-generating potential of medicinal plant exploitation.

### 3. Erosion of management authority

- **Weak community property rights.** The majority of medicinal plants harvesting takes place in government forests that are owned and managed by SFDs, and where communities have no formal property rights to medicinal plants and the intellectual property rights (IPR) associated with them. This means that local collectors have little incentive to engage in sustainable harvesting, and also ensures that harvesters receive low prices, thus providing an incentive to harvest large quantities as quickly as possible.
- **Weak government control.** The fact that MAPs are mostly harvested in government forests limits the authority of traditional resource managers to prevent competitive exploitation (e.g. by outsiders), since this role has been expropriated by the state. There is typically, however, a weak official capacity to manage MAPs, due to an historical bias towards managing timber and other products perceived as having high fiscal value, which did not include MAPs. Hence, most Indian foresters lack the knowledge and skills needed to manage MAP harvesting, particularly within a context in which large numbers of poor people rely on these resources. A further constraint on the growth of government regulatory capacity to replace traditional management systems is the absence of comprehensive national legislation and policy. The need for this is increasingly recognized but it has proved difficult to develop for reasons that include: the intersectoral nature of the MAPS sector; the lack of information about many aspects relating to MAPs; and the lack of mechanisms for intersectoral dialogue and coordinated action. Attempts to correct these weaknesses among SFDs have been made by other stakeholders, including the GoI, which established the National Medicinal Plant Board (NMPB) in 2000, and the several state governments which have established State Medicinal Plants Boards (SMPB). Most of these institutions have very limited capacity to sustain the necessary dialogue and consensus-building processes.
- **Competition for land and other resources.** The rate of outright conversion of forests to other forms of land use has slowed since the 1980s. Nevertheless, there is increasing pressure on the natural resource base, due to the combined and inter-related impacts of economic growth and rising human and livestock populations. Thus, demand for land for settlement, agriculture, pasture and a host of development-related infrastructure and activities continues to grow. Inevitably, there is increasing pressure on India's remaining forest lands, which cover some 20% of its geographic area. Even where there is no outright forest clearance, there is often forest degradation as a result of unsustainable uses of natural resources, ranging industrial and commercial uses (e.g. mining, timber logging, etc.) to a variety of subsistence-related uses such as livestock grazing and extraction of fuelwood and NTFPs. Some 70% of India's population is rural, extremely poor and largely reliant on local forests for a variety of natural products, regardless of their formal ownership. A threat to forests that is especially prevalent in the north-east region is the use of slash and burn cultivation or *jhum*.

10. In the face of major competing demands on forest land and resources for economic development, whether at a national scale or a local one, it has often proved difficult for SFDs to withstand or better

manage these ever-growing pressures, including finding solutions that might minimize degradation or achieve compromises that might satisfy the multiple objectives of different stakeholders. Instead, SFD forests are often a de facto open-access resource and both destructive harvesting practices and over-harvesting are leading to the unsustainable exploitation of medicinal plants in India. Some 70% of medicinal plant harvesting is estimated to be conducted in ways that disrupt the reproductive cycle and rates of natural regeneration of the plants thereby threatening the viability of local populations. For example, whole plants are uprooted before having set seed, or harvesting takes place during an inappropriate growth stage, or excessive quantities of fruit and seed are removed. The main reason for the overexploitation of medicinal plants is that the prevailing incentive structure governing the harvesting of medicinal plants does not favour sustainable harvesting.

### ***Institutional, sectoral and policy context***

#### ***i The Legal and Policy Framework***

11. There are numerous laws and policies with some bearing on the sustainable use and conservation of MAPs in India (see Annex 1). Most of these predate the government's increased understanding of the economic value of MAPs and ensuing concern about their conservation status. The most relevant of the older policies and legislation from this project's perspective are the National Forest Policy, 1988, the Indian Forest Act (IFA), 1927 and related state legislation, the Forest (Conservation) Act (FCA), 1980, and the Joint Forest Management orders and rules promulgated by both GoI and different states. These are the key policies guiding and regulating the use and management of state forests today. The Panchayats (Extension to the Scheduled Areas) Act, 1996 (PESA) is particularly relevant to community-owned forests and tribal areas as it gives local tribal people certain rights over natural resources (Annex 1).
12. The GoI's growing concern about the status of medicinal plants is better reflected in more recent policy statements and actions. Thus, the 1999 National Policy and Macro-level Action Strategy on Biodiversity recognizes the national significance of medicinal plants, and states that a key area for action is their *in situ* conservation and *ex situ* cultivation. The subsequent Final Technical Report of the UNDP-GEF sponsored National Biodiversity Strategy and Action Plan, suggests detailed strategies for the conservation and sustainable use of medicinal plants (MoEF 2005).<sup>4</sup> Also in 1999, the Planning Commission of India<sup>5</sup>, recognizing the importance of the medicinal plants sector, set up a 'National Task Force on the Conservation, Cultivation, Sustainable Use and Legal Protection of Medicinal Plants'.
13. The Task Force's key recommendations include:
  - Establishment of Medicinal Plant Conservation Areas covering all ecosystems and forests types of India.

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<sup>4</sup> National laws and policies apply across the country and are also relevant at the state level. However, states may also have their own versions of certain policies and laws as also state-specific policies for specific sectors. Similarly, centrally sponsored schemes may operate at the state level through different ministries.

<sup>5</sup> The Planning Commission is a centralized body which plays an integrative role in the development of a holistic approach to the policy formulation in critical areas of human and economic development at the national level.

- Identification of forest areas rich in medicinal plants and the formulation of management plans for these.
- Promoting sustainable harvesting of medicinal plants under Joint Forest Management schemes.
- Encouraging technically qualified NGOs to improve awareness about medicinal plants and their uses and to increase the availability of plant stock by developing and promoting agro-techniques for the cultivation of medicinal plants.
- The establishment of a medicinal plants boards at the national and state/UT level (Planning Commission of India, 2000).

14. In its Tenth Five Year Plan for 2002-2007, the Planning Commission clearly states that "the conservation, preservation, promotion, cultivation, collection and processing of medicinal plants and herbs required to meet growing domestic demand for Indian Systems of Medicine and Homeopathy drugs and the export potential must be ensured". It also states that, "Natural forests rich in medicinal plants should be identified and managed for sustainable supply of crude drugs."
15. The National Policy on Indian Systems of Medicine & Homeopathy of 2002 is also significant as the policy clearly states that the conservation of medicinal plant resources is an important aspect of promoting ISM in the country

*ii Key Agencies and Work of Significance to the Sustainable Use and Conservation of MAPs*

16. Throughout the country there are a number of past and current initiatives addressing different aspects of the use and conservation of MAPs. Such initiatives have involved a wide range of stakeholders, both governmental and non-governmental as well as civil society. Most have been on a limited scale and none address all the major threats to the sustainable use and conservation of MAPs in a comprehensive fashion.

The MoEF and SFDs

17. To date much of the work relating to the sustainable use and *in situ* conservation of MAPs by the central MoEF and SFDs has centered around the implementation of bilateral and multilateral agency-funded projects on medicinal plants conservation and use. These have included: one major initiative funded by DANIDA; two by UNDP-India under the Country Cooperation Framework (CCF) I and II; and one through the Medicinal and Aromatic Plants Program in Asia, an initiative funded by IDRC and Ford Foundation. International aid-agency funded forestry projects have sometimes also had a relatively minor medicinal plants component.
18. The DANIDA project was restricted to the southern Indian states of Karnataka, Kerala and Tamil Nadu, while the first UNDP project under CCF-I was confined to the two states of Andhra Pradesh and Maharashtra. The current project, which has just been started under CCF-II, builds on past work in these states, as well as initiating work in four additional states: Madhya Pradesh, Orissa, Rajasthan and West Bengal. The present project proponent, the Foundation for Revitalisation of Local Health Traditions (FRLHT) was a major partner in the work funded by DANIDA and is now a major partner

in the UNDP-India project. FRLHT and its work including the projects mentioned here are described further below. MAPPA's work is also described below.

19. Additionally, the National Afforestation & Ecodevelopment Board (NAEB)<sup>6</sup> of the MoEF has a scheme to promote the cultivation of Non-Timber Forest Products (NTFP) including Medicinal Plants. The scheme provides 100% central assistance to the States for cultivation of medicinal plants to augment the rising demand for plant-based drugs and to offset the scarcity because of unsustainable harvesting. The NAEB has advised the state governments to use at least 10% of the grants provided by the NAEB for afforestation using medicinal species, especially trees, planted as multi-species plantations.

#### The Foundation for the Revitalisation of Local Health Traditions (FRLHT)

20. Some of the most comprehensive and far-reaching efforts to date have been spearheaded by the **present project proponent**, FRLHT, an Indian NGO based in Bangalore established in 1991.
21. FRLHT has since been recognized as a Centre of Excellence of the MoEF. As a Centre of Excellence, FRLHT receives annual grants from MoEF, which last year amounted to 10% of their budget. They are partners with the MoEF but not formally affiliated with them.
22. FRLHT's mandate includes:
  - i. The conservation, sustainable use and research on the biodiversity used by Indian Systems of Medicine
  - ii. Promoting the role of traditional medicine in primary health care
  - iii. Building inter-cultural bridges based on Traditional Knowledge and modern science
  - iv. The revitalisation of informal, institutional and commercial transmission processes for the dissemination of Traditional Knowledge.
23. FRLHT has worked successfully in South India for many years, in collaboration with many partners, notably various SFDs and local communities. Their achievements include:
  - The establishment of 55 Medicinal Plant Conservation Areas (MPCAs) in collaboration with the SFDs of Andhra Pradesh, Karnataka, Kerala, Maharashtra and Tamil Nadu, which are jointly managed by the SFDs and the local communities.
  - Pioneering the concept of Home Herbal Gardens of which there are currently over 150,000
  - Extensive documentation of local health traditions and facilitation of information and experience exchange between folk healers
  - The establishment of a successful community-owned enterprise in south India, the Gram Mooligai Company Ltd. The company is involved with the cultivation, collection, value addition and manufacture of traditional medicines.

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<sup>6</sup> The NAEB was set up in August 1992 to facilitate afforestation, tree planting, ecological restoration and eco-development activities in the country. The focus was on degraded forest areas and lands adjoining the forest areas, national parks, sanctuaries and other protected areas as well as the ecologically fragile areas like the Western Himalayas, the Aravallis and the Western Ghats. See <http://envfor.nic.in/naeb/naeb.html>

- Research on the distribution and conservation status of medicinal plants in India and the medicinal plant trade
  - Promoting and conducting dialogue with the private sector to persuade them that the conservation and sustainable use of medicinal plants is in the long term interests of the private sector.
24. Medicinal plant conservation efforts are most advanced in the states of Tamil Nadu, Karnataka, Kerala, Maharashtra and Andhra Pradesh. MPCAs have been established in all these states and considerable amount of documentation has also been done. Partnerships with local community groups and NGOs have been established at many sites in these states for the conservation and sustainable use of medicinal plants.

#### The Medicinal and Aromatic Plants Program in Asia (MAPPA)

25. MAPPA was launched in 1998 as a joint effort of IDRC and the Ford Foundation. The objective of MAPPA is to institute a system of long-term sustainable and equitable use of MAPs. This is to be achieved by improved resource conservation and the improved livelihood security of rural and marginalised communities. MAPPA's approach has been strategic research, partnership building and networking. The main types of activities supported by MAPPA are community-based conservation, participatory research and documentation. MAPPA's efforts have been spread all over south Asia including India, but are on a relatively small scale. Recently MAPPA has moved to ICIMOD in Kathmandu from IDRC in New Delhi.

#### The National Medicinal Plants Board (NMPB)

26. As a result of the Planning Commission's Task Force recommendations, the NMPB was set up in 2000. The NMPB is housed within the Department of ISM & H in the Ministry of Health & Family Welfare (MoHFW). The NMPB is responsible for coordinating all matters relating to medicinal plants at the national level in order to protect, sustain and develop this sector. This includes: assessing demand and supply; developing policies and strategies for the *in situ* and *ex situ* conservation; promoting cost-effective cultivation; promoting more effective collectors' cooperatives; patenting and protection of IPRs; supporting and promoting research and development; and facilitating information exchange (see Annex 2 for further details). However, the NMPB has insufficient capacity to fulfill this mandate by acting on its own. For example, it has a sanctioned strength of only 5 staff including a Chief Executive Officer.
27. Additionally, the actual Department of ISM & H supports numerous education institutions offering training in ISM, while the Ministry of Health supported the plantation of medicinal plants under a scheme called *Vanaspati Van* plantations under GoI's last Five Year Plan.

#### Individual State Medicinal Plants Boards

28. In addition to the NMPB, the GoI has also requested all states to set up their own Medicinal Plants Boards and almost all of India's 28 states and 7 Union Territories have now established these. SMPBs are supposed to perform a similar function to the NMPB at the individual state level as well

as at a regional level within India. However, SMPBs are not branches of the NMPB and therefore can be housed in different ministries. SMPBs have to obtain their funding independently, which is largely done through their respective state governments. Requests for funding from NMPB for specific projects must be routed via the relevant SMPB, which is tasked with monitoring the implementation of all projects funded by the NMPB in their respective states.

29. Like the NMPB, the SMPBs also have very low capacity. SMPBs normally have even fewer staff and most are at the very initial stage of establishment. Typically, the head of an SMPB performs this function as an additional responsibility to an existing government job.

#### Department of Science & Technology (DST)

30. The Science and Society Division of the (DST) is working to raise the awareness of the general public about the use and value of medicinal plants. In some regions like the north-east DST is planning to invest in the conservation and sustainable use of medicinal plants.

#### *Stakeholder analysis*

- The present project design reflects the findings of extensive consultations at different levels during the project planning phase. Many of the stakeholders consulted in the development and design of this project during the PDF-B will also play an active role in its implementation through various mechanism as detailed later in the Stakeholder Involvement Plan in Section IV. The table below summarizes the main stakeholders at the national, state and local level.

#### **Summary of key stakeholder groups and their potential roles in the project**

<b>Key Stakeholder</b>	<b>Role in the project</b>
<b>1) National-level</b>	
MoEF	<ul style="list-style-type: none"> <li>- Take leadership in the overall implementation of this project.</li> <li>- Provide overall administrative locus to the project and ensure the regular monitoring and evaluation of project implementation.</li> <li>- Steer and facilitate the required changes in the policy directives for encouraging MAP conservation and sustainable utilization.</li> <li>- Facilitate changes in the JFM resolutions and guidelines to incorporate MAP conservation and sustainable utilization concerns.</li> <li>- Issue guidelines to the project states and other states to adopt and assimilate the experiences of the project implementation in to their forest management.</li> <li>- Provide the required co-financing and coordinate with other Ministries and Departments at central and state government levels to ensure that the committed co-finance, both reoriented baseline and in kind are made available in a timely fashion.</li> <li>- Coordinate smooth release of release of project funds from UNDP-GEF.</li> </ul>
NMPB and Department of ISM & H, MoHFW	<ul style="list-style-type: none"> <li>- Participate actively in capacity development initiatives, to develop their own and SMPBs capacities to fulfil their broader mandate.</li> <li>- Take leadership in the development of a National Strategy for the MAP sector.</li> <li>- Include the MAP species identified for cultivation in their programmes (especially GSMPs) and allocate the required funds for this purpose.</li> </ul>
MoRD	<ul style="list-style-type: none"> <li>- Adopt and assimilate the best practices resulting from the implementation of this project into livelihood related programmes of the MoRD, to promote cultivation and sustainable harvest of MAPs more widely.</li> </ul>

<b>Key Stakeholder</b>	<b>Role in the project</b>
FRLHT	<ul style="list-style-type: none"> <li>- Lead technical agency guiding the implementation of this project at all levels.</li> <li>- Will play major role in capacity building at all levels</li> <li>- Will be closely involved with field research and monitoring activities.</li> </ul>
<b>2) State-level (Shared across states)</b>	
State Governments & State Forest Departments including: Principal Secretaries of State Government Principal Chief Conservators of Forest District Forest Officers SMPBs	<ul style="list-style-type: none"> <li>- Provide the required leadership in the respective states to enable the efficient implementation of this project and ensure the development of state-specific strategies for the MAP sector.</li> <li>- Establish and manage the MPCAs/FGBs; develop norms for managing forests in wider area around MPCA/FGB complexes to promote maintenance of MAP diversity; mainstream MAP conservation and sustainable use objectives into forest policy and practice.</li> <li>- Contribute the committed In Kind and re-oriented baseline co-financing to the project.</li> <li>- Evolve and adopt a participatory mechanism for project implementation.</li> <li>- Incorporate the policy changes and the guidelines in to the state level policy and action as well as different processes of forest management.</li> <li>- Incorporate training for MAP conservation management within broader forest management into the training modules of relevant state agencies.</li> <li>- Participate in the capacity building initiatives of the project.</li> </ul>
NGOs	<ul style="list-style-type: none"> <li>- Participate in the implementation of the various components of the project based on their respective areas of competence and expertise.</li> </ul>
Community-based Organisations, representatives of different community-based institutions, including JFM Committees.	<ul style="list-style-type: none"> <li>- Participate in the Local Management Groups (see Part III).</li> <li>- Participate in the capacity development initiatives of the project.</li> <li>- Take leadership in the management of the project at the demonstration sites, especially at the community-owned and managed sites.</li> <li>- Partner with SFDs in implementing the conservation, sustainable harvest and adaptive management of the MAPs.</li> <li>- Participate in dissemination of lessons learnt and successful models to other forest areas</li> <li>- Identify local-level 'project champions' in project villages and constitute Task Teams for specific project activities</li> </ul>
Gram Sabhas and other Panchayati Raj Institutions <sup>7</sup>	<ul style="list-style-type: none"> <li>- Partner in the implementation of community based components of this project.</li> <li>- Participate in the capacity building initiatives.</li> </ul>
<b>3) State-level – unique to each of the three states.</b>	
<b>Arunachal Pradesh</b>	
North Eastern Council	<ul style="list-style-type: none"> <li>- Provide direction to the state agencies for mainstreaming the conservation and sustainable use of MAPs in development projects that are based on natural resource use.</li> </ul>
Non-Governmental Forest owners (as in North-eastern states)	<ul style="list-style-type: none"> <li>- Participate actively in MPCA/FGB establishment and management, develop community management norms and practices for conservation and sustainable of MAPs in wider forest area around MPCA/FGB complexes.</li> </ul>

<sup>7</sup> A Panchayati Raj Institution (PRI) is a local-level institution for self-government in rural areas that are recognized by the Constitution of India. PRIs are elected bodies and operate at three levels, a cluster of villages, a block and at the district level. PRIs are responsible for the preparation of plans for economic development and social justice and also for the implementation of schemes for economic development and social justice as entrusted to them by the respective state government and also by the GoI.

Key Stakeholder	Role in the project
<b>Chhattisgarh</b>	
Chhattisgarh Forest Department	-Assimilate the FGB/MPCA concept into the current PPA strategy, with special emphasis on MAP conservation and sustainable use.
<b>Uttaranchal</b>	
Van Panchayats	- MPCA/FGB establishment and management, develop and implement management norms and practices for sustainable use and conservation of MAPs.

## ***Baseline analysis***

### ***Baseline***

31. India is the world's second largest producer of medicinal plants and medicines after China. India's wealth of medicinal plant species have been used in traditional Indian health systems like *Ayurveda*, *Sidhha*, *Unani*, and Tibetan systems for millennia and are still very much in use today. An estimated 60-80% of India's population rely on medicinal plants to meet their primary health care needs. The Government of India recognizes the importance of medicinal plants and has been committed to utilizing this resource wisely and has supported the strengthening of institutional capacity to achieve this at the national and state levels.
32. Over 95% of medicinal plants in use by the Indian herbal industry are harvested from the wild, primarily from productive forestlands. Forest habitat loss and degradation, and unsustainable exploitation of wild populations, including destructive harvesting and over-exploitation, constitute the principal threats to MAP diversity.
33. The baseline MAP management program focuses on producing MAPs for subsistence and commercial needs. India's MAP management approach is still evolving, but can be said to be comprised of three main elements: increasing cultivation and related research, passive management of a small number of MAP species harvested as non-timber forest products in productive forests, and an emerging emphasis on *in-situ* conservation through MPCAs (Medicinal Plant Conservation Areas). While the approach recognizes the importance of *in situ* conservation of MAP diversity, Government programs emphasize cultivation and to a small extent, establishment of MPCAs. Productive forestlands, which harbor the vast majority of MAP diversity, and mainstreaming MAP diversity conservation objectives into productive forestland management, are largely overlooked.
34. Forest managers have not benefited from MAP species harvest on any significant scale. Consequently, MAP management has not received much attention historically and is just a small part of overall NTFP management. Existing forest management policies with a specific bearing on MAPs are limited to regulating the harvest volumes of a very small number of MAP species. The species included on these lists and the volumes stipulated have no ecological basis. Nor is the purpose of these restrictions to promote the management of productive forests in ways that protect MAP diversity and habitat.
35. India's emerging MAP management strategy does include *in situ* conservation of MAP species. But, in the short term, the national benefits of this conservation approach are not sufficient to cover its

costs. These costs, or constraints on diversity management, are associated with additional information gathering, learning, outreach, and management effort. The lack of knowledge and technical skills on how to manage forest to maintain MAP diversity inhibits proactive conservation management.

36. The participation of a wide-range of stakeholders in forest ecosystem management is not a new concept in India. In all three states where the project will work, community management of forest resources is a part of the forest management baseline. This awareness offers an opportunity for developing innovative MAP co-management regimes between the Forest Division authorities and local communities.
37. Public awareness of the values of MAP resources is decreasing in many areas of India. Especially among young people, there is a declining level of awareness of their own cultural traditions with respect to the use and management of MAP biodiversity. Traditional knowledge regarding the gathering and innovative use of MAP species comprises an invaluable living legacy that is relevant to conserving MAP biodiversity. However, traditional knowledge is being eroded, before it has been recorded.

### ***Global Environmental Benefits***

38. This project will conserve globally significant medicinal plant biodiversity in three Indian States. Specifically, the project will ensure the *in situ* conservation of viable populations of some 80 globally significant species through a network of MPCA/FGB complexes (Annex 4). In the process of doing this, other global benefits will be generated as well, including significant indirect use (option and insurance) and passive use (existence) values. The global option and insurance values spring from India's large number of medicinal plant species. For world medicine and health maintenance, this diversity preserves options for as yet undiscovered new treatments and/or uses of MAP species. It also serves as a global insurance policy against the diminishing effectiveness of certain "industrial" drugs in the marketplace. For MAP harvest, the same genetic fund could prove crucial to maintaining MAP productivity after future environmental shocks from climate change or other sources. The global existence value arises from nontrivial per capita existence values multiplied by the hundreds of millions of citizens who hold these values and live outside of India.
- Additionally as global biodiversity significance will be a key criteria in determining the location of the MPCA/FBG complexes, there will be additional global benefits from the maintenance of other globally significant biodiversity both within these complexes and within the wider forest areas as forest management strategies that promote the conservation and sustainable harvesting of MAPs are likely to be beneficial for many other species compared to the destructive open-access harvesting regimes that currently exist in most forests.

### ***GEF Project Alternative***

39. The costs of the project are shared by the GEF and other financiers, with the GEF financing the agreed incremental costs of conserving globally significant MAP diversity and generating global environmental benefits. The overall objectives of the proposed project are the sustained conservation of India's MAP diversity. Upon completion of the project, State forest managers and local

communities will be conserving MAP diversity in three Indian States by applying a new approach to productive forest management.

40. To accomplish this, the project proposes to complement the existing baseline situation in India with a GEF and Co-financed project alternative. The alternative will seek to remove various barriers to the mainstreaming of conservation and sustainable use objectives into the Indian forest sector. A key barrier to mainstreaming the sustainable use and conservation of medicinal plants into the productive forest sector is the lack of a focused strategy at the national and state levels that addresses the main threats to medicinal plants. National forestry policies provide a framework for forest management in the states. However, the detailed planning and implementation of activities in the forestry sector is carried out by the respective state governments. While existing national and state forestry policies are generally supportive of conservation, they do not focus on the threats to MAPs or the requirements for their effective conservation and sustainable management. The development of an effective policy framework for MAPs will require inputs from numerous sectors and stakeholders. However, there are currently insufficient mechanisms for effective inter-sectoral dialogue and action. The other major barriers to mainstreaming include information and capacity barriers, particularly within the SFDs and among local communities.
41. In the absence of this GEF project, MAP diversity, including GSMP diversity, will continue to be lost, generally along with losses of additional biological diversity as MAP habitat is lost or degraded. This will have direct and indirect local, national and global socio-economic implications through loss of revenue, loss of a major means of affordable health care and loss of traditional knowledge about MAPs, as well as reduced option values.

### ***System Boundary***

42. Baseline and incremental costs have been assessed temporally, over the planned seven-year time frame of the GEF intervention, and geographically by the three Indian States and the administrative boundaries encompassing participating State District Forests. The scope of analysis covers the national policy context for medicinal plants and forest management in India as well as within three Indian States: Chhattisgarh, Utaranchal, and Arunachal. In addition, the scope of the analysis included up to seven District-level forests within each of the three Indian States. Thematically, the analysis considered medicinal plant and productive forest management policy and practice and the range of interventions necessary to address the proximate and underlying threats to MAP diversity, based on the detailed assessments performed during project formulation.

### ***Summary of Cost***

43. The total cost of the project including Co-funding and GEF funds is US\$11,414,121. Of this total, co-funding constitutes 56% or US\$6,479,121. GEF financing constitutes the remaining 44% of the total, or US\$4,935,000. The incremental cost matrix provides a summary breakdown of baseline values and Co-financing and GEF financing by project Outcome.

## PART II : STRATEGY

### *Project Rationale*

44. At least 200 species of Indian medicinal plants are known to be threatened, although the true number is likely to be much higher as the status of many species has not been assessed. There is a general consensus among many of the major stakeholders that current patterns of MAP harvesting and trade are unsustainable. However, there is no adequate policy framework for developing and implementing a comprehensive action plan for the conservation and sustainable use of medicinal plants in India. To date, different actors scattered around the country have been engaged in a variety of activities relating to different aspects of the sustainable use and conservation of medicinal plant conservation, mostly at a small scale, with some notable exceptions such as the work undertaken by the Foundation for Revitalising Local Health Traditions (FRLHT), **the present project proponents**, which is described later. The baseline situation with respect to threats and root causes has already been described earlier. This section deals with the policy and legal baseline and the key agencies, programmes and projects of significance to the medicinal plants sector in India.
45. There are clearly many dimensions to the present harvesting and trade in MAPs all of which will need to be addressed in the long-term if we are to achieve their conservation and sustainable use. Given the multifaceted, complex nature of the threats to the long-term sustainability of MAPs, including the many different scales on which these threats operate, it would be difficult for a single project to address all of these in a cost-effective manner. After considering various alternatives, the present project has decided to focus on mainstreaming the sustainable use and *in situ* conservation of medicinal plants into the productive forest sector. Specifically, this project seeks to promote the conservation and sustainable use of MAPs in three Indian states with special emphasis on Globally Significant Medicinal Plants (GSMPs).
46. There is a general consensus that for most harvested MAPs, an approach that focuses on *in situ* conservation and sustainable harvesting is the only viable option for the foreseeable future for a number of reasons. *In situ* conservation of MAPs is undoubtedly the most cost-effective way of conserving their inter- and intra-specific genetic diversity. Cultivation can and should be considered for as many species as possible, particularly threatened ones. However, there are many barriers to the effective cultivation of MAPs as well as some potential adverse impacts on biodiversity. Such barriers include information and technological barriers and market barriers (see FRLHT 2003 and Schippmann *et al* 2002). Currently, only some 300 species of medicinal plants are being cultivated across the country, most on a very limited scale. Only some 100 species are cultivated on any substantial scale, when there are over 750 species in commercial trade and over 200 threatened species generally. Of the cultivated species, only 30 are known to be highly traded or threatened. The degree of threat from harvesting to medicinal plants varies according to several criteria. Thus, most at risk from over-harvesting or inappropriate harvesting methods are: a) species with a narrow geographic distribution; b) species that are habitat-specific; and c) species that naturally occur only in small populations wherever they are found. Additionally the natural resilience of individual species to harvesting pressures varies according to different biological characteristics. Thus, for example, slow-growing species are more vulnerable than fast-growing ones.
47. It is clear from the foregoing that those species that are likely to be most at risk from destructive harvesting are also going to be the most difficult to cultivate on any large scale. Equally, while

consumers have access to very low-priced wild products there is little incentive to purchase more costly cultivated stocks of raw materials and thus little incentive for investment in cultivation by potential MAPs farmers. Thus, it becomes imperative to focus first on ensuring the viable populations of medicinal plants are conserved *in situ* and that the harvesting of wild MAPs is sustainable, especially of GSMPs and species that are more vulnerable to extinction. The current project will be working with a total of at least 400 species of medicinal plants including at least 80 GSMP, including several critically endangered species (see Annex 4).

48. It is also clear that the long-term sustainability of medicinal plants in the wild will require addressing the demand side of the trade in MAPs. However, this trade is extremely complex, dynamic and poorly understood. Addressing the demand side will require considerable time and investment in first understanding trade dynamics. Meanwhile, demand for medicinal plants-based products continues to grow inexorably. Given the limited ability of cultivation to supply that demand and given that 95% of all medicinal plants are found in natural forests, it seemed doubly appropriate to focus first on addressing conservation and sustainable harvesting in the wild to ensure that wild stocks are not eliminated while we work out how to address the trade dimension. This project will attempt to tackle limited aspects of the demand side at the community-level in selected demonstration sites, such as trying to obtain fair prices for collectors from local traders, local value addition, and exploring the possibility of a sustainable harvest certification system.
49. The project builds on the earlier work done by ~~the project proponent~~, FRLHT, including the PDF-B, but goes well beyond this early work in several important respects as it has been designed after a detailed 'gap analysis' of the prevailing state of affairs within the MAPs sector.
50. First, the project will be attempting to integrate the conservation and sustainable use of MAPs into national policies, including the development of a national strategy for the conservation and sustainable use of MAPs. Comparable state-level strategies are to be developed for three project states. As explained earlier, such strategies do not exist at present. Second, the project will attempt to scale up the impact of such activities by bringing about a much more inter-sectoral approach to the *in situ* conservation of MAPs, by involving several other relevant stakeholders in addition to SFDs, both at the policy-level and at the activity-level in target project states, notably the NMPB and SMPBs, but also others as detailed later. Much of the focus of FRLHT's earlier work has been on the establishment of MPCAs by working mainly with SFDs and local communities and documentation of species and traditional health traditions. Additionally, the project will put much more emphasis on developing methods for sustainable harvesting of selected MAPs, particularly GSMP. Again, much of FRLHT's earlier work concentrated on small-scale cultivation and marketing by local communities and there was no special focus on GSMP. Finally, the project will be working in community-owned and/or managed forests, where very little work has been done in connection with MAPs. Technical agencies in addition to FRLHT will also be involved in this project.
51. The main change since the PDF-B is that the number of project states has been reduced from 7 to 3 primarily for logistical reasons and the difficulties of coordinating such complex work in so many different sites spread across India. Additional states will be considered for replication of lessons learned from this project.

52. There are relatively few on-going GEF projects dealing with the sustainable use and conservation of MAPs, although several are currently being developed. Projects under implementation include the Traditional Medicine Programme in Zimbabwe, a Medium-Size Project, and a conservation and sustainable use of MAPs Full-Size project in Egypt. However, more generally, there are a large number of individuals, organizations and programmes engaged in work on different aspects of the use and conservation of MAPs across the world. This project will ensure that it learns from the experiences of all such major work including both GEF and non-GEF funded initiatives as well as disseminating the lessons learned from this project to the wider field.

### ***Policy Conformity***

53. The project is consistent with GEF Biodiversity Strategic Priority 2. Its primary focus is to mainstream the conservation and sustainable use of MAPs within the productive forest sector in India by bringing about changes at the national and state policy level, developing and promoting mechanisms for more effective intersectoral dialogue and action, and increasing the capacity of key stakeholders such as SFDs, local communities, the SMPBs and the NMPB to better manage and benefit from MAP resources.

54. The project also addresses GEF Operational Program 3 (Forest Ecosystems) as 90% of MAPs are found in India's forests. Specifically, the project will help develop the capacity of both SFDs and local communities to better manage MAP resources including their habitat. Consequently, a much broader range of biodiversity than MAP species alone is likely to benefit from improved forest management. All three project states include areas exceptional biodiversity value and one state, Arunachal Pradesh, is located within the Eastern Himalayan global biodiversity hotspot. An important aspect of the project will be to generate baseline information on the status and characteristics of MAP diversity in project sites as well as to document and protect traditional knowledge about MAPs. Another key component of the project is to develop, test and demonstrate sustainable harvesting methods for selected MAP species. Another important component is to ensure that viable populations of medicinal plants, including GSMP, are conserved *in situ* through the FGBs and MPCAs. The maintenance of such wild stocks as well as the documentation and preservation of traditional knowledge about MAPs are clearly important for the further development of cultivation programmes for MAPs, which are currently limited.

55. The project is also in line with the Global Strategy for Plant Conservation (GSPC), which was adopted by the Conference of the Parties of the Convention on Biological Diversity in April 2002 (Decision VI/9). The GSPC has the long-term objective of halting the current and continuing loss of plant diversity. The GSPC comprises 16 broad outcome-oriented and interlinked targets relating to the conservation of plant species, grouped around the major themes of: (a) understanding and documenting plant diversity; (b) conserving plant diversity; (c) using plant diversity sustainably; (d) promoting education and awareness about plant diversity; and (e) building capacity for the conservation of plant diversity. Its relevance to a project which aims to conserve large numbers of economically-important wild species in a mega-diversity country can hardly be over-stated. The project will contribute to meeting several of the GSPC-determined global targets for the year 2010, specifically:

- (iii) *“Development of models with protocols for plant conservation and sustainable use, based on research and practical experience”;*

- (ix) “70 per cent of the genetic diversity of crops and other major socio-economically valuable plant species conserved, and associated indigenous and local knowledge maintained”;
- (xi) “No species of wild flora endangered by international trade”;
- (xii) “30 per cent of plant-based products derived from sources that are sustainably managed”;
- and
- (xiii) “The decline of plant resources, and associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods, local food security and health care, halted”.  
(See <http://www.biodiv.org/programmes/cross-cutting/plant/targets.asp>).

### ***Project Goal, Objective, Outcomes and Outputs/Activities***

56. The overall **goal** of the project is to conserve India’s medicinal plant diversity. The project **objective** is to mainstream the conservation and sustainable use of medicinal plants into the productive forest sector of three Indian states, with particular reference to GSMPs. The three states, Arunachal Pradesh in the north east, Chhattisgarh in central India and Uttaranchal in the north-west, were selected for the following reasons:

- They are rich in MAPs but these resources are under increasing threat.
- They have a high number of endemic and other GSMP species.
- They represent a diverse range of the country’s major forest types.
- They represent a diverse range of cultural and socio-economic conditions including a diversity of traditional health practices and knowledge as well as property rights regimes.
- There has been no comparable work on medicinal plants in this region, but there is considerable state government interest in the MAPs sector.

57. Arunachal Pradesh is located within the Eastern Himalaya global biodiversity hotspot and is estimated to harbour some 12% of India’s medicinal plant diversity in its tropical evergreen and semi-evergreen forests, while Chhattisgarh has around 11% in its dry and moist deciduous forests. The sub-tropical and temperate biomes of the North-west region of India, where Uttaranchal is located, contains more than 1,200 medicinal plant species, or some 15% of India’s medicinal plant diversity.

58. Both Chhattisgarh and Uttaranchal have declared themselves as ‘Herbal States’ in 2001 and 2002, respectively. Additionally, Chhattisgarh is one of two states in India to have established People’s Protected Areas (PPAs) with the objective of managing forests in partnership with local communities. Parts of PPAs which are rich in medicinal plants are being designated as Medicinal Plant Reserves and resource inventories have been commissioned. Chhattisgarh has also established processing centres for local value addition. Uttaranchal has also started a state-wide effort to document the distribution of medicinal plants and is in the process of compiling information on all aspects of selected species, so that consolidated information is easily available.

59. The project aims to achieve its stated objective through the following five proposed outcomes:

1. An enabling environment at the national level for mainstreaming the conservation and sustainable use of MAPs into forest management policies and practices

2. Forest management policies in the three project states that promote and support the conservation and sustainable use of MAPs.
3. Conservation and sustainable use of MAPs are mainstreamed at the local level into government and community forest management norms and practices at demonstration sites in the three project states.
4. Materials and methods developed for replicating the successful models of conservation and sustainable use of medicinal plants across other sites in the three states, and more broadly.
5. Effective project monitoring and evaluation, lessons learning and adaptive management

**Outcome 1: An enabling environment for mainstreaming the conservation and sustainable use of MAPs into forest management policies and practices at the national level.**

**GEF Contribution:** \$535,000, **Co-financing** \$ 988,380

60. To achieve this outcome, the project will seek to facilitate inter-sectoral dialogue and coordinated action between key partners including: the MoEF (especially the National Biodiversity Authority, National Board for Wildlife, the National Afforestation and Ecodevelopment Board); the Ministry of Health & Family Welfare (notably the National Medicinal Plants Board); the Ministry of Rural Development; and the Department of Science and Technology.
61. Specific outputs that will be accomplished to achieve this outcome include:
  - 1.1 A national strategy that addresses issues relating to the *in situ* and *ex situ* conservation, cultivation and the sustainable use of medicinal plants, including the role of medicinal plants in the livelihoods of local communities, access of local communities to traditional medicine, protection of traditional knowledge and the trade in medicinal plants. The need for a holistic national strategy which will enable the required inter-sectoral coordination for the MAP sector has been identified through the PDF-B. The project will facilitate the inter-sectoral consultations and dialogue especially between important government agencies like MoEF, NMPB, MoRD, DST and DBT and key NGOs and research institutions and provide the required expert inputs to draft a national strategy. Local consultants will be used to review the related policies and strategies and their reports will be important inputs into the strategy formulation. Workshops and seminars will be held at the national level to initially seek inputs and later on to discuss and finalize the national strategy.
  - 1.2 Revised national guidelines for JFM developed by MoEF with a stronger focus on the conservation and sustainable harvesting of medicinal plants, especially GSMPs. Experts in participatory resource management and gender will review the existing JFM guidelines and their findings will be used in regional and national consultations in which all the important stakeholders will participate. These consultations will be lead by MoEF and NMPB. The outputs of these consultations will be consolidated and used to guide the revision of the JFM guidelines by MoEF.

- 1.3 Legal mechanisms developed to protect traditional knowledge specifically relating to the sustainable harvest, cultivation and use of medicinal plants within the guidelines of the Biological Diversity Act (2002) through the National Biodiversity Authority, the National Medicinal Plant Board and other sectoral agencies as appropriate. Legal consultants will undertake research studies for developing and incorporating appropriate legal mechanisms to protect traditional knowledge. Stakeholder consultations will be held to inform this research about the issues. Regional and national workshops will be held to disseminate the research findings and to finalize the legal mechanisms. These legal mechanisms will include model Material Transfer Agreements and Information Transfer Agreements for holders of traditional knowledge. These agreements will strengthen access and benefit sharing mechanisms within the context of bio-prospecting.
- 1.4 Identification of medicinal plant species suited for cultivation and inclusion in the list of plants used for afforestation and income generating programmes of the NAEB (MoEF) and the Ministry of Rural Development. Forestry, agricultural and crop consultants will be commissioned to undertake field surveys, review the existing list of species used by government agencies and to develop criteria for identifying and evaluating the suitability and potential of MAP species for cultivation and use in government afforestation and income generation programmes. These consultants will also develop a package of practices for specific species and demonstrate it in selected sites. Training will be provided to the people involved and training materials will also be produced to enable the replication of these efforts.
- 1.5 Capacity of NMPB strengthened to enable it to function more effectively as an inter-sectoral coordinating body for the MAPs sector in India and to enable it to fulfill its mandate. A review will be conducted of the existing capacity within the NMPB with reference to its mandate. Based on this review a capacity development plan will be prepared. Special training materials will be developed for the training of the NMPB staff and the need for additional human resources will be assessed.
- 1.6 A long-term strategy and protocols for threat assessment and monitoring of the conservation status of MAPs in India. A thorough review of the information related to the conservation status of MAPs in India will be undertaken by a network of researchers based in organizations across India. This review will cover the distribution of species, their *in situ* status, species-wise area under cultivation and volumes in trade. Based on the results of this review and in consultation with major stakeholders especially the National Board for Wildlife and the NMPB, the strategy and protocols with a robust set of indicators for threat assessment will be developed. These methods will be field tested and then fine tuned prior to widespread dissemination so that these assessments are periodically and widely carried out.
- 1.7 A course module on the conservation and sustainable use of medicinal plants developed for the Indian Forest Service training curriculum. Undertake a review of the training syllabus of the IFS to identify gaps related to the conservation and management of MAPs. Based on the identified gaps and with the help of expert inputs a training module will be developed. The module will be reviewed by an expert group prior to testing it with the trainees and based on feed back this will be refined and finalized. The required training materials to support the module will also be developed.

**Outcome 2: Forest management policies in the three project states that promote and support the conservation and sustainable use of MAPs.**

**GEF Contribution:** \$ 775,000, **Co-financing** \$ 1,927,922

62. The project will work with the SFDs, the SMPBs, Biodiversity Boards and civil society to facilitate the mainstreaming of conservation and sustainable use of medicinal plants into state-level policies and forest management practices.
63. Specific outputs that will be accomplished to achieve this outcome include:
- 2.1 Individual State Medicinal Plant Conservation & Sustainable Use Strategies that build on national policies to address state-specific threats and barriers to the sustainable use and conservation of medicinal plants. The project will facilitate the inter-sectoral consultations and dialogue especially between important state government departments like Forests, Rural Development, Health and SMPB and key NGOs and research institutions and provide the required expert inputs to draft a state-level strategy. Local consultants will be used to review the related state-level policies and strategies and their reports will be important inputs into the strategy formulation. Workshops and seminars will be held at the state level to initially seek inputs and later on to discuss and finalize the state-level strategies.
  - 2.2 Revised state forest policies that support the conservation and sustainable use of MAPs. Policy and forestry consultants will review the state-level policies and identify the gaps. Consultations will be held with the stakeholders to seek inputs for the revised policies. Workshops will be held based on the inputs received from the stakeholder consultations and the policy reviews to revise the state policies.
  - 2.3 Revised state-level JFM Orders and Guidelines for the three project states that integrate and strengthen MAP conservation and sustainable use objectives within the overall JFM programmes and practices. . Legal and community participation experts will undertake reviews of the state-level JFM Orders and Guidelines. Revisions of the JFM Orders and Guidelines are undertaken by the state forest department based on the gaps identified.
  - 2.4 State-level legal mechanisms to protect traditional knowledge relating to the sustainable harvest, cultivation and uses of medicinal plants through the respective State Medicinal Plant Boards and State Biodiversity Boards (when established) and Community Biodiversity Registers. Findings of the national review and research will be used to guide the process at the state level. State-level reviews will also be carried out where required. Workshops will be conducted with the relevant stakeholders to develop the appropriate legal mechanisms.
  - 2.5 Capacities of the SMPBs in each of the three project states strengthened to enable these to function inter-sectorally and fulfill their mandate in the respective states. Reviews of the existing capacities with the SMPBs will be carried out to determine the capacity development needs. Based on this needs assessment capacity development plans will be prepared. Training materials

will be prepared for imparting the required training to the SMPB staff. The need for additional human resources will be assessed.

- 2.6 Identification of MAP species suited for cultivation and inclusion in the species lists used for afforestation and income generating programmes of the NAEB and the MoRD at the state level and also in the afforestation programmes of the State Forest and Rural Development departments of each of the three states. The results of the national-level review and research will be used to guide the process in the project states. The afforestation schemes at the state-level will also be reviewed and suitable MAP species will be identified by using the criteria developed at the national level.
- 2.7 Revised forest division working plans that provide clear guidelines for the effective conservation management and sustainable use of medicinal plants in all project districts. Workshops for the Working Plan Officers conducted by forestry and biodiversity experts to build their capacities related to the conservation and sustainable utilization of MAPs. These workshops will also be used to develop guidelines for revising the working plans. Based on these guidelines the working plans will be revised.
- 2.8 Comprehensive baseline and M&E system, including standardized protocols, for monitoring the status of medicinal plant resources in each project state. The threat assessment protocols developed at the national level will be adapted to the local conditions in each of the project states. Collaborations will be established between the SFDs, research organizations and CBOs to enable the consolidation of information related to the MAP resources in each state. Field surveys will be undertaken to prepare the comprehensive baseline. These surveys will be designed to be as participatory as possible. Documentation and database experts will design and guide this process. Once the baselines are established the information will be widely disseminated to the other forest divisions, SMPBs, State Biodiversity Boards, CBOs, research institutions and conservation NGOs. Mechanisms for regular monitoring will be established.

**Outcome 3: Conservation and sustainable use of MAPs are mainstreamed at the local level into government and community forest management norms and practices at demonstration sites in the three project states.**

**GEF Contribution: \$ 1,710,000, Co-financing \$ 1,000,008**

64. One of the important conservation and sustainable use initiatives of this project will be the establishment and management of Medicinal Plants Conservation Areas (MPCAs) and Forest Gene Banks (FGBs) in state forests by the respective SFDs in close collaboration with local community groups. The purpose of the MPCA (which covers some 200 ha and is nested within the larger FGB which covers 1,500 ha) is to enable the strict conservation of populations and habitats of medicinal plant diversity. The FGBs themselves will serve as *in situ* gene banks of each state's medicinal plant diversity. These FGBs will be used as pilot sites for developing and testing methods for sustainable harvest of selected medicinal plant species as well as to supply seeds and planting material for medicinal plant nurseries and afforestation.

65. The second major project strategy to achieve this outcome will involve working with existing community institutions wherever these already exist in community-owned or managed forests at each demonstration site to develop forest management norms and practices that favour the sustainable use and conservation of MAPs. These institutions include the *Van Panchayats* of Uttaranchal as well as various Village Forest Committees, Forest Protection Committees, Ecodevelopment Committees and Women's Self-Help Groups in all the project states.
66. Specific outputs that will be accomplished to achieve this outcome include:
- 3.1 Demonstration of *in situ* and *ex situ* techniques and approaches to the conservation and sustainable management of medicinal plant diversity (especially GSMP) in state forests including the establishment of 5 MPCA/FGB complexes in each project state. Field surveys on the lines described in 2.8 above, will be carried out at each of the proposed FGB/MPCA sites to determine the occurrence and status of MAPs especially GSMPs and to establish the required baselines. Data from these surveys will guide the exact location and boundaries of the FGBs and MPCAs. The presence of motivated local community groups, contiguous and healthy forest cover and logistics of managing the sites will be additional considerations driving the decision regarding the location. FGBs and MPCAs will be established by the SFD in collaboration with the local communities, SMPBs, research organizations and NGOs. This process is designed to be fully participatory. Sustainable harvesting trials based on traditional knowledge as well as modern scientific principles will be carried out within the FGBs for selected species especially GSMPs. Based on the results of these trials protocols for sustainable harvest of these species will be developed. A Local Management Committee will be established to guide and manage this process. A MAP nursery will be established close to each FGB while a state level Seed Centre for MAP will also be established.
  - 3.2 Strengthened medicinal plants conservation management capacity within SFDs. A review of the existing capacities within each of the SFDs will be carried out to determine the capacity development needs. A capacity development plan will be developed and this will include special training. A training module along with the required training materials will be developed both for induction training as well as in-service training. The module will be tested and fine tuned based on feed back. At least three training programmes will be conducted in each state through the project to institutionalize the process.
  - 3.3 Pilot demonstration sites for the *in situ* and *ex situ* conservation and sustainable management of medicinal plant diversity on community-owned or community managed forest land, including the establishment of 2 MPCA/FGB complexes in each project state. Participatory field surveys with strong participation from the local community groups will be carried out in each of the proposed FGB/MPCA site in community owned and or managed sites to determine the occurrence and status of MAPs especially GSMPs and to establish the required baselines. Data from these surveys will guide the exact location and boundaries of the FGBs and MPCAs. FGBs and MPCAs will be established by the local community groups in collaboration with the SFDs, SMPBs, research organizations and NGOs. Sustainable harvesting trials based on traditional knowledge as well as modern scientific principles will be carried out within the FGBs for selected species especially GSMPs. Based on the results of these trials protocols for sustainable

harvest of these species will be developed. A Local Management Committee will be established to guide and manage this process. A MAP nursery will be established close to each of the FGBs.

- 3.4 Strengthened community capacity for the conservation and sustainable use of medicinal plants. A community training expert will conduct a participatory needs assessment exercise with each of the local communities to determine their capacity building needs. Based on this a capacity development plan will be developed in consultation with a forestry expert. Training modules will be developed and tested with the community prior to finalizing its contents. Training programmes will be conducted to build the capacities of the local people. Special attempts will be made to build on the available knowledge of plants and to train village botanists who can then participate in the field surveys.
- 3.5 Strengthened community capacity to enable communities to document and conserve their traditional knowledge related to the sustainable use of medicinal plants and Traditional Medicine and how to protect and benefit from their IPRs. A team comprising of a community training expert and an IPR expert will undertake a review of the existing capacities within the local communities and based on this assessment design a training programme which will enable the local communities to document and conserve their traditional knowledge. A key output of these initiatives will be Community Knowledge Registers. Software will be designed to document the traditional knowledge in addition to the Community Knowledge Registers.

**Outcome 4: Materials and methods developed for replicating the successful models of conservation and sustainable use of medicinal plants across other sites in the three states, and more broadly.**

**GEF Contribution: \$ 815,000, Co-financing \$ 2,318,623**

67. Since replication is an important outcome of this project, documentation of both the process as well as the technical elements of implementation will be emphasized. Documentation will include both publications and audio-visual material ranging from field reports, process documentation reports, technical manuals, films, media reports to proceedings of workshops and seminars. Technical information generated through the project and experiences of project implementation will be disseminated in various ways and will include field visits, exchange visits, websites, workshops and seminars.
68. Replication efforts will be targeted at other sites within the three project states as well as at sites in four other states of India (Sikkim, Meghalaya, Himachal Pradesh and Jammu & Kashmir). These efforts will target state government personnel of relevant departments, conservation NGOs, research institutions, local community groups, traditional healers and students from local schools and colleges.
69. Specific outputs that will be accomplished to achieve this outcome include:
  - 4.1 A state-level strategy for the conservation and sustainable use of MAPs developed in each of the four replication states. Selected key officials from the four replication states will be involved in

- the process of developing the state-level strategies in the 3 project states. This will provide them with the required experience to undertake a similar exercise in their states.
4. 2 Capacities of SMPBs in the four replication states strengthened by learning from the experience of the SMPBs in the project states to enable them to take the lead in coordinating activities in this sector in their respective states. A capacity needs assessment for the SMPBs will be carried out. Based on the findings, the training materials developed in the 3 project states will be adapted for each of the replication states.
  4. 3 Training module and other materials developed for SFD personnel in the project states adapted for use in the replication states including translation into local languages where needed. A review of existing capacities within each of the SFDs in the replication states will be carried out and the findings will be used to adapt the training module and materials developed in the 3 project states for the replication states.
  4. 4 Demonstration of *in situ* and *ex situ* conservation and sustainable management of MAP diversity in productive forestlands in districts other than those covered by the project in the three states through exchange visits. Forest officers from non-project divisions in the project states will be encouraged to visit the demonstration sites to learn from the implementation experience. The project will work with these forest officers in undertaking field surveys to locate potential FGBs and MPCAs. The actual establishment and management experience will be shared by the officers in the project sites with their colleagues to enable peer to peer learning.
  4. 5 Strengthened medicinal plants management capacity of SFD staff and selected local community groups in the four replication states. Exchange visits by members of the local communities and forest officers from the 4 replication states to sites in the 3 project states will enable them to learn from the experience of project implementation. Additionally reviews of capacities of local communities will be carried out to determine their capacity building needs. Training materials will be adapted to the needs of the local communities in each of the replication states.
  4. 6 Revised forest division working plans that provide clear guidelines for the conservation management of MAPs in selected districts in replication states. Working Plan officers from the replication states will be invited to participate in the process of revising the forest working plans in the three project states. Additionally targeted workshops will be conducted in the replication states to enable the wider capacity building to undertake the required revisions.

#### **Outcome 5: Effective project monitoring and evaluation, lessons learning, and adaptive management**

**GEF Contribution:** \$ 1,100,000, **Co-financing** \$ 244,188

The following outputs will be achieved:

- 5.1 Project management systems that include adaptive management mechanisms developed and maintained. This will enable the effective management of this complex project. Depending on the progress made and problems faced, adaptive management will allow quick decision making and the required mid-course corrections.
- 5.2 Periodic project strategic and annual work planning completed according to agreed timetable. This will enable the setting of more concrete targets based on a wider consultation with stakeholders during the inception phase and also the tracking of the progress of the project.

- 5.3 Project monitored and evaluated regularly and lessons integrated into adaptive management process. Regular monitoring is crucial for the ensuring the efficient implementation of this complex project. The results of the monitoring will be used as feedback to the adaptive management process ensuring that the project is managed based on current and realistic information.
- 5.4 Project progress reports produced, reviewed and disseminated on schedule. Documentation of project experiences and results is an important activity of this project. This will enable the production of various communications materials to showcase the project experiences. These materials are essential for the advocacy work that will be undertaken.
- 5.5 Project results and lessons disseminated widely both in-country and more widely. Dissemination of project experiences and results is an important activity of this project as this will enable a wider set of people to learn from the project and expand the scope for replication of the successful models of this project.

### ***Project Indicators, Risks and Assumptions***

70. The key primary indicators of project success will be:

- ❖ Long-term viability populations of selected species of MAPs, including GSMPs, maintained or enhanced in FGBs and MPCAs within the project states as a result of the improved management of MAPs by SFDs and local communities.
- ❖ An enabling environment that supports the conservation and sustainable use of MAPs, including national and state-level strategies for the sustainable use and conservation of MAPs, with special reference to GSMPs.
- ❖ Evidence of the NMPB and project state SMPBs achieving their stated mandate as a result of the project having helped to develop their capacity.
- ❖ Sustainable harvesting methodologies available and being used for high priority MAPs, including GSMPs in at least 21 demonstration sites.
- ❖ Uptake and dissemination of major lessons learnt from the project elsewhere in India and potentially further afield.

71. The primary assumptions of this project are that significant global and national benefits in terms of the improved conservation status of MAP species, including GSMP, can be secured without addressing the demand side.

72. Other major assumptions are given in detail in the logframe but include the following:

- ❖ Key government agencies both at the national level, such as MoEF and NMPB, and at the state level, such as the SFDs and SMPBs remain interested in pursuing intersectoral dialogue and achieving changes in policy and management practice for more effective conservation and sustainable use of medicinal plants in general and GSMP in particular.
- ❖ Local communities will continue to be supportive of the conservation and sustainable use of medicinal plants.

- ❖ There will be interest and government finance made available within other states for replicating the successful lessons generated by this project.

### ***Expected global, national and local benefits***

73. By effectively mainstreaming the conservation and sustainable use of medicinal plants into the productive forest sector, the project hopes to produce the following national and global benefits:
- Preservation of a wide range of the genetic diversity of MAPs, including GSMP
  - Preservation of a broad range of biodiversity as the habitat of MAPs and thus associated species and ecological processes will also be protected including globally significant biodiversity
  - Maintenance of option values as by preserving greater genetic diversity, there is greater potential for discovering new uses for as yet undocumented species or for known species as these are investigated further or as new demands and uses develop.
  - Continued and improved access to affordable medicine by the rural poor and others both nationally and internationally.
  - Sustainable and potentially improved incomes for collectors, especially the most marginalized, through better prices and sustainable supplies
  - The development of new technologies and methods for sustainably harvesting MAPs, particularly GSMP.
  - The transfer of successful models and lessons learned from the demonstration sites to other parts of India and other countries where MAPs are under pressure in the wild.

### ***Country Ownership : Country Eligibility and Country Drivenness***

#### **A) COUNTRY ELIGIBILITY**

74. India is eligible for assistance from the GEF as it ratified the Convention on Biological Diversity on 18 February 1994 and notified its participation in the restructured GEF on 12 May 1994.

#### **B) COUNTRY DRIVENNESS**

75. This project was designed **by with the assistance of** FRLHT after a series of consultations with a wide range of stakeholders during the PDF-B process (for details refer to [www.frlht.org.in](http://www.frlht.org.in)). Subsequently, further consultations have been held with MoEF, the state governments of Arunachal Pradesh, Chhattisgarh and Uttaranchal, NMPB, and MoRD to reach an agreement on the project strategy and co-financing. Thus, the proposed objectives and project strategy are fully in line with both national and state-level priorities relating to the sustainable use and conservation of medicinal plants. In particular, the lack of intersectoral coordination has been identified as a key barrier to the effective management and conservation of medicinal plants diversity in India. Other barriers which have been identified include the limited capacity among local communities, the SFDs, the SMPB and the NMPB for the conservation and sustainable management of medicinal plant resources and for the documentation and conservation of Traditional Knowledge.

76. The commitment of the Government of India to the conservation and sustainable use of medicinal plants is reflected in the importance given to this sector in the 10<sup>th</sup> Five Year Plan and the budgetary allocations made for this sector to the Ministry of Environment and Forests and the Ministry of Health. The commitment of both GoI and state governments to this project is indicated by the high level of co-financing that is being provided to this project which exceeds US\$ 4.5 million in cash (reoriented baseline funding) and US\$ 1.9 million in kind. Additionally, recurrent project implementation expenditures have been underwritten by the MoEF and the SFDs and they have indicated their commitment by their willingness to continue the project initiatives beyond the project period. The Final Technical Report of the GoI-UNDP-GEF National Biodiversity Strategy and Action Plan (NBSAP) Enabling Activity project has placed a strong emphasis on the conservation and sustainable use of medicinal plants.
77. The proposed project is strongly supported by the UNDP India Country Office and will be part of a long-term initiative to improve the conservation status of medicinal plants, the associated traditional knowledge and the sustainable livelihoods of the local communities all over India. The first step of this initiative was a project implemented in partnership with GoI as part of the CCF-1 (1998-2002) in two states. Currently under CCF-2 a larger and more holistic initiative is under implementation in 9 states of India. Through the UNDP-GEF Small Grants Programme numerous small interventions in this sector have been implemented all over India.
78. The project is also fully consistent with UNDP's Country Programme (2003-2007) <[www.undp.org.in/ncpo.htm](http://www.undp.org.in/ncpo.htm)> The project is part of the Vulnerability Reduction and Environmental Sustainability theme, and specifically addresses the objectives of mainstreaming global environmental concerns especially biodiversity conservation into national projects, programmes and policies, and the strengthening of national capacity and capacity of local communities to address global environmental concerns.
79. The project also supports the Poverty Eradication and Sustainable Livelihoods theme, particularly the objective of strengthening partnerships between community-based organizations, civil society organisations and government agencies to develop, test and disseminate innovative, gender-equitable and community-managed approaches to sustainable livelihoods and environmentally sustainable natural resource management with a focus on medicinal plants.
80. The project through its work with local communities will support the UNDAF theme of Strengthening Decentralization and its sub-theme of capacity development for promoting effective community management.
81. The major thrust of the project interventions is capacity development for improved conservation and sustainable management of medicinal plants, especially GSMPs, which is part of UNDP's mandate.
82. This project is also consistent with the Convention on Biological Diversity (CBD) and its guidance from the Conference of the Parties. The full project is expected to provide models for replication, in other regions of India and other countries.
83. See Section IV, Part I for the endorsement by national operational focal point.

## ***Sustainability***

84. The main focus of the GEF intervention is removing key barriers that prevent the effective mainstreaming of policies and practices for conservation and sustainable use of medicinal plants across different relevant sectors. This is to be achieved through policy reforms at both national and state level and addressing the capacity and information barriers faced by key sectors such as the SFDs, the NMPBs, SMPBs, MAP collectors, and community forest owners, managers and users.
85. Many of the key components of the project have been designed to operate within the existing framework of State Government departments and administration systems and thereby will leverage on-going Government funding for existing programmes and activities. Key project components that will entail recurrent expenditure are being underwritten by government co-financing rather than GEF resources, including components such as the continued implementation of capacity development programmes in project states and the replication of major project components in other states.
86. At the field level, the project will seek to build on and strengthen existing community institutions where these exist and are appropriate to achieve project outcomes thereby increasing the social sustainability of the project. Additionally, as there is considerable technical expertise available within India, the project will make minimal use of international experts, thereby further increasing the sustainability of project outcomes and replication.
87. Given the importance placed on the sustainable use and conservation of medicinal plants by a wide range of stakeholders, including GoI and state governments, it is clear that financial and other resources are very likely to be made available to sustain and replicate effective project interventions that promote the conservation and sustainable use of medicinal plants. A good indicator of the level of government commitment is the importance given to the medicinal plants sector in the country's 10<sup>th</sup> Five Year Plan and the budgetary allocations made for this sector to the MoEF and the Ministry of Health.
88. Overall, the project's impacts are therefore likely to extend well beyond the life of the project. However, the extent of post-project sustainability will be re-assessed during the project's mid-term evaluation and steps taken to increase the long-term sustainability of project outcomes.

## ***Replicability***

89. Strategies for replication and the broader adaptation and application of the major lessons and models developed through the present project have been integrated into project design as these are key to generating greater a broader range of both national and global benefits.
90. One of the project's five outcomes is to develop materials and methods for both replication and wider dissemination of key lessons and successful models for the conservation and sustainable use of medicinal plants in other sites in the three project states as well as in four additional states selected as a target for replication where-ever possible more widely across the rest of India and internationally. Certain project components will be more easily replicated than others after adapting for local circumstances, such as policy reforms (e.g. the state-level MAP Conservation and Sustainable Use

Strategies, revised JFM Guidelines and Forest Working Plans) and training modules for MAP conservation management for the SFDs.

91. Models developed in community-owned or managed forests will tend to be more site-specific and while general lessons are likely to be transferable, the models themselves will need to be carefully adapted to local circumstances at potential replication sites.
92. Beyond the immediate national context, many of the lessons learnt from this project may be applicable in other tropical countries with a tradition of use of medicinal plants. Dissemination and uptake of important lessons and models will be greatly facilitated by the fact that FRLHT is a well-recognized organization within the medicinal plants field and is part of large international and national network which are concerned with the issues addressed by the project. MoEF, NMPB, SFDs and SMPBs will also play a key role in facilitating the process of replication and lessons learning along with other technical agencies and their networks.
93. Apart from the initial facilitation, the bulk of initiatives and activities relating to replication and lessons learning will be funded out of government budgets.

### PART III : MANAGEMENT ARRANGEMENTS

94. The project will be executed by the Ministry of Environment and Forests, GoI. The administration of project funds will be the joint responsibility of the UNDP and the MoEF. The MoEF's overall responsibility will be one of facilitating the required level of inter-sectoral coordination with other relevant ministries and departments of GoI especially the NMPB and also ensuring the required level of participation from the three state governments in which the project is to be implemented and also from the four state governments in which replication is to be done. More specifically, MoEF's project finance and management responsibilities will include: 1) ensuring that the committed co-financing is made available on a timely basis for project implementation by all concerned; 2) ensuring that funds are available for the four state governments for carrying out the replication activities; 3) coordinating the financing from UNDP and GEF with that from other sources; 4) assisting in preparing Terms of Reference for contractors and required tender documentation; and 5) chairing the National Steering Committee.
95. The UNDP Country Office will support project implementation by being responsible for maintaining project budget and project expenditures, recruiting and contracting project personnel and consultant services, subcontracting, assisting with equipment procurement, and providing other assistance upon request of the MoEF. Project implementation arrangements will streamline and decentralize UNDP's normal service delivery procedures in the interest of cost-effective and time-efficient project management. The UNDP Country Office will also monitor project implementation and achievement of the project outputs and ensure the proper use of UNDP/GEF funds. Financial transactions, reporting and auditing will be carried out in compliance with national regulations and UNDP rules and procedures. The UNDP Country Office will carry out its day-to-day management and monitoring functions through an assigned Programme Officer in New Delhi, who will be also responsible for the day-to-day coordination with the project team.
96. Project implementation will be overseen by a **National Steering Committee (NSC)**, which will be responsible for ensuring that the project is implemented in line with the agreed project design and

consistent with national and state development policies. The NSC will meet at least once a year and it will provide the required oversight to this project and also ensure the overall co-ordination of the programme. The NSC will be chaired by the Additional Secretary, Ministry of Environment and Forest, (MoEF), Government of India, (GoI) and its membership will include the concerned Joint Secretaries from MoEF, Ministry of Rural Development, Department of Indian System of Medicine and Homeopathy, GoI; Principal Secretaries of the departments of Environment & Forests, Health and Rural Development of the respective State governments; Principal Chief Conservator of Forests of the three states; one CBO and one NGO representative from each of the three project states; CEO of the National Medicinal Plants Board (NMPB); representatives of Department of Science and Technology (DST), Department of Bio-technology (DBT), Council for Scientific and Industrial Research (CSIR); representatives of UNDP, Director of the Foundation for the Revitalisation of Local Health Traditions (FRLHT) and representatives of the private sector and other experts. The meetings of the NSC will be convened by the National Programme Director who will be the concerned Joint Secretary in MoEF.

97. The **Project Implementation Working Group (PIWG)** of the NSC will be responsible for the day to day management of the project. The PIWG will be chaired by the Joint Secretary, MoEF, GoI and its membership will include the Principal Chief Conservator of Forests of the three project states, representative of the NMPB, one CBO and one NGO representative from each of the three project states; representative of UNDP, Director of FRLHT and directors of other technical agencies. The Joint Secretary, MoEF will be the National Project Director (NPD) and will chair the PIWG. The NPD will be responsible for ensuring the proper implementation of the project on behalf of the Government.
98. A **Project Management Unit (PMU)** with a full-time project manager supported by one programme officer, one secretary and one accounts officer will assist the PIWG of the NSC in the implementation of this project. The location of the PMU will be determined during the Project Inception Phase. The project manager will be in charge of overseeing the day-to-day project implementation and management of project activities, organizing and overseeing national and international consultant input, and overseeing monitoring and evaluation and ensuring that the project is on track. One of the most important responsibilities of the project manager will be working effectively with members of the PIWG and IWGs to ensure that project-inspired activities proceed on schedule within each partner Ministry and non-governmental organization. The PMU will facilitate national and state level implementation of the project. The PMU will also work closely with state-level Project Coordinators and their teams in the initial stages until these are phased out. The PMU will also work closely with the STA
99. The lead agency for the implementation of this project in the three states will be the respective SFDs with technical inputs from FRLHT and other technical agencies either directly and/or via the Project Manager. Additional technical guidance will be provided to FRLHT and Project Manager through periodic inputs from a Senior Technical Advisor and a Technical Advisory Group (see below). For the sites which are managed by local communities, local CBOs or NGOs will take the lead in project implementation again with technical guidance from FRLHT and other technical agencies, who will also play a major role in capacity development at the state and local level. Project activities will be implemented in the states in partnerships between the state forest departments, community based organizations, civil society and the private sector. In the initial

stages of the project a small project coordination team linked to the central Project Management Unit will play a key role in catalyzing and facilitating project implementation. The precise form this will take will be negotiated and agreed during the project inception phase. One model is to have a single dedicated project team with Project Coordinator which is responsible for technical aspects of implementation and coordination, that will spend 4 months per year in each state setting up the project. Alternatively, there could be a dedicated small team within each state. (There would not be much difference in the cost of these options so it is still possible to decide this during the inception phase.) The role of the team/teams would be gradually phased out during the course of the project as government departments, community institutions and other existing structures gradually take full ownership of project implementation.

100. **State-level project implementation working groups (IWGs)** will be established in each state with representation from all key state departments to oversee project implementation. Each IWG will be chaired by the Principal Chief Conservator of Forests (PCCF) and operationally headed by the designated nodal forest officer for Medicinal Plants in the state. Other members will include: representatives of the state departments of Rural Development, Health, State Medicinal Plants Board; three NGO representatives, 3 Joint Forest Management Committee representatives, 2 representatives of Community-based Organisations and/or Enterprises, the Head of State Forest Department Working Plan Unit and representative from the private sector to be nominated by CII. In each of the three states, the Principal Chief Conservator of Forests will be responsible for effective and timely project implementation.
101. The project will be implemented at each of the sites by a **Local Management Group (LMG)**. In the case of state-owned forests, these LMGs will be chaired by the concerned District Forest Officer; while at sites which are community owned and/or managed a representative of the local community will chair the LMG. The LMG will comprise of two representatives of the state forest department, one representative each from the state Rural Development, Health departments and SMPB, two representatives of the local community, and three representatives of the civil society including one researcher. The LMGs will work under the supervision of the IWG in the respective states.
102. The successful implementation of this project requires strong technical leadership and a high level of coordination due to its inter-sectoral nature and its implementation at the national level as well as in three project states and four replication states. While FRLHT remain the lead technical agency there will be other technical agencies such as National Botanical Research Institute and National Institute of Science Communication and Information Resources involved with project implementation. Their role will be strengthened in two ways. First, a small **Technical Advisory Group (TAG)** will be constituted to advise the NSC, the PIWG and the PMU on all technical aspects of the project. TAG members will have expertise in issues relating to the sustainable use and conservation of MAPs including appropriate technical skills in botany, ecology, economics and social sciences, as well as specific knowledge about key areas such as sustainable harvesting of MAPs, the MAP trade, traditional medicine and knowledge about MAPs, IPRs, capacity development and bringing about institutional change. TAG members will be selected by a small committee constituted by the national PIWG in close consultation with UNDP-India. Criteria for selecting TAG members will include expertise and experience as well as ability to devote time to advise the project. Complementarity of expertise and skills within the TAG will be ensured. At

least one TAG member should have major international expertise on medicinal plants conservation and sustainable use from other tropical or subtropical countries.

103. Additionally, a **Senior Technical Advisor (STA)** with significant international expertise will be appointed to strengthen technical leadership and coordination by providing independent guidance to FRLHT's technical leadership. The STA will be selected by a committee constituted by the PIWG in close consultation with UNDP-India. The STA will be an independent expert, who will work intensively with the project during the course of the first year to put in place systems and processes for effective project implementation, monitoring and evaluation, and adaptive management. After the first year, the STA will remain closely associated with the project for the rest of the project period to provide expert advice and guidance on a basis to be determined at the end of the first year. The Project Management Unit (PMU) will support the STA.
104. **FRLHT along with other identified technical agencies** will facilitate the technical orientation and capacity building of the implementing partners in the three states. The technical agencies will work closely with the STA, TAG, PMU and state-level project coordinators to amongst other things: develop a strong M&E plan including good baselines; develop a strategy for phased project implementation; appraise the implementation proposals received to ensure that they are in line with the objectives and operational elements of the project, and assist in the periodic evaluation of quality and pace of technical progress.
105. Detailed ToRs will be developed for all project implementing structures during the Project Inception Phase and this will guide the project implementation.
106. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The **UNDP logo** should be more prominent -- and separated from the **GEF logo** if possible, as UN visibility is important for security purposes.

#### PART IV : MONITORING AND EVALUATION PLAN AND BUDGET

107. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP/GEF. The Logical Framework Matrix in Annex 1 of the Executive Summary provides *performance* and *impact* indicators for project implementation along with their corresponding *means of verification*. These will form the basis on which the project's Monitoring and Evaluation system will be built.
108. The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized at the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

## 1. MONITORING AND REPORTING

### 1.1. Project Inception Phase

109. A Project Inception Workshop will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs) as appropriate.
110. A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the project's logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.
111. Additionally, the purpose and objective of the Inception Workshop (IW) will be to: (i) introduce project staff with the UNDP-GEF *expanded team* which will support the project during its implementation, namely the CO and responsible Regional Technical Advisor; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and RCU staff vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), Tripartite Review Meetings, as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget rephasings.
112. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed, in order to clarify for all, each party's responsibilities during the project's implementation phase.

### 1.2. Monitoring responsibilities and events

113. A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Tripartite Reviews, Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.
114. Day to day monitoring of implementation progress will be the responsibility of the Project Coordinator, Director or CTA (depending on the established project structure) based on the project's Annual Work Plan and its indicators. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

115. The Project Coordinator and the Project GEF Technical Advisor will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from UNDP-CO and assisted by the UNDP-GEF Regional Coordinating Unit.. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. The local implementing agencies will also take part in the Inception Workshop in which a common vision of overall project goals will be established. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.
116. Measurement of impact indicators related to global benefits will occur according to the schedules defined in the Inception Workshop and tentatively outlined in the indicative Impact Measurement Template at the end of this section and in the Monitoring and Evaluation Tracking Tool for SP2 projects. The measurement, of these will be undertaken through subcontracts or retainers with relevant institutions (e.g. vegetation cover via analysis of satellite imagery, or populations of key species through inventories) or through specific studies that are to form part of the projects activities (e.g. measurement carbon benefits from improved efficiency of ovens or through surveys for capacity building efforts) or periodic sampling such as with sedimentation.
117. Periodic monitoring of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.
118. UNDP will conduct yearly visits to projects that have field sites, or more often based on an agreed upon schedule to be detailed in the project's Inception Report / Annual Work Plan to assess first hand project progress. Any other member of the Steering Committee can also accompany, as decided by the SC. A Field Visit Report will be prepared by the County Office and circulated no less than one month after the visit to the NSC and the project team.
119. *Annual Monitoring* will occur through the *Tripartite Review (TPR)*. This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Tripartite Review (TPR) at least once every year. The first such meeting will be held within the first twelve months of the start of full implementation. The project proponent will prepare an Annual Project Report (APR) and submit it to UNDP-CO at least two weeks prior to the TPR for review and comments.
120. The APR will be used as one of the basic documents for discussions in the TPR meeting. The project proponent will present the APR to the TPR, highlighting policy issues and recommendations for the decision of the TPR participants. The project proponent also informs the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

### ***Terminal Tripartite Review (TTR)***

121. The terminal tripartite review is held in the last month of project operations. The project proponent is responsible for preparing the Terminal Report and submitting it to UNDP-CO and LAC-GEF's Regional Coordinating Unit. It shall be prepared in draft at least two months in advance of the TTR in order to allow review, and will serve as the basis for discussions in the TTR. The terminal tripartite review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learnt can be captured to feed into other projects under implementation of formulation.
122. The TPR has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks are provided in Annex-B of the Executive Summary and Table H-2 and these will be fine tuned at the Inception Workshop. These benchmarks are based on delivery rates, and qualitative assessments of achievements of outputs.

### 1.3. Project Monitoring Reporting

123. The Project Coordinator in conjunction with the UNDP will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (f) are mandatory and strictly related to monitoring, while (g) through (h) have a broader function and the frequency and nature is project specific to be defined throughout implementation.

#### ***(a) Inception Report (IR)***

124. A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/ Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the UNDP or consultants, as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.
125. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation.
126. When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP will review the document.

#### ***(b) Annual Project Report (APR)***

127. The APR is a UNDP requirement and part of UNDP's Country Office central oversight, monitoring and project management. It is a self -assessment report by project management to the CO and provides input to the country office reporting process and the ROAR, as well as forming a key input to the Tripartite Project Review. An APR will be prepared on an annual basis prior to the Tripartite Project Review, to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.
128. The format of the APR is flexible but should include the following:
- An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome
  - The constraints experienced in the progress towards results and the reasons for these
  - The three (at most) major constraints to achievement of results
  - AWP, CAE and other expenditure reports (ERP generated)
  - Lessons learned
  - Clear recommendations for future orientation in addressing key problems in lack of progress

***(c) Project Implementation Review (PIR)***

129. The PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a Project Implementation Report must be completed by the CO together with the project. The PIR can be prepared any time during the year (July-June) and ideally prior to the TPR. The PIR should then be discussed in the TPR so that the result would be a PIR that has been agreed upon by the project, the executing agency, UNDP CO and the concerned RC.
130. The individual PIRs are collected, reviewed and analysed by the RCs prior to sending them to the focal area clusters at the UNDP/GEF headquarters. The focal area clusters supported by the UNDP/GEF M&E Unit analyse the PIRs by focal area, theme and region for common issues/results and lessons. The TAs and PTAs play a key role in this consolidating analysis.
131. The focal area PIRs are then discussed in the GEF Interagency Focal Area Task Forces in or around November each year and consolidated reports by focal area are collated by the GEF Independent M&E Unit based on the Task Force findings.
132. The GEF M&E Unit provides the scope and content of the PIR. In light of the similarities of both APR and PIR, UNDP/GEF has prepared a harmonized format for reference.

***(d) Quarterly Progress Reports***

133. Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF regional office by the project team. See format attached.

***(e) Periodic Thematic Reports***

134. As and when called for by UNDP or the Implementing Partner, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

***(f) Project Terminal Report***

135. During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

***(g) Technical Reports*** (project specific- optional)

136. Technical Reports are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

***(h) Project Publications*** (project specific- optional)

137. Project Publications will form a key method of crystallizing and disseminating the results and achievements of the Project. These publications may be scientific or informational texts on the activities and achievements of the Project, in the form of journal articles, multimedia publications, etc. These publications can be based on Technical Reports, depending upon the relevance, scientific worth, etc. of these Reports, or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if any of the Technical Reports merit formal publication, and will also (in consultation with UNDP, the government and other relevant stakeholder groups) plan and produce these Publications in a consistent and recognizable format. Project resources will need to be defined and allocated for these activities as appropriate and in a manner commensurate with the project's budget.

## **2. INDEPENDENT EVALUATION**

138. The project will be subjected to at least two independent external evaluations as follows:-

### ***(i) Mid-term Evaluation***

139. An independent Mid-Term Evaluation will be undertaken at the end of the second year of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by UNDP.

### ***(ii) Final Evaluation***

140. An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP.

### **Audit Clause**

141. The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

## **3. LEARNING AND KNOWLEDGE SHARING**

142. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition:
- The project will participate, as relevant and appropriate, in UNDP/GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics. UNDP/GEF shall establish a number of networks, such as Integrated Ecosystem Management, eco-tourism, co-management, etc, that will largely function on the basis of an electronic platform.
  - The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.

143. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an on-going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities.

**TABLE H-1: INDICATIVE MONITORING AND EVALUATION WORK PLAN AND CORRESPONDING BUDGET**

<b>Type of M&amp;E activity</b>	<b>Responsible Parties</b>	<b>Budget US\$</b> <i>Excluding project team Staff time</i>	<b>Time frame</b>
Inception Workshop	<ul style="list-style-type: none"> <li>▪ Project Coordinator</li> <li>▪ UNDP</li> </ul>	25,000	Within first two months of project start up
Inception Report	<ul style="list-style-type: none"> <li>▪ Project Team</li> <li>▪ UNDP CO</li> </ul>	None	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	<ul style="list-style-type: none"> <li>▪ Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members</li> </ul>	To be finalized in Inception Phase and Workshop. Indicative cost 100,000	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	<ul style="list-style-type: none"> <li>▪ Oversight by Project GEF Technical Advisor and Project Coordinator</li> <li>▪ Measurements by regional field officers and local IAs</li> </ul>	To be determined as part of the Annual Work Plan's preparation. Indicative cost 200,000	Annually prior to APR/PIR and to the definition of annual work plans
APR and PIR	<ul style="list-style-type: none"> <li>▪ Project Team</li> <li>▪ UNDP</li> </ul>	None	Annually
TPR and TPR report	<ul style="list-style-type: none"> <li>▪ Government Counterparts</li> <li>▪ UNDP</li> <li>▪ Project team</li> </ul>	None	Every year, upon receipt of APR
Steering Committee Meetings	<ul style="list-style-type: none"> <li>▪ Project Coordinator</li> <li>▪ UNDP CO</li> </ul>	None	Following Project IW and subsequently at least once a year
Periodic status reports	<ul style="list-style-type: none"> <li>▪ Project team</li> </ul>	5,000	To be determined by Project team and UNDP CO
Technical reports	<ul style="list-style-type: none"> <li>▪ Project team</li> <li>▪ Hired consultants as needed</li> </ul>	15,000	To be determined by Project Team and UNDP-CO
Mid-term External Evaluation	<ul style="list-style-type: none"> <li>▪ Project team</li> <li>▪ UNDP- CO</li> <li>▪ UNDP-GEF Regional Coordinating Unit</li> <li>▪ External Consultants (i.e. evaluation team)</li> </ul>	20,000	At the mid-point of project implementation.
Final External Evaluation	<ul style="list-style-type: none"> <li>▪ Project team,</li> <li>▪ UNDP-CO</li> </ul>	30,000	At the end of project implementation

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team Staff time</i>	Time frame
	<ul style="list-style-type: none"> <li>▪ UNDP-GEF Regional Coordinating Unit</li> <li>▪ External Consultants (i.e. evaluation team)</li> </ul>		
Terminal Report	<ul style="list-style-type: none"> <li>▪ Project team</li> <li>▪ UNDP-CO</li> <li>▪ External Consultant</li> </ul>	None	At least one month before the end of the project
Lessons learned	<ul style="list-style-type: none"> <li>▪ Project team</li> <li>▪ UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc)</li> </ul>	21,000 (average 3,000 per year)	Yearly
Audit	<ul style="list-style-type: none"> <li>▪ UNDP-CO</li> <li>▪ Project team</li> </ul>	7,000 (average \$1000 per year)	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	<ul style="list-style-type: none"> <li>▪ UNDP</li> <li>▪ Government representatives</li> </ul>	20,000 (average one visit per year)	Yearly
TOTAL INDICATIVE COST		US\$ 443,000 <sup>8</sup>	
<i>Excluding project team staff time and UNDP staff and travel expenses</i>			

## Annex H-2: IMPACT MEASUREMENT TEMPLATE

(These indicators will be drawn from the Logframe Matrix and are related to the measurement of global benefits achieved by the project rather than project implementation progress. They will to be fine tuned and detailed in the Inception Workshop). The table below is an example.

Key Impact Indicator	Target	Means of Verification	Sampling frequency	Location
Area of forest actively managed for sustainable use of MAPs and maintenance of MAP diversity especially of GSMPs.	By Year 4 at least 4 FGBs and MPCAs established in each project state resulting in 18,000 ha of forest managed for sustainable use of MAPs and maintenance of MAP diversity especially of GSMPs and by Year 6 three more FGBs and MPCAs established in each state taking the total area under focused MAP management to 31,500 ha.	Government records, field visits and project M & E reports.	In Years 3, 4, 5 & 6 of the project.	In all FGBs & MPCAs.
Status (ie long-term population viability) of selected MAP species	Viability of populations of selected species maintained or improved. Specific	Ecological survey reports.	Yrs 2 & 3, 5 and end of	In all FGBs & MPCAs.

Key Impact Indicator	Target	Means of Verification	Sampling frequency	Location
including GSMPs within FGB/MPCA complexes.	targets to be set in Yrs 2 & 3.		project.	
Status of selected MAP including GSMP species in wider exploited forests surrounding FGB/MPCA complexes.	Viability of populations of selected species, especially GSMPs maintained or improved. Specific targets to be set in Yrs 2 & 3.	Ecological survey reports.	Yrs 2 & 3, 5 and end of project.	In all forest divisions of the project.
Increase in area (ha) cultivated with different MAP species, especially GSMPs by government cultivation/afforestation programmes.	Targets to be set by end of Yr 1.	Government records.	Annually.	In the three project states.
Increase in number of MAP species, especially GSMPs used in afforestation / cultivation programmes.	Targets to be set at inception workshop.	Government records.	Annually.	In the three project states.

## PART V: LEGAL CONTEXT

*This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of India and the United Nations Development Programme, signed by the parties on [date]. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.*

*The UNDP Resident Representative in India is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:*

- a) Revision of, or addition to, any of the annexes to the Project Document;*
- b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;*
- c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and*
- d) Inclusion of additional annexes and attachments only as set out here in this Project Document*

## **SECTION II : Strategic Results Framework And GEF Increment**

### PART I : INCREMENTAL COST ANALYSIS

*Refer to Annex A of the Executive Summary.*

### PART II : LOGICAL FRAMEWORK ANALYSIS

*Refer to Annex B of the Executive Summary.*

## SECTION III : Total Budget and Workplan

### 1. Project Document for Work Programme entry

GEF Outcome/Atlas Activity	Responsible party	Source of funds	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
			US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$
1. An enabling environment for mainstreaming the conservation and sustainable use of MAPs into forest management policies and practices at the national level.	MoEF/NMPB/FRLHT	GEF	180,477	233,145	101,893	19,485				535,000
	MoEF/NMPB/FRLHT	Govt.	331,682	331,110	297,333	28,255				988,380
	Total		512,159	564,255	399,226	47,740				1,523,380
2. Forest management policies in the three project states that promote and support the conservation and sustainable use of MAPs	SFDs of the three project states/ NMPB/ MoEF/FRLHT	GEF	29,000	172,512	195,699	182,321	148,140	47,328		775,000
	SFDs of the three project states/ NMPB/ MoEF/FRLHT	Govt.	18,500	775,614	802,558	174,952	149,304	6,994		1,927,922
	Total		47,500	948,126	998,257	357,273	297,444	54,322		2,702,922
3. Conservation and sustainable use of MAPs are mainstreamed at the local level into government and community forest management norms and practices at demonstration sites in the three project sites	SFDs of the three project states/ NMPB/ MoEF/FRLHT	GEF		309,769	411,669	432,445	442,445	113,672		1,710,000
	SFDs of the three project states/ NMPB/ MoEF/FRLHT	Govt.		180,466	229,978	244,118	254,118	91,328		1,000,008
	Total			490,235	641,647	676,563	696,563	205,000		2,710,008
4. Materials and methods developed for replicating the successful models of conservation and sustainable use of medicinal plants across other sites in the three states, and more broadly.	MoEF/NMPB/SFDs of the three project states/FRLHT	GEF			40,698	118,218	275,196	275,196	105,692	815,000
	MoEF/NMPB/SFDs of the three project states/FRLHT	Govt.			95,942	367,249	819,188	819,189	217,055	2,318,623
	Total				136,640	485,467	1,094,384	1,094,385	322,747	3,133,623
5. Effective project monitoring and evaluation, lessons learning, and adaptive	MoEF/NMPB/SFDs of the three project states/FRLHT	GEF	137,908	113,024	146,280	133,024	136,280	133,024	300,460	1,100,000

GEF Outcome/Atlas Activity	Responsible party	Source of funds	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
			US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$
management.	MoEF/NMPB/SFDs of the three project states/FRLHT	Govt.	30,393	30,392	30,393	30,392	30,393	30,392	30,833	213,188
	FRLHT	NGO	4,500	4,500	4,500	4,500	4,500	4,500	4,000	31,000
	Total		172,801	147,916	181,173	167,916	171,173	167,916	335,293	1,344,188
	Totals by financing source	GEF	347,385	828,450	896,239	885,493	1,002,061	569,220	406,152	4,935,000
		Govt.	380,575	1,317,582	1,456,204	844,966	1,253,003	947,903	247,888	6,448,121
		NGO	4,500	4,500	4,500	4,500	4,500	4,500	4,000	31,000
<b>Totals</b>			<b>732,460</b>	<b>2,150,532</b>	<b>2,357,154</b>	<b>1,734,959</b>	<b>2,259,564</b>	<b>1,521,623</b>	<b>658,040</b>	<b>11,414,121</b>

**Note: Other technical agencies identified during the inception and implementation of the project will also be involved in project implementation.**

## SECTION IV : Additional Information

### PART I : OTHER AGREEMENTS

Note: attach endorsement letter(s) .

[Once the GEF Council has approved the project, add letter(s) of financial commitment, MOUs with executing agency if relevant, and other official agreements.]

### PART II : ORGANIGRAM OF PROJECT (OPTIONAL)

### PART III : TERMS OF REFERENCES FOR KEY PROJECT STAFF AND MAIN SUB-CONTRACTS

[NOTE:. This Part should be added only after the GEF has approved the project, and before requesting CEO endorsement. Include TORs for Project Manager, and CTA. TORs for other key staff or sub-contracts can be developed during the project's inception workshop].

### PART IV : STAKEHOLDER INVOLVEMENT PLAN

During the PDF-B Phase priority was given to the identification of primary stakeholders in the medicinal plants sector who have direct dependence on medicinal plant resources as such dependence has major implications for resource sustainability. After the national inception workshop where there was representation from the 7 PDF-B states and from the national ministries and related departments, a series of discussions were held with the representatives of various government and non-government agencies working in the biodiversity related issues in the respective states. At the national level, stakeholders range from the Central Ministries (including MoEF, Ministry of Health & Family Welfare, Department of Science and Technology (DST), to relevant national NGOs and central research institutions.

The PDF-B core team members visited the states to hold discussions and seek inputs in identifying the primary stakeholders. The process adopted in these consultations included sharing information about various aspects of the medicinal plants sector in the country<sup>9</sup> ranging from its diversity and richness to the extensive traditional knowledge associated with these resources that exists in India. These deliberations helped to clearly identify the major stakeholder groups in each of the states and then to identify sub groups within. A key part of the state-level consultation process was to:

- ◆ Ascertain the expectations of each of the stakeholder groups and main actors

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<sup>9</sup> This was based on the FRLHT's experience in peninsular India through DANIDA Project in 3 states and CCF I in 2 states

- ◆ Share proposed project priorities as identified by FRLHT with participants in order to obtain their views and suggestions and thereby refine and add to state-specific priorities.
- ◆ Communicate the outcome of these consultations widely and ensure a transparent process to help stakeholders develop a sense of ownership to this process.

Five broad categories of stakeholders were identified at the state-level: 1) Forest owners and managers including both SFDs and communities; 2) traditional medicine practitioners and other holders of traditional knowledge; 3) NGOs, CBOs and farmers active in the MAPs sector; 4) Industries and trading associations/organizations involved with the MAPs sector; and 5) Research institutions, universities, colleges and hospitals involved in research and use of MAPs and traditional medicine. The consultations also included MAPs collectors, notably tribal people and women

The second step of the PDF-B process was to facilitate identification of two active and keen representatives from each of the five major stakeholder groups (depending on whether all the five stakeholder groups existed and were active in the state) to be part of the State Level Planning Committee (SLPC) constituted later by the State Government. The SLPCs were chaired by the Principal Secretaries of (Forests), (exception Chhattisgarh, where the Hon. Forest Minister was the Chairman).

The government also constituted a Working Group (WG) comprising of 5-8 persons drawn out of the membership of the SLPC, with a competent local expert (from either Government or Non-Government) to act as the convenor of the WG. This WG then conducted the intensive consultative process as per the guidelines and orientation manual<sup>10</sup> prepared for this purpose by FRLHT.

The activities of the WG included and were aimed at obtaining inputs, guidance and support for project objectives from the identified stakeholder groups, through different mechanisms and in different stages of the Preparation Phase. The principle adopted in soliciting consultation and suggestion from the stakeholders was to consult 'pure' groups of stakeholders and not a mix of different stakeholder groups at any of the organised consultations. This was done to provide fair and equal opportunity to each of the stakeholder groups and to avoid dominance of one group over the other.

The following activities were conducted in order to achieve information dissemination, consultation and participation.

- **Meetings with national authorities and institutional level meetings with government and NGO representatives:** Numerous preparatory activities/consultations were organised including an inception workshop in October, 2002 at New Delhi in which MoEF officials, SFD officials and representatives of various NGOs and research organisations, academic institutions and UNDP participated to conceptualise the project idea.
- **Meetings with local institutions/stakeholders:** Throughout the Preparation Phase teams responsible for baseline studies and assessments conducted numerous meetings with regional, state and local institutions with potential or demonstrated interest in the project. The objective of these meetings was to obtain information about their current programs and approaches relating to biodiversity especially

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<sup>10</sup> Guidelines for State Level consultation for preparing a community oriented action plan for medicinal plants conservation and sustainable utilisation of medicinal plants prepared by FRLHT

of MAPs, institutional strengths and weaknesses, as well as interest and capacities for participating in the project. The baseline studies included secondary research and compilation and primary research in 3 representative areas in each state.

- **Structured gathering of information:** Several structured forms of consultation were applied for obtaining specific information in areas such as institutional capacities (for public institutions representing potential partners in the project), biodiversity knowledge and application, past experience related to development action and research in medicinal plants and demonstrated capacity to take up one or many of the components of the project towards achieving the project objectives.
- **Dissemination of information:** In order to promote transparency and facilitate participation, a Communication Plan for the Preparatory Phase was put in place aimed at dissemination of information about the project rationale and objectives. As part of this plan a web based e-group consultation was organised and run by the GEF plan coordinator from FRLHT for a period of 50 days during April to June 2003, when the consultative process was in operation at the state level. More than 70 interested sectoral people joined this e-group discussion and contributed to the planning process. In three of the project states Radio was also used to disseminate the information related to the project planning and about the multifaceted nature of the medicinal plants sector.
- **Public hearings for general public:** The WGs in the states conducted several public hearings to solicit opinions and suggestions from the general public on specific issues such as need for conservation of MAPs and the knowledge related to such resources in the state. Most of these were organised by taking advantage of public assemblages already taking place at the village level in the form of weekly fairs and religious congregations.
- **Questionnaires for gathering opinion from experts:** A well structured questionnaire was prepared by the WG in each state and this was sent to known experts in the field, who otherwise did not prefer to participate in other modes of participation, to get their considered views on the proposed project components. The number of such questionnaire based participation ranged between 50 to 300 in the states.
- **Meetings to ensure policy level and political commitment:** The final meeting of the SLPC in the states was either held at the level of the Hon. Chief Minister of the states or at the Forest Minister/Health Minister level. In Uttaranchal the meeting was held at the level of Chief Secretary to obtain complete government concurrence on the project. In Arunachal Pradesh the Action Plan was cleared at the level of Hon. Health Minister of the State. In two states, viz; Sikkim and Meghalaya, FRLHT GEF Plan Coordinator was given time to make a presentation about the project and its development process to the full Cabinet of the State. This resulted in obtaining complete support of the state government.

## **The stakeholder involvement plan for implementation of the project:**

The implementation phase of the project is envisaged to derive strength from the experience of the intensive consultation process adopted during the PDF-B process.

### Mechanisms and Strategies for Promoting Stakeholder Participation

#### **A. Approach and Principles**

The participatory approach is an integral part of the project's implementation strategy, as it has been the case during the Preparation Phase. A participatory approach to activities is built in all stages of the project cycle, including monitoring and evaluation, and will be refined during the inception phase.

- 1. *Information, as a prerequisite to participation.*** Successful participation requires transparency and full and fair access to information. The project has devised a communication strategy to ensure that the flow of information is continuous and targeted to all audiences. Several mechanisms will be put in place through the project to ensure that all stakeholders are informed about activities and overall advances and progress in implementation. These mechanisms will be targeted at different stakeholder groups taking into account their unique requirements.
- 2. *Build on the existing participatory institutions.*** The project will take complete advantage of the national and state policy driven participatory structures constituted under the Joint Forest Management resolutions of the GoI and the states. The JFM committees are functioning in the states to protect and manage the forest areas allocated to them. There are Forest Development Agencies (FDAs) in the form of federations of the village level JFM societies and these have the capacities for administrative and financial decision making. A novel mechanism of constituting Task Teams for different specific elements of the project will be developed to facilitate intensive implementation of components of the project in a participatory mode. This will be based on the Team Think concept of social development through participation. While different Task Teams will be responsible for specific components, the task of integrating all the components will be facilitated by the FDAs.
- 3. *Sustainability through capacity building in local state institutions.*** The project will target the institutions operating at the community level to enable them to actively participate in developing and implementing activities to ensure continuity and replicability once the project is finalized. A novel horizontal method of capacity building developed in one another project related to development of sustainable harvest methods for NTFPs called Community to Community Training (CTCT) will be adopted to disseminate the lessons learnt during the project implementation in each of the states. The process involves organisation and conducting of training programmes by the Task Teams of one village for other village communities under the umbrella of JFM committees. This comes in as a very handy and useful mechanism for transfer of experiences in the most efficient and effective way.

#### **B. Formal Mechanisms of participation**

The formal mechanisms of participation and the various project implementation structures are outlined in the Management Arrangements in Part III. These arrangements will be validated during the inception phase of the project following additional consultation with potential members.

At the national level, formal participation in the project will be achieved through the broad based *National Steering Committee* made up of representatives of GoI Ministries and departments, the state governments, non- government organisations, community –based organisations, research institutions and UNDP.

At the state and the local level, the SLPCs created during the planning phase will continue to provide guidance to the implementation of the project, while at the local level it is designed to facilitate participation at the community and zone levels through the Task Teams of the JFM. There is a strong presence of the Panchayati Raj Institutions (local government bodies in the states and efforts will be made to integrate them in to the Task Teams.

At the state level three types of organisations will be involved in the implementation of the project components. They belong to;

- I. Government agencies other than those already mentioned
- II. Autonomous Government and Non Government Research and Academic institutions
- III. Community Level Organisations

### Agencies to be involved in different aspects of project implementation

	Project State	Government agencies	Autonomous Government and Non Government Research and Academic institutions	Community Level Organisations
1	Arunachal Pradesh	<ul style="list-style-type: none"> <li>• Department of Horticulture</li> <li>• Dept of Rural Development</li> <li>• Forest Development Corporation</li> <li>• Department of ISM</li> </ul>	<ul style="list-style-type: none"> <li>• RRL Itanagar</li> <li>• G B Pant Institute of Himalayan Environment and Development, Itanagar</li> <li>• Botanical Survey of India</li> <li>• State Biodiversity Research and Development Trust, Itanagar</li> <li>• State Forest Research Institute</li> <li>• Himalayan Indigenous Medicinal and Aromatic Plant Research &amp; Development Society Itanagar</li> <li>• WWF India, Itanagar</li> </ul>	<ul style="list-style-type: none"> <li>• Orchid Society of Arunachal Pradesh</li> <li>• Oju Welfare Association Naharlagun</li> <li>• R K Mission Arunachal Pradesh</li> <li>• Native People Committee, Itanagar</li> <li>• Pali Vidya Peeth, Itanagar</li> <li>• Herbs for Better Health Toing Dibang Valley</li> </ul>
2	Chhattisgarh	<ul style="list-style-type: none"> <li>• Department of Horticulture</li> <li>• Dept of Rural Development</li> <li>• Forest Development Corporation</li> <li>• Department of ISM</li> <li>• Department of Agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• SFRI, Jabalpur</li> <li>• TFRI Jabalpur</li> <li>• Shrishti Herbal Research Institute</li> <li>• Ravishankar University Raipur</li> </ul>	
3	Uttaranchal	<ul style="list-style-type: none"> <li>• Department of Horticulture</li> <li>• Dept of Rural Development</li> <li>• Forest Development Corporation</li> <li>• Cooperative Department</li> <li>• Beshaj Sangh</li> </ul>	<ul style="list-style-type: none"> <li>• CCRAS Ranikhet</li> <li>• HRDI, Gopeshwar</li> <li>• Wildlife Institute of India Dehradun</li> <li>• SHER, Dehradun</li> <li>• INHERE, Masi</li> <li>• G B Pant Institute of Himalayan Environment, Kosi Almora</li> <li>• G B Pant University, Pantnagar</li> <li>• ICFRE, Dehradun</li> <li>• Vivekananda Hill Agriculture Research Institute, Almora</li> <li>• HAPPRC, Srinagar</li> <li>• CIMAP, Pantnagar</li> <li>• Oushadhiya Vanaspati Van Samsha, Dehradun</li> </ul>	<ul style="list-style-type: none"> <li>• Shri Nanda Devi Lok Vikas Samithi Gopeshwar</li> </ul>

These organisations and agencies have actively participated and contributed to the process of stakeholder consultation as well as the development of overall proposal. The specific activities in which these organisations will be involved will be decided in consultation with the organisations during the inception workshop of the project.

### **C. Specific activities and participatory mechanisms**

The participatory approach is built into the design of the project and as such does not reflect itself in a restricted set of activities. Nevertheless some activities have a direct aim at fostering participation:

1. A network of demonstration initiatives will be put in place in order to integrate the local stakeholders and facilitate the learning process.
2. A web page containing different topics relating to the project will be created and maintained (activities, directory of organizations, biodiversity, achievements of the project, best practices, methodologies, technical support materials for transfer of technologies, reports).
3. Facilitated participatory appraisal and planning workshops on biodiversity and MAP friendly practices will be held throughout the life of the project.
4. Interactive radio and TV programming will be established to allow communities to discuss local issues and problems affecting biodiversity especially MAPs.
5. Information management system will be developed to strengthen links between local stakeholders and the government agencies through NGOs.
6. Design and operation of collection and management systems of geo referenced information on conservation, traditional knowledge, livelihood opportunities, markets for sustainably harvested MAPs, prices and inputs.
7. Establishment of Interpretation Centres to facilitate a continuous exchange of ideas among different stakeholders and enable the dissemination of progress and newer ideas across different regions in the state and across the states.
8. Local and regional seminars designed to share methodologies, experiences and lessons learnt.
9. Conduct of exchange visits and study trips to best practices sites as a way to achieve peer to peer learning between community leaders and other partners in different regions especially to achieve the replication objective of the project.

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## ***ANNEX 1: The Existing Policy and Legal Framework for the Conservation and Sustainable Use of Medicinal Plants in India***

**The Indian Forest Act, 1927**, was enacted in the Colonial times. This legislation was meant primarily to enable the state to acquire ownership over forests and their produce. The focus was on controlling and regulating timber trade.

**The Wildlife (Protection) Act, 1972**, amended in **1983, 1986, 1991** and **2002**, is meant for protection of wild plants and animals and regulates hunting, trade and collection of specific forest products. Rules of this Act, allows certain tribes to pick, collect or possess specified plants for their bona fide personal use. A licensing system is provided in the revised Act to regulate cultivation and trade of specified plants in a similar pattern as used for trade in fauna.

**The Forest (Conservation) Act, 1980** amended in **1988** addresses mainly issues relating to using forestlands for non-forestry purposes such as industry and mining. The Act requires the state government in question to get approval from the central government before degazetting reserved forests, leasing forestland to private persons or corporations, or clearing land for reforestation.

**The National Wildlife Action Plan, 1983** emphasized the need for establishing a network of representative protected areas and developing appropriate management systems, which will also consider requirements of local communities outside protected areas. This Action Plan was amended in **2002** to address issues relating to increased commercial use of natural resources, continuous growth in human and livestock populations and changes in consumption patterns.

**The Environment (Protection) Act, 1986**, enables the central government to take suitable steps to protect and improve the environment. The Act authorizes the central government to lay down standards for controlling emissions and effluent discharges of environmental pollutants, to regulate industrial locations and to prescribe procedures for managing hazardous substances.

**National Forest Policy 1988** articulates the twin objectives of ecological stability and social justice. This policy focuses on symbiotic relationship between tribals and other poor people and forests and goes on to emphasize protection of people's rights. The policy treats local needs as 'first charge' on forest produce. This policy has for the first time created space for the participation of forest dependent local communities in the management of state-owned forestlands.

**Joint Forest Management** was formally launched on June 01, 1990 as a government attempt towards regenerating and sustainably using forests, by a circular from the MoEF to all states and union territories providing guidelines for the '*Involvement of Village Communities and Voluntary Agencies in the Regeneration of Degraded Forests*'<sup>11</sup>. Although the initial thrust of JFM was towards timber production, both communities and forest officials realized that Non Timber Forest Produce (NTFP) were far more sustainable and beneficial, provided that harvesting was

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<sup>11</sup> GoI 1990. Involvement of Village Communities and Voluntary Agencies in Regeneration of Degraded Forests, MoEF, No.6.21/89-F.P., June 1, 1990, Government of India, New Delhi.

done in a sustainable manner. The February 2000 Guidelines for JFM thus shifted focus from timber to NTFP. These guidelines also extended JFM to standing or well-stocked forests, and not only to degraded areas as dictated by the previous guidelines.

**A National Policy on Indian Systems of Medicine & Homeopathy 2002** was brought out by the Department of Indian Systems of Medicine and Homeopathy (ISM&H), Ministry of Health and Family Welfare, Government of India. This policy makes a clear mention of conservation of medicinal plants resources as an important aspect of promoting ISM in the country. The policy, besides looking at aspects relating to intellectual property rights and revitalization of local health traditions also addresses issues related to the conservation and sustainable use of medicinal plants.

In 1997 the MoEF sponsored a National Consultation on Medicinal Plants. One of the main objectives of this consultation was to make recommendations for a framework of a national policy on medicinal plants and also programmes relating to the *in situ* and *ex situ* conservation of these plants, to ensure the sustainable supply for commercial and non-commercial purposes. Subsequent to this consultation, guidelines for a national policy and conservation programmes were published<sup>12</sup>.

**The Foreign Trade (Development and Regulations) Act, 1992**, is designed to help the central government regulate the import and export of goods through Negative List of Imports or a negative List of Exports, as situation demands. The Ministry of Environment & Forest, Government of India, in 1992 prepared a 'Negative List' of 56 species and banned their export. In 1998 the list was reduced to 29 species. In 2000, the Negative List was suspended and a list of 114 species was notified for regulating their wild harvest. Provisions of the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) are implemented through this Act. CITES has notified 11 Indian medicinal plant species in its schedules<sup>13</sup>.

**The Panchayats (Extension to the Scheduled Areas) Act, 1996 (PESA)**, provides a more radical constitutional and legislative mandate for devolution of local self-governance in Schedule V (tribal majority) areas. PESA empowers the Gram Sabha (the body of all adult voters of a self-defined community) to safeguard and preserve the traditions and customs of the people, their cultural identity, community resources and the customary mode of dispute resolution. This Act is of particular relevance for the states of Chhattisgarh and Arunachal Pradesh, which have many tribal residents.

**The Biological Diversity Act, 2002** is part of India's follow up to the Convention on Biological Diversity. The Act is of particular relevance when addressing issues relating to the intellectual property rights over materials and knowledge relating to biodiversity or its elements. More specifically, it provides for the designation of institutions as repositories of biological resources. For implementation, the Act provides for a National Biodiversity Authority (NBA) and also recommends the creation of State Biodiversity Boards.

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<sup>12</sup> FRLHT. 1997. Medicinal Plants of India. Guidelines for National Policy and Conservation Programmes. FRLHT, Bangalore.

<sup>13</sup> FRLHT. 1999. The Key Role of Forestry Sector in Conserving India's Medicinal Plants. Conceptual & Operational Features. FRLHT, Bangalore.

## ***ANNEX 2      Functions Of The National Medicinal Plants Board***

The overall mandate of NMPB is to coordinate with Ministries / Departments / Organizations / State / UT Governments for the development of medicinal plants in general and specifically in the following fields:-

1. Assessment of demand/supply position relating to medicinal plants both within the country and abroad.
2. Advise concerned Ministries/ Departments/ Organizations/ State/ UT Governments on policy matters relating to schemes and programmes for development of medicinal plants.
3. Provide guidance in the formulation of proposals, schemes and programmes etc. to be taken-up by agencies having access to land for cultivation and infrastructure for collection, storage and transportation of medicinal plants.
4. Identification, inventorisation and quantification of medicinal plants.
5. Promotion of ex-situ/in-situ cultivation and conservation of medicinal plants.
6. Promotion of co-operative efforts among collectors and growers and assisting them to store, transport and market their produce effectively.
7. Setting up of data-base system for inventorisation, dissemination of information and facilitating the prevention of Patents being obtained for medicinal use of plants which is in the public domain.
8. Matters relating to import/export of raw material, as well as value added products either as medicine, food supplements or as herbal cosmetics including adoption of better techniques for marketing of product to increase their reputation for quality and reliability in the country and abroad.
9. Undertaking and awarding Scientific, Technological research and cost-effectiveness studies.
10. Development of protocols for cultivation and quality control.
11. Encouraging the Protection of patent Rights and IPR.

**Source:** <http://www.nmpb.nic.in/functionsoftheboard.htm>

**ANNEX 3 Summary Table And Profiles Of Project States**

	ARUNACHAL PRADESH	CHATTISGARH	UTTARANCHAL
<b>Total Geographic Area (sq. km)</b>	83,743	135, 194	53,483
<b>Total No. of GSMP</b>	25	37	27
<b>Global Biodiversity 'Hotspot'</b>	Part of Eastern Himalaya 'Hotspot'		
<b>Total Forest Area (sq. km)</b>	51,920	59,772	35, 394
<b>Total Forest Area as % of state area</b>	c. 62%	c. 44%	c. 66%
<b>Forest Types</b>	1) Tropical Evergreen 2) Tropical Semi-Evergreen 3) Sub-tropical broad-leaved 4) Sub-tropical pine 5) Temperate broad-leaved 6) Alpine areas 7) Secondary forest & bamboo brakes	1) Tropical dry deciduous 2) Moist deciduous	1) Tropical moist deciduous 2) Tropical dry deciduous 3) Sub-tropical pine 4) Himalayan moist temperate 5) Himalayan dry temperate 6) Sub-alpine forest 7) Alpine forest
<b>Total State Forest Land (sq. km)</b>	20,955	59,772	24,796
<b>Area of State Forest Land by Protection Category (sq. km)</b>	RF: c. 46% PAs: c. 46% PF: c. 8%	RF: 25,782 PF: 24,036 Undemarcated PF: 9,954	RF: 24,616 PF: 180 Revenue forest (Civil & Soyam forest): 4,888 Panchayati forest: 5,419 Private and other forests: 291
<b>Total community owned/managed Forest Land (sq. km)</b>	30, 965 c. 37% of the geographical area of the state and c. 60% of the total forest area in the state. Village Councils own most of the forest lands. Additionally 11 Anchal Forests in 8 districts covering 325 sq. km, 12 Village Forests in 4 districts covering 279 sq. km and 10 JFM Committees manage 53 sq km of forests.	In 72 villages People's Protected Areas have been established covering 428 sq. km. 44 FPCs and 28 VFCs are involved in the management of these forests. 17% of the state's forest area is being protected by FPCs, VFCs and EDCs. JFM has involved more than 300,000 families in 7,388 villages across the state.	Van Panchayat Forest: 4,054 sq.km or c. 11.5% of all forest land managed by 6,069 Van Panchayats. 1,217 JFM Villages
<b>Social Context</b>	More than 25 indigenous communities with some 110 sub-tribes live in the hilly areas of the state.	Highest concentration of tribal people in India with heavy reliance on MPs historically.	Widespread traditional use of medicinal plants with a good network of <i>vaid</i> s. Tribal populations (Bhotia, Marcha & Jadh) are found in certain regions of the state and they use folk medicine. Collection and sale of medicinal plants is among the income generation activities of the <i>Van</i>

	ARUNACHAL PRADESH	CHATTISGARH	UTTARANCHAL
			<i>Panchayats.</i>
<b>State-specific Threats to MPs</b>	<ul style="list-style-type: none"> <li>• Slash &amp; burn cultivation (<i>jhum</i>)</li> <li>• Illegal trade in MPs</li> <li>• Habitat degradation from subsistence use of natural resources</li> <li>• Land conversion for urbanization &amp; industrialization</li> <li>• Soil erosion, landslides, floods, forest fires</li> <li>• Lack of documentation of traditional knowledge associated with MPs</li> </ul>	<ul style="list-style-type: none"> <li>• No formal recognition of traditional knowledge about natural resources including MPs and erosion of such knowledge</li> <li>• Habitat degradation from subsistence use of natural resources</li> <li>• Land conversion for settlements and development projects, including roads, irrigation, hydro-electric</li> <li>• Mining as state is exceptionally rich in minerals.</li> <li>• Forest fires</li> </ul>	<ul style="list-style-type: none"> <li>• Unsustainable harvest of medicinal plants especially by non-local collectors working for contractors and as a result of private sector companies entering into direct contracts with local communities on an <i>ad hoc</i> basis often with poor returns to the local people.</li> </ul>
<b>Major relevant state-level policies</b>	<ul style="list-style-type: none"> <li>• <i>Apna Van</i> (1988) for restoring degraded areas under slash and burn cultivation</li> <li>• JFM enabling resolution of 1997</li> </ul>	<ul style="list-style-type: none"> <li>• Chattisgarh State Forest Policy, 2001</li> <li>• JFM Resolution of 2002</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Van Panchayat Rules</i></li> <li>• Uttaranchal Panchayati Forest Rules (2001)</li> <li>• Uttar Pradesh Village Forests JFM Rules (1997)</li> </ul>
<b>Other Notable Features</b>	<p>One of least populated states of India with population density of only 13/sq. km. The tropical evergreen and semi-evergreen forests of this state harbour an estimated 1/8<sup>th</sup> of India's 8,000 known medicinal plant species. State is unique in that various tribes have traditional rights over land, water and forests within their local area of jurisdiction</p>	<p>Declared an 'Herbal State' in 2001. Forest Department is trialling concept of Peoples' Protected Areas within which Medicinal Plant Reserves are being established in some areas</p>	<p>Declared as a "Herbal State" in 2002. Strong tradition of using traditional medicine amongst the people. The state was created on the recognition of the strong links between the forest resources and the lives of the people and recent policy initiatives are strengthening this by encouraging sustainable use of resources (for instance the move to ban mining in the state as it is seen as a destructive practice).</p>
<b>Potential Institutions &amp; Programmes for Project to Work with</b>	<p><b>State Forest Department:</b></p> <ul style="list-style-type: none"> <li>• Village Forest Management Committees</li> </ul> <p><b>Community Forest Institutions:</b></p> <ul style="list-style-type: none"> <li>• Anchal Samitis</li> <li>• Village Councils</li> </ul> <p><b>State Medicinal Plant Board, State Forest Research Institute, Dept. of Health North Eastern Regional Agricultural</b></p>	<p><b>State Forest Department:</b></p> <ul style="list-style-type: none"> <li>• JFM Forest Protection Committees</li> <li>• JFM Village Forest Committees</li> <li>• Women's Self-Help Groups</li> <li>• Forest Development Agencies (a federation of JFM Forest Committees)</li> </ul> <p><b>MoEF:</b></p> <ul style="list-style-type: none"> <li>• Ecodevelopment</li> </ul>	<p><b>State Forest Department:</b></p> <ul style="list-style-type: none"> <li>• JFM Village Forest Committees</li> <li>• Forest Development Corporation</li> </ul> <p><b>Community Forest Institutions:</b></p> <ul style="list-style-type: none"> <li>• <i>Van Panchayats</i></li> </ul> <p><b>State Horticulture Department:</b></p> <ul style="list-style-type: none"> <li>• <i>Bhesaj Sangh</i></li> <li>• Herbal Research &amp;</li> </ul>

	ARUNACHAL PRADESH	CHATTISGARH	UTTARANCHAL
	Marketing Corporation Ltd. (NERAMAC)	Committees <ul style="list-style-type: none"> <li>• National Afforestation Programme</li> </ul> <b>State Medicinal Plant Board, Dept. of Health, State MFP (Trade &amp; Development) Cooperative Federation:</b> <ul style="list-style-type: none"> <li>• 26 District-level unions</li> <li>• 884 village-level cooperatives</li> </ul> <b>Local government bodies:</b> <ul style="list-style-type: none"> <li>• <i>Gram sabhas</i> (village councils)</li> <li>• <i>Zilla Panchayat</i> (District governance body)</li> </ul>	Development Institute <b>State Medicinal Plant Board</b> <i>Jadi Booti Vidhohan</i> (MP Harvest Committee of Uttaranchal) <b>Local government bodies:</b> <i>Gram sabhas</i>

**Notes:**

RF = Reserved Forests; PAs = Protected Areas (Wildlife Sanctuaries and National Parks); PF = Protected Forests; FPC = Forest Protection Committee; VFC = Village Forest Committee; EDC = Ecodevelopment Committee

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## **I Brief Profile of Arunachal Pradesh**

### ***Forest and biodiversity:***

Arunachal Pradesh located in the north east of India is biologically the richest state in India. It is part of the Eastern Himalayan Global Biodiversity Hotspot and also included in the 200 Globally Important Eco-regions of the world. It is located at the confluence of the Palaeartic and Indo-Malayan bio-geographical realms and has an altitudinal variation from 100 to 6000m. The state has been geographically isolated from the rest of India and relatively inaccessible due to its mountainous terrain. Many areas in the state are still remote and unexplored. This is the largest state in the north east and it was part of undivided Assam and attained statehood in 1987.

Arunachal has a high forest cover of more than 60% (national average 21%) and it has the world's northernmost tropical rainforests. Between 7000 and 8000 species of flowering plants are reported from the state which is about 50% of the species reported from India. Lowland tropical evergreen and semi-evergreen forests are found up to 1500 m, temperate oak and conifer forests up to 4000 m and alpine areas above 4000 m. About 1000 of the 8000 species of MAPs reported in India are found in this state.

### ***People:***

Arunachal has a low human population density of 13 per sq. km. The population is predominantly comprised of people belonging to various tribes. There are 25 main tribes and more than 100 sub tribes. They have specific geographic distribution and distinct linguistic, cultural, religious and social identities. *Monpa, Sherdukpen, Nishi, Adi* and *Apatani* are examples of the major tribes. Agriculture is the main occupation in the state. People have traditionally subsisted on hunting and shifting cultivation. Recently the rate of population growth is a cause for concern as it has been reported as high as 3% per year.

### ***Unique features:***

The state is made of 15 districts which are in turn divided into numerous circles and villages are organised under each circle. Villages are homogenous and made up of a single community, unlike in rest of India. There are no land records, especially in the areas which are owned by the local communities. Boundaries of fields, villages and community owned forests are determined by the local communities based on traditional knowledge and rules. About 60% of the forest in the state is owned by the local communities.

### ***Threats and opportunities for the MAP sector:***

Wild populations of MAP have been negatively impacted due to uncontrolled and unsustainable collection especially in the foothills and in areas accessible by roads. Apart from unsustainable collection of MAPs (the state government has taken action to control this), illegal trade, slash and burn agriculture and land conversion by forest clearance are the major threats to MAPs. The high-level of forest ownership by the local communities presents a unique opportunity for the project to work with traditional forest management systems in the state. In the last couple of

years there has been an increased interest in MAPs within the state and MAP gardens have been established and efforts are on to create a more supportive policy scenario for this sector. The SMPB is located in the State Forest Research Institute and both institutions are important partners to the project apart from the local communities and the State Forest Department.

## **II Brief Profile of Chhattisgarh**

### ***Forest and biodiversity:***

Chhattisgarh State was bifurcated from the state of Madhya Pradesh on 1 November 2000 and is located in Central India. The State is located in the Deccan biogeographic zone and is characterised by tropical dry deciduous forests in the northern, central and southern part and moist deciduous forests in the eastern part. The state is rich in medicinal plants. The Chief Minister of Chhattisgarh declared it a 'Herbal State' on July 4, 2001.

### ***People:***

Chhattisgarh has the highest concentration of tribal population in India and an extremely rich tribal culture, which has a tradition of using medicinal plants for varied uses.

### ***Threats and opportunities for the MAP sector:***

Traditional healing skills and knowledge associated with the use of MPs are fast disappearing in the state due to changing aspirations of the younger generation. What is also lacking is an appropriate and strong intellectual property rights regime to safeguard the interests of the tribal people.

Natural habitats are getting degraded due to the growth of settlements and the subsequent pressure on the land from use by livestock and human use. Land is also being diverted for various kinds of development projects. Chhattisgarh is also a very mineral rich state and land is steadily being degraded due to mining activities. Forest fires also contribute to habitat degradation. Medicinal plants are also being over harvested or harvested in destructive ways.

Chhattisgarh is unique for having its own State Forest Policy. A key thrust area in this policy is the conservation and sustainable utilization of medicinal plants. To translate the participatory forest management as stated in the policy into action; the Government of Chhattisgarh has passed a JFM Resolution.

The State is also working with a unique concept of Peoples Protected Areas (PPAs). These are protected areas managed in part by local communities. Activities within these areas include participatory resource mapping, methods of sustainable harvesting of NTFP and value addition and marketing. Under this scheme areas which are rich in MPs within the PPAs are being declared as Medicinal Plant Reserves specifically for the conservation, development, collection, value addition and improvement in the marketing of the medicinal plants. PPAs are large areas ranging from 1,000 to 10,000 ha identified across several villages.

The State has several Forest Protection Committees (FPCs) and Village Forest Committees (VFCs). FPCs have been formed in those villages adjoining healthy, dense forests, and VFCs have been formed in those villages adjoining degraded forests. JFM initiatives are also fairly widespread and well established in the state. All three institutions are potential project partners.

Trade in medicinal plants is unregulated in the state. Legislation does exist to regulate in the public interest the trade of certain forest produce by creation of State monopoly in such trade. The state government has endowed the ownership rights of NTFP on *Panchayati Raj* Institutions (village level institutions). The ownership rights are in accordance with principles that attempt to inculcate sustainability, equity and better management of the resource.

Chhattisgarh has a State Medicinal Plant Board, which is located in the Minor Forest Produce Federation Office and is chaired by the Chief Minister. At present, the Board hopes to focus its activities on the documentation of the medicinal plants in the State and also devising methods to take up cultivation of 10 identified important medicinal plants.

## **II Brief Profile of Uttaranchal**

### ***Forest and biodiversity:***

The State of Uttaranchal in North West India was carved out from the state of Uttar Pradesh by separating the hill region in November 2000. Uttaranchal has extensive forest cover (c. 66% of its geographical area). Seven forest types occur in the state. The state has recorded nearly 1200 species of MPs. The State also has a wealth of traditional knowledge associated with the use of these plants. Reserve Forests in the state cover approximately 70% of the forestland. These are owned and managed by the State Forest Department. The Forest Department works through a Working Plan that provides guidelines for ecologically sustainable exploitation. Civil/Soyam Forests, which are approximately 14% of the state forestland, are under the direct control of the Revenue Department. These forests are managed through village governance in form of the *Gram Panchayat* (Village Councils). *Van Panchayat* (Forest Councils) Forests are unique to the state of Uttaranchal and occupy approximately 15% of the forest area. *Van Panchayats* have been operational for more than seventy years. In the year 2001, after the formation of the state of Uttaranchal, the *Van Panchayat* Rules were amended to provide a greater role to the Forest Department in the functioning of the *Van Panchayats*. *Van Panchayat* forests have legal support from the Uttaranchal Panchayati Forest Rules (2001). Currently, there are 6,777 *Van Panchayats* managing 5,241 sq. km. of forests.

### ***Threats and opportunities for the MAP sector:***

As it is a newly formed state, Uttaranchal is being subject to many large projects especially hydroelectric projects, as part of development. These will adversely impact the forestland of the state. Added to this is the threat from over grazing and extraction of various forest produce by people. This also leads to a high prevalence of fire resulting in further habitat degradation. The high altitude oak forests of Uttaranchal are also under threat from plantation of horticulture crops such as apple. Many species of medicinal plants have disappeared with the loss of oak forests. Illegal extraction of medicinal plants from the high altitude meadows of the State is also becoming a major cause for concern.

JFM in Uttaranchal is governed by the Uttar Pradesh Village Forests Joint Management Rules (1997) and Uttar Pradesh *Panchayati* Forest Rules (1976) now amended as the Uttaranchal *Panchayat* Forest Rules (2001). These rules are unique in that they give JFM committees strong

legal backing by according them the status of a forest officer with jurisdiction over the village forest.

There are 1,217 JFM villages in Uttaranchal. Each one prepares a “micro-plan” for the management of the forest to which they have been entrusted. Currently these plans do not focus much on medicinal plant conservation or sustainable use. Increasingly the policy scenario in the state is supportive of the MAP sector but significant knowledge and experience barriers exist. *Van Panchayats* and JFM committees are potentially important partners for the project to work with.

The State Government's efforts to facilitate the formation of cooperatives by medicinal plant collectors and cultivators have unfortunately not succeeded. The *Bhesaj Sangh* have failed to achieve what was originally intended of them due to significant capacity and knowledge constraints in being able to facilitate and promote sustainable harvest of medicinal plant resources. *Bhesaj Sanghs* have instead tended to work more like contractors focussing upon short-term profits, rather than long-term sustainability. However, these cooperatives could be appropriate mechanisms through which to demonstrate sustainable collection of selected medicinal plants.

Harvest of medicinal plants from the wild has been regulated through notifications from time to time by the state government. These have included bans/cyclic regulation of harvest in various districts; royalty rate for collection of medicinal plants; support price for purchase of the harvest and mechanism for collection.

The Herbal Research and Development Institute (HRDI) of the State Horticulture Department hosts the State Medicinal Plant Board. The Board is at present dealing mostly with cultivation issues, though its areas of interest include sustainable harvest, afforestation, and *in-situ* conservation.

**ANNEX 4 Globally Significant Maps of the Project States**

	<i>Species</i>	<i>FAMILY</i>	<i>habit</i>	<i>habitat</i>	<i>current distribution</i>	<i>Status (#)</i>	<i>Use in Medical systems (*)</i>	<i>parts used</i>	<i>Trade status (**)</i>	<i>Cultivation (√)</i>	<b>AP</b>	<b>C</b>	<b>U</b>
1	<i>Abies densa</i>	PINACEAE	Tree	Cool temperate forests	E. Himalaya	<b>NT</b>	A+T+U	Leaves	H	W	Y	N	N
2	<i>Abies spectabilis</i>	PINACEAE	Tree	Cool temperate forests	Himalaya	<b>NA</b>	A+T+U	Leaves	H	W	Y	N	N
3	<i>Acacia nilotica</i> subsp. <i>indica</i>	MIMOSACEAE	Tree	Tropical Forests	India	<b>NA</b>	A+S+U	Gum	H	C/W	N	Y	N
4	<i>Acacia sinuata</i>	MIMOSACEAE	Shrub	Tropical Moist Deciduous forests	Indo-Malayan	<b>NA</b>	A+F+S+U+T	Fruit	H	W	N	Y	N
5	<i>Aconitum balfourii</i>	RANUNCULACEAE	Herb	Sub-Alpine and Alpine forests	Himalaya	<b>Vu</b>	A+F	Root	H	W	N	N	Y
6	<i>Aconitum heterophyllum</i>	RANUNCULACEAE	Herb	Alpine to sub-alpine open slopes common on grassy meadows, upper Oak/Coniferous forest	Himalaya (Pakistan to Arunachal Pradesh)	<b>CR</b>	A+F+T+U+S	Root	H	W	N	N	Y
7	<i>Aconitum violaceum</i>	RANUNCULACEAE	Herb	Well watered meadows, open slopes and scrub	Himalaya (Jammu & Kashmir to Uttaranchal)	<b>Vu</b>	F	Root, Tuber	H	W	N	N	Y
8	<i>Aegle marmelos</i>	RUTACEAE	Tree	Tropical Moist & Dry Deciduous forests	India + Myanmar	<b>NA</b>	A+F+U+S+T	Fruit pulp	H	C/W	N	Y	N

	<i>Species</i>	<i>FAMILY</i>	<i>habit</i>	<i>habitat</i>	<i>current distribution</i>	<i>Status (#)</i>	<i>Use in Medical systems (*)</i>	<i>parts used</i>	<i>Trade status (**)</i>	<i>Cultivation (✓)</i>	<b>AP</b>	<b>C</b>	<b>U</b>
9	<i>Allium stracheyi</i>	LILIACEAE	Herb	Alpine meadows	Himalaya (Afghanistan to Uttaranchal)	<b>Vu</b>	F+A	Root	H	W	N	N	Y
10	<i>Amentotaxus assamica</i>	TAXACEAE	Tree	Temperate mixed forest	Endemic to Arunachal Pradesh	<b>CR</b>	T	Tuberous root	H	W	Y	N	N
11	<i>Andrographis paniculata</i>	ACANTHACEAE	Herb	Tropical deciduous forests	Indian subcontinent	<b>Vu</b>	A+F+T+U+S	Whole Plant	H	W/C	N	Y	N
12	<i>Angelica glauca</i>	APIACEAE	Herb	On grassy rocky slopes, grows on moist slopes, near water springs and sub-alpine forest edges	Himalaya (Afghanistan to Uttaranchal) & S.W. China	<b>EN</b>	A+T	Root	H	W	N	N	Y
13	<i>Anogeissus latifolia</i>	COMBRETACEAE	Tree	Tropical Moist Deciduous forests	India + Sri Lanka	<b>NA</b>	A+U+S+T+F	Gum	H	W	N	Y	N
14	<i>Aquilaria agallocha</i>	THYMELACEAE	Tree	Sub tropical to Temperate forests	North East India extending to Myanmar	Appendix II of CITES	A+T+U+S	Bark, Heartwood	CITES	W	Y	N	N
15	<i>Aristolochia indica</i>	ARISTOLOCHIACEAE	Climber	Dry & Moist deciduous forests	Indian subcontinent	<b>NT</b>	A+F+T+U+S	Root, Leaf	H	W	N	Y	N
16	<i>Arnebia benthami</i>	BORAGINACEAE	Herb	Alpine to sub-alpine open slopes common on grassy meadows, upper Oak/Coniferous forest	Himalaya (Pakistan to Nepal)	<b>EN</b>	A+F	Root	H	W	N	N	Y

	<i>Species</i>	<i>FAMILY</i>	<i>habit</i>	<i>habitat</i>	<i>current distribution</i>	<i>Status (#)</i>	<i>Use in Medical systems (*)</i>	<i>parts used</i>	<i>Trade status (**)</i>	<i>Cultivation (√)</i>	<i>AP</i>	<i>C</i>	<i>U</i>
17	<i>Azadirachta indica</i>	MELIACEAE	Tree	Tropical Moist Deciduous forests	India + Myanmar	NA	A+U+S+T+F	Bark	H	W/C	N	Y	N
18	<i>Berberis aristata</i>	BERBERIDACEAE	Shrub	Sub tropical to Temperate forests	Himalaya ( Jammu & Kashmir to Bhutan)	NA	A+T+U+S+F	Root, Bark	H	W	N	N	Y
19	<i>Bergenia ciliata</i>	SAXIFRAGACEAE	Herb	Sub-tropical forests, exposed rocky areas, especially pine forest	Himalaya	NA	A+U+T	Rhizomes	H	W	Y	N	N
20	<i>Bergenia stracheyi</i>	SAXIFRAGACEAE	Herb	Rocky slopes & glacial moraines	Himalaya (Afghanistan, to Uttaranchal)	NT	A	Root, Leaf	H	W	N	N	Y
21	<i>Boswellia serrata</i>	BURSERACEAE	Tree	Tropical deciduous forests	Indian subcontinent	Vu	A+F+T+U+S	Gum	H	W	N	Y	N
22	<i>Brucea mollis</i>	SEMARUBACEAE	Shrub	Tropical wet evergreen forest; shaded areas	Indo-Malayan	EN	F	Fruits	Local use	W	Y	N	N
23	<i>Buchanania lanzan</i>	ANACARDIACEAE	Tree	Tropical deciduous forests	Indo – Malayan	NT	A+F+T+U+S	Seed	H	W	N	Y	N
24	<i>Caesalpinia digyna</i>	CAESALPINIACEAE	Shrub	Tropical moist deciduous forests	Tropical & sub tropical Asia	Vu	A+F+T+U+S	Seed	H	W	N	Y	N
25	<i>Ceropegia bulbosa</i>	ASCLEPIADACEAE	Climber	Tropical deciduous forests	India	NT	A	Leaf, Fruit, Rhizome	H	W	N	Y	N

	<i>Species</i>	<i>FAMILY</i>	<i>habit</i>	<i>habitat</i>	<i>current distribution</i>	<i>Status (#)</i>	<i>Use in Medical systems (*)</i>	<i>parts used</i>	<i>Trade status (**)</i>	<i>Cultivation (√)</i>	<b>AP</b>	<b>C</b>	<b>U</b>
26	<i>Chlorophytum tuberosum</i>	LILIACEAE	Herb	Mixed deciduous (tropical) forests	Paleotropic	<b>Vu</b>	A	Root	H	C/W	N	Y	N
27	<i>Cibotium barometz</i>	POLYPODIACEAE	Herb	Hill slopes, degraded / secondary tropical, subtropical forests	Indo-Malayan + China	Appendix II of CITES NT	F	Pith	Reasonably high levels of illegal harvest.	W	Y	N	N
28	<i>Cochlospermum religiosum</i>	COCHLOSPERMACEAE	Tree	Deciduous (tropical) forests	India + Myanmar	<b>Vu</b>	A+S	Gum	H	C/W	N	Y	N
29	<i>Coptis teeta</i>	RANUNCULACEAE	Erect, rhizomatous small herb	Temperate regions; moist and shady places	Endemic to Arunachal Pradesh	<b>EN</b>	A	Roots	H	C/W	Y	N	N
30	<i>Curcuma angustifolia</i>	ZINGIBERACEAE	Herb	Sub tropical & tropical forests	India	<b>Vu</b>	A+F+U+S	Root	H	C/W	N	Y	N
31	<i>Dactylorhiza hatagirea</i>	ORCHIDACEAE	Herb	In moist places in meadows	Himalaya (Pakistan to Nepal) & China	<b>CR</b>	A+U+F	Tuber	H	W	N	N	Y
32	<i>Dendrobium nobile</i>	ORCHIDACEAE	Herb	Tropical to temperate forests	North East India	Appendix II of CITES	F	Whole Plant, Stems & Fruits	Reasonably high levels of illegal harvest.	W	Y	N	N
33	<i>Dioscorea deltoidea</i>	DIOSCOREACEAE	Climber	Temperate and sub-alpine forest and scrub	Himalaya (Afghanistan to Bhutan) & China	CITES EN	F	Tuber	H	C/W	N	N	Y
34	<i>Embelia tsjeriam-cottam</i>	MYRSINACEAE	Shrub	Moist deciduous forests	Indo – Malayan	<b>NT</b>	A+U+F	Seed	H	W	N	Y	N

	<i>Species</i>	<i>FAMILY</i>	<i>habit</i>	<i>habitat</i>	<i>current distribution</i>	<i>Status (#)</i>	<i>Use in Medical systems (*)</i>	<i>parts used</i>	<i>Trade status (**)</i>	<i>Cultivation (√)</i>	<i>AP</i>	<i>C</i>	<i>U</i>
35	<i>Emblica officinalis</i>	EUPHORBIACEAE	Tree	Tropical + subtropical Deciduous forests	India + Myanmar	<b>Vu</b>	A+F+U+S+T	Fruit	H	C/W	N	Y	N
36	<i>Ephedra gerardiana</i>	EPHEDRACEAE	Shrub	Rocky exposed slopes and riverine sands, drier regions	Himalaya (Afghanistan to Bhutan) S.W. China	<b>EN</b>	A	Stem & aerial parts, root	H	W	N	N	Y
37	<i>Eremostachys superba</i>	LAMIACEAE	Herb	Shivaliks / Bhabar, open grassy slopes and wastelands	India, Pakistan	<b>Vu</b>	F	Root	Local use	W	N	N	Y
38	<i>Eulophia herbacea</i>	ORCHIDACEAE	Herb	Tropical moist deciduous forests	India	<b>EN</b>	A+S	Rhizome	H	W	N	Y	N
39	<i>Ferula jaeschkeana</i>	APIACEAE	Shrub	Open / dry slopes, cultivated tracts	Himalaya (Pakistan to Uttaranchal) & Central Asia	<b>Vu</b>	A	Root	H	W	N	N	Y
40	<i>Fritillaria roylei</i>	DIOSCOREACEAE	Herb	Sub-alpine / alpine slopes / meadow	Himalaya (Pakistan to Uttaranchal)	<b>CR</b>	A	Bulb	H	W	N	N	Y
41	<i>Garcinia pedunculata</i>	CLUSIACEAE	Tree	Tropical evergreen forest	Himalaya	<b>NT</b>	A + T	Fruits	H	W	Y	N	N
42	<i>Gardenia gummifera</i>	RUBIACEAE	Shrub	Dry deciduous forests	Indian peninsula	<b>NA</b>	A+F+T+U+S	Gum	H	W	N	Y	N

	<i>Species</i>	<i>FAMILY</i>	<i>habit</i>	<i>habitat</i>	<i>current distribution</i>	<i>Status (#)</i>	<i>Use in Medical systems (*)</i>	<i>parts used</i>	<i>Trade status (**)</i>	<i>Cultivation (√)</i>	<b>AP</b>	<b>C</b>	<b>U</b>
43	<i>Gentiana kurroo</i>	GENTIANACEAE	Herb	Alpine to sub-alpine open slopes, common on grassy meadows, upper Oak/Coniferous forest	Himalaya (Pakistan – Uttaranchal)	<b>CR</b>	A+T+U	Root and entire plant	H	W	N	N	Y
44	<i>Gymnocladus assamicus</i>	CAESALPINIACEAE	Tree	Sub tropical and temperate broad leaved forests	Endemic to Arunachal Pradesh	<b>CR</b>	F	Fruits	Local use	W	Y	N	N
45	<i>Habenaria intermedia</i>	ORCHIDACEAE	Herb	Sub-alpine / alpine slopes / meadow,	Himalaya (Pakistan to Sikkim), Meghalaya & China	<b>EN</b>	A	Tuber	H	W	N	N	Y
46	<i>Hemidesmus indicus</i>	ASCLEPIADACEAE	Climber	Scrub (tropical) forests	India + Sri Lanka	<b>NA</b>	A+F+U+S+T	Roots	H	W	N	Y	N
47	<i>Homalomena aromatica</i>	ARACEAE	Herb	Moist deciduous and evergreen forests	Arunachal Pradesh+ Assam+Bangladesh and Bhutan	<b>Vu</b>	A+F	Roots	H	W	Y	N	N
48	<i>Hydnocarpus kurzii</i>	FLACORTIACEAE	Tree	Tropical evergreen and semi evergreen forests	India + Bangladesh + Myanmar	<b>NT</b>	A+S+F	Fruits	H	W	Y	N	N
49	<i>Illicium griffithii</i>	MAGNOLIACEAE	Tree	Temperate broad leaved montane forests	E. Himalaya	<b>NT</b>	F	Fruits	H	W	Y	N	N

	<i>Species</i>	<i>FAMILY</i>	<i>habit</i>	<i>habitat</i>	<i>current distribution</i>	<i>Status (#)</i>	<i>Use in Medical systems (*)</i>	<i>parts used</i>	<i>Trade status (**)</i>	<i>Cultivation (√)</i>	<b>AP</b>	<b>C</b>	<b>U</b>
50	<i>Litsea glutinosa</i>	Lauraceae	Tree	Tropical moist deciduous forests	Tropical Asia	<b>Vu</b>	A+U+F+S	Bark	H	W	N	Y	N
51	<i>Madhuca longifolia</i>	Sapotaceae	Tree	Deciduous forests	India + Myanmar	<b>NA</b>	A+F+S	Flower	H	C/W	N	Y	N
52	<i>Malaxis muscifera</i>	Orchidaceae	Herb	Temperate Himalaya	From Jammu & Kashmir to Arunachal Pradesh	<b>CR</b>	A+F+T	Roots, Tubers	H	W	Y	N	N
53	<i>Mucuna pruriens</i>	Fabaceae	Climber	Tropical moist forests	Tropical Asia	<b>NT</b>	A+F+T+U+S+H	Seed	H	C/W	N	Y	N
54	<i>Nardostachys grandiflora</i>	Valerianaceae	Herb	Alpine Himalaya	Himalaya (Himachal to Arunachal), Myanmar & S.W. China	<b>CR CITES</b>	A+U+T+S	Rhizome/Root	H	W	N	N	Y
55	<i>Paeonia emodi</i>	Paeniaceae	Shrub	Temperate forests	Afghanistan to Arunachal Pradesh	<b>NA</b>	A+U	Roots	H	W	Y	N	Y
56	<i>Paris polyphylla</i>	Liliaceae	Herb	Sub-Alpine and Alpine forests	Himalaya (Pakistan to Arunachal), Myanmar & S.W. China	<b>EN</b>	A	Rhizome	H	W	N	N	Y
57	<i>Peucedanum nagpurensis</i>	Apiaceae	Herb	Moist deciduous forests	Central India & East India, Endemic to India	<b>Vu</b>	F	Root, Seed	Local use	W	N	Y	N
58	<i>Picrorhiza kurroa</i>	Scrophulariaceae	Herb	Alpine forests	Himalaya (Pakistan to Arunachal Pradesh)	<b>CR</b>	A+U+T+S+F	Root	H	W	N	N	Y
59	<i>Piper betleoides</i>	Piperaceae	Climber	Evergreen humid tropical forest	E. Himalaya	<b>NT</b>	F	Leaves	Local use	W	Y	N	N

	<i>Species</i>	<i>FAMILY</i>	<i>habit</i>	<i>habitat</i>	<i>current distribution</i>	<i>Status (#)</i>	<i>Use in Medical systems (*)</i>	<i>parts used</i>	<i>Trade status (**)</i>	<i>Cultivation (√)</i>	<b>AP</b>	<b>C</b>	<b>U</b>
60	<i>Piper longum</i>	PIPERACEAE	Climber	Tropical moist deciduous forests	Indian subcontinent	<b>Vu</b>	A+F+T+U+S	Root + Fruiting Spikes	H	C/W	N	Y	N
61	<i>Piper pedicellatum</i>	PIPERACEAE	Climber	Sub tropical evergreen forest, moist shady places	N.E. India	<b>Vu</b>	F	Leaves	Local use	W	Y	N	N
62	<i>Piper peepuloides</i>	PIPERACEAE	Climber	Tropical and sub tropical evergreen forest	N.E. India	<b>Vu</b>	F	Fruits	H	W	Y	N	N
63	<i>Podophyllum hexandrum</i>	BERBERIDACEAE	Herb	Alpine Himalaya, moist shady soils	Himalaya – Afghanistan to Arunachal Pradesh & extending to South West China & Myanmar	<b>Vu</b>	A+F	Fruits, Rhizomes	H	W	Y	N	Y
64	<i>Premna tomentosa</i>	VERBENACEAE	Shrub	Tropical Deciduous forests	India + Myanmar + Sri Lanka	<b>NA</b>	F+S	Bark	H	W	N	Y	N
65	<i>Pterocarpus marsupium</i>	FABACEAE	Tree	Tropical deciduous forests	Peninsular India	<b>Vu</b>	A+F+T+U+S+H	Winged Seed + Wood+ Gum	H	W/C	N	Y	N
66	<i>Pueraria tuberosa</i>	FABACEAE	Climber	Tropical moist deciduous forests	Indian Subcontinent	<b>NA</b>	A+F+T+U	Root	H	W	N	Y	N
67	<i>Rauvolfia serpentina</i>	APOCYNACEAE	Herb	Moist deciduous forests	Indo- Malayan	<b>CR</b>	A+F+T+U+S+H	Roots	H + CITES	C/W	N	Y	N
68	<i>Rheum australe</i>	POLYGONACEAE	Herb	Sub-alpine Himalaya	Himalaya (Himachal to Arunachal Pradesh)	<b>EN</b>	F	Root, Rhizome	H	W	N	N	Y

	<i>Species</i>	<i>FAMILY</i>	<i>habit</i>	<i>habitat</i>	<i>current distribution</i>	<i>Status (#)</i>	<i>Use in Medical systems (*)</i>	<i>parts used</i>	<i>Trade status (**)</i>	<i>Cultivation (√)</i>	<b>AP</b>	<b>C</b>	<b>U</b>
69	<i>Rheum emodi</i>	POLYGONACEAE	Herb	Sub-Alpine and Alpine forests	Himalaya – Himachal Pradesh to Arunachal Pradesh	NA	A+U+S	Unpeeled Rhizome, Roots	H	W	Y	N	N
70	<i>Rheum moorcroftiana</i>	POLYGONACEAE	Herb	Alpine Himalaya	Himalaya (Himachal to Nepal)	NT	A	Root	H	W	N	N	Y
71	<i>Rhododendron campanulatum</i>	ARICACEAE	Shrub	Scrub with <i>kharsu</i> Oak, <i>Betula</i> sps	Himalaya (Jammu & Kashmir to Arunachal Pradesh), S.W. China	NT	F	Leaf, Dried twigs & Wood	H	W	N	N	Y
72	<i>Rubia sikkimensis</i>	RUBIACEAE	Climber	Sub tropical forests	E. Himalaya largely in Sikkim and Arunachal Pradesh	NA	F	Roots	H	W	Y	N	N
73	<i>Schleichera oleosa</i>	SAPINDACEAE	Tree	Tropical moist deciduous forests	India + Myanmar	NA	A+F+S	Seed	H	W	N	Y	N
74	<i>Schrebera swietenoides</i>	OLEACEAE	Tree	Tropical moist deciduous forests	India + Myanmar+ Sri Lanka	NA	A+F+T+S	Fruit	H	W	N	Y	N
75	<i>Selinum candollei</i>	APIACEAE	Herb	Sub-Alpine forests	Himalaya – Jammu & Kashmir to Arunachal Pradesh	NA	A+F	Rhizomes	H	W	Y	N	Y
76	<i>Selinum vaginatum</i>	APIACEAE	Herb	Sub alpine	Himalaya (Jammu & Kashmir to Uttaranchal)	NA	F	Rhizome	H	W	N	N	Y
77	<i>Strychnos nux-vomica</i>	LOGANIACEAE	Tree	Tropical deciduous forests	Indo-Malayan	Vu	A+F+U+S+T	Flower	H	W	N	Y	N

	<i>Species</i>	<i>FAMILY</i>	<i>habit</i>	<i>habitat</i>	<i>current distribution</i>	<i>Status (#)</i>	<i>Use in Medical systems (*)</i>	<i>parts used</i>	<i>Trade status (**)</i>	<i>Cultivation (√)</i>	<b>AP</b>	<b>C</b>	<b>U</b>
78	<i>Strychnos potatorum</i>	LOGANIACEAE	Tree	Tropical deciduous forests	Indo- Malayan	<b>NA</b>	A+F+T+U+S	Seed	H	W	N	Y	N
79	<i>Swertia chirayita</i>	GENTIANACEAE	Herb	Sub tropical to temperate forests	Himalaya (Jammu & Kashmir to Arunachal Pradesh)	<b>EN</b>	A+F+T+S	Whole plant	H	W	N	N	Y
80	<i>Taxus wallichiana</i>	TAXACEAE	Tree	Sub tropical to temperate forests	Himalaya	Appendix II of CITES	A+T+U+S	Leaves	H	W	Y	N	N
81	<i>Terminalia arjuna</i>	COMBRETACEAE	Tree	Tropical deciduous forests	Indian subcontinent	<b>NT</b>	A+F+T+U+S+H	Bark	H	W	N	Y	N
82	<i>Terminalia bellirica</i>	COMBRETACEAE	Tree	Tropical deciduous forests	Indian subcontinent	<b>NA</b>	A+F+U+S	Fruit	H	C/W	N	Y	N
83	<i>Terminalia chebula</i>	COMBRETACEAE	Tree	Tropical mixed forests	Indian subcontinent	<b>Vu</b>	A+F+T+U+S+H	Fruit	H	C/W	N	Y	N
84	<i>Tinospora cordifolia</i>	MERISPERMACEAE	Climber	Tropical deciduous forests	Indian subcontinent	<b>NA</b>	A+F+T+U+S	Stem	H	C/W	N	Y	N
85	<i>Urginea indica</i>	LILIACEAE	Herb	Tropical scrub forests	Paleotropic	<b>Vu</b>	F+A+U+S	Bulb	H	W	N	Y	N
86	<i>Valeriana hardwickii</i>	VALERIANACEAE	Herb	Sub tropical and lower temperate forests	Global – India to Indonesia In India : Jammu & Kashmir to Arunachal Pradesh & Meghalaya	<b>Vu</b>	A+U	Rhizomes, Seeds	H	W	Y	N	N

	<i>Species</i>	<i>FAMILY</i>	<i>habit</i>	<i>habitat</i>	<i>current distribution</i>	<i>Status (#)</i>	<i>Use in Medical systems (*)</i>	<i>parts used</i>	<i>Trade status (**)</i>	<i>Cultivation (√)</i>	<b>AP</b>	<b>C</b>	<b>U</b>
87	<i>Valeriana jatamansi</i>	VALERIANACEAE	Herb	Sub tropical & lower temperate forests	Global – India to Myanmar & South West China In India : Jammu & Kashmir to Arunachal Pradesh & Meghalaya	<b>Vu</b>	A+U+T+S+F	Rhizomes & Roots, Whole Plant	H	W	Y	N	N

#### EXPLANATORY NOTE:

**AP** = Arunachal Pradesh; **C** = Chhattisgarh; **U** = Uttaranchal

\* **A** = Ayurveda, **S** = Siddha, **U** = Unani, **T** = Tibetan, **F** = Folk, **H** = Homeopathy

\*\* **H** = Highly Traded > **100 tonnes/year**

# **NA** = Not Assessed; **EN** = Endangered, **CR** = Critically Endangered, **NT** = Near Threatened; **NE** = Not Evaluated

(√) **W** = Wild, **W/C** = Major quantities coming from wild, **C/W** = Major quantities coming from cultivation.

**Y** = Present; **N** = Not present

In order to develop focussed conservation action programmes for the three project States (Arunachal Pradesh, Chhattisgarh, and Uttaranchal), three Conservation Assessment and Management Prioritization workshops were held during the period February to July 2003. As per the IUCN guidelines these threat assessment exercises took into consideration the natural distribution of the medicinal plant species. Hence these workshops often considered a larger geographical area than the states they were assessing.

The prioritised medicinal plant species of Northeast region (Sikkim, Arunachal Pradesh, Assam, Meghalaya) were assessed in the workshop at Guwahati, during 27<sup>th</sup> February to 1<sup>st</sup> March 2003. Threat status and conservation prospects of 50 medicinal plant taxa were assessed using the version 3.1 (2000) of Red List criteria and categories of IUCN. The workshop for rapid threat assessment of prioritised medicinal plants of Northwest Himalayan States of Jammu & Kashmir, Himachal Pradesh and Uttaranchal was held at Shimla during 22<sup>nd</sup> to 25<sup>th</sup> May 2003. It undertook the assessment of 71 prioritised medicinal plants of the region. The third threat assessment workshop was held at Bhopal during 23<sup>rd</sup> to 26<sup>th</sup> July 2003, which assessed threat status of 54 taxa of central India including Chhattisgarh.

The data on trade status was obtained through a two year (1998-99) one time survey of all the 11 large markets dealing with MAPs in India. All the major traders in each of these markets were interviewed based on a questionnaire and the highest volume quoted for any species at each of these centres was taken as the volume currently under trade. This data was then aggregated across the various markets to get an all-India traded volume. It is assumed that the products traded in these markets are all harvested from the wild. This data set has limitations as there has been no verification of these figures by any other method.

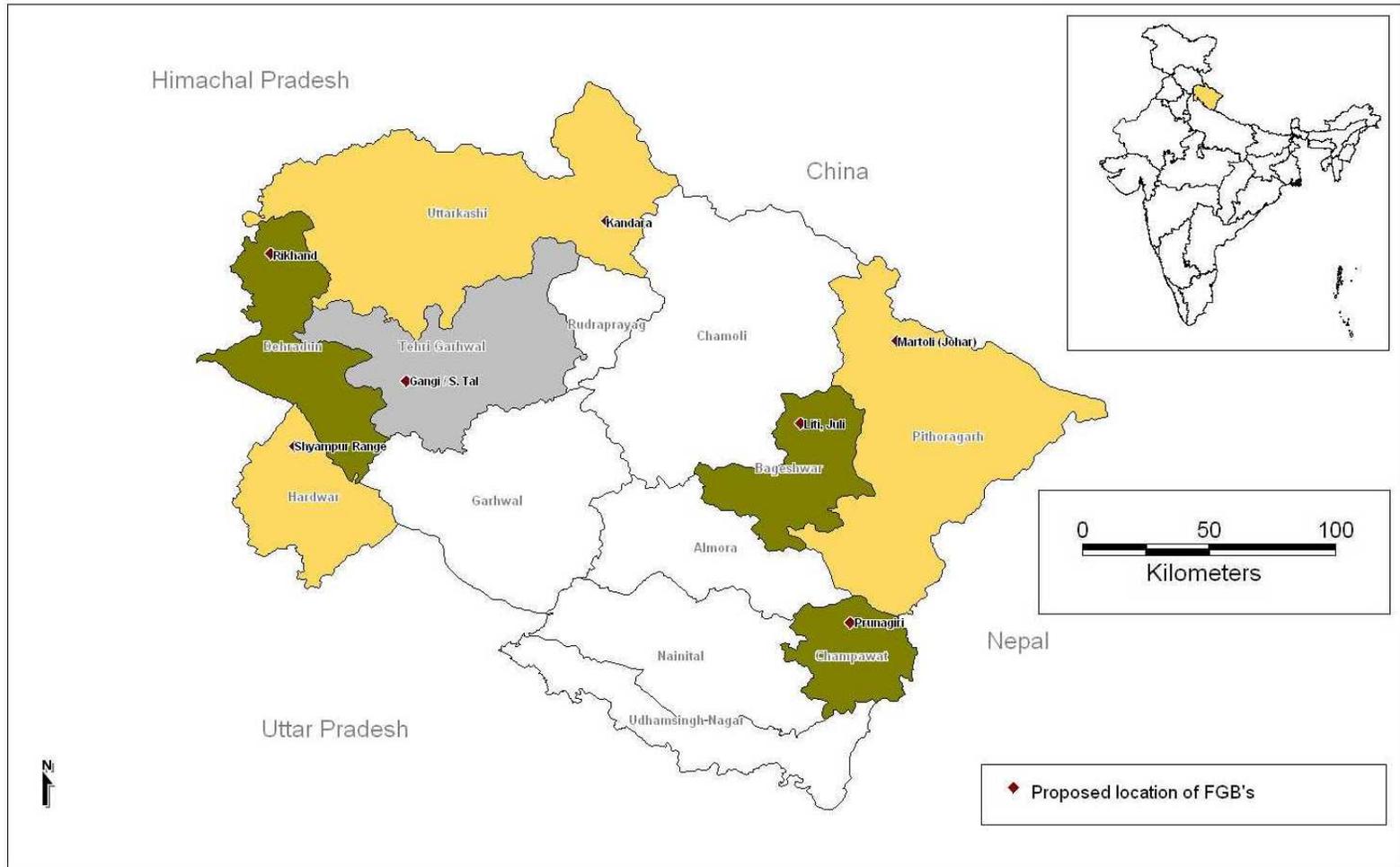
The data on the status of cultivation of various species has been compiled by FRLHT based on information obtained from NMPB, the SMPBs and their own data collection from the various states. This data set has its limitations as it does not capture information from all over India nor is its capture universal for the areas covered. Based on FRLHT's estimation of volumes produced by cultivation for various species and the trade data, FRLHT has made judgment calls on the 18 species listed as under cultivation and determined that for 15 species a greater proportion of the supply is from cultivated sources and for the other three it is from the wild. The remaining 69 species are sourced only from the wild.

**ANNEX 5: Maps of Project States and Location of FGBs**

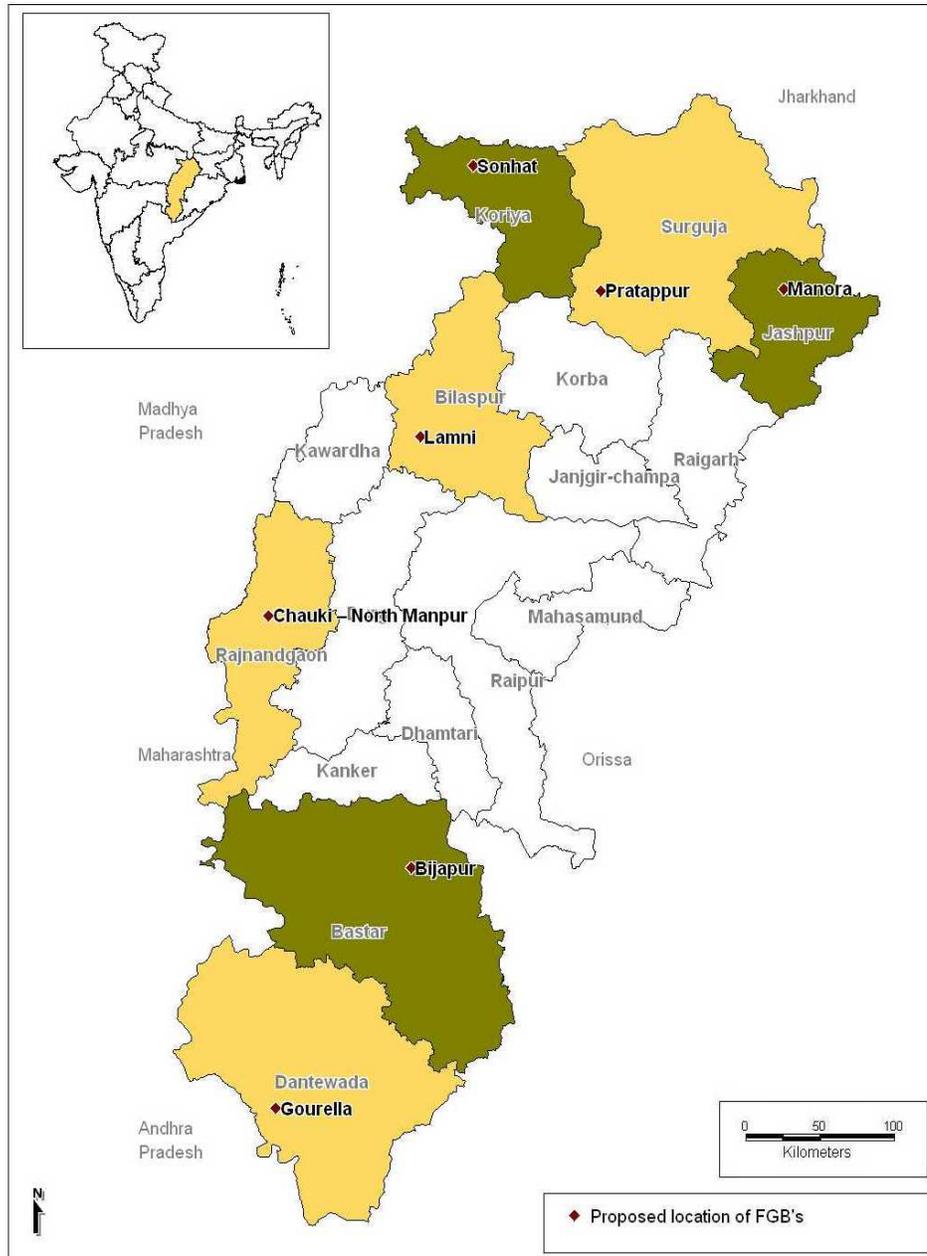
**1. Location of proposed Forest Gene Banks in Arunachal Pradesh in north eastern India**



## 2. Location of proposed Forest Gene Banks in Uttarakhand in north western India



### 3. Location of proposed Forest Gene Banks in Chhattisgarh in central India



**ANNEX 6: List of Forest Gene Banks (FGBs)**

**A) List of proposed Forest Gene Banks in Arunachal Pradesh**

S. No.	District	Forest Division	Area of Forest Division In Sq.Km (forest area)	Name of the proposed Forest Gene Bank	Forest Type	Altitude (M)	Lat. & Long.	
							N	E
1.	Tawang	Tawang Forest Division	1215	PTSO – T. Gompa	Sub-Tropical Alpine Forests	3500	27.49	91.82
2.	East Kameng	Khellong (Bhalukpong) Forest Division	10234	Pakke – Seijusa	Tropical Wet Evergreen Forests	150-900	26.97	93.03
3.	Lower Subansiri	Happoli Forest Division	6510	Ziro – (Manipuliang)/Hapoli	Montane Wet Temperate Forests	1500	27.69	93.93
4.	Upper Subansiri	Daporijo Forest Division	5740	Limikeng	Sub-Tropical Pine Forests	1800	28.47	93.68
5.	Dibang Valley	Roing Forest Division	4800	Mayodia	Sub-Alpine Forests	1600-1800	28.43	95.92
6.	Lohit	Lohit Forest Division Teju	4600	Mithumna – Mailang	Sub-Alpine Forests	1800	28.26	96.44
7.	Changlang	Namsai Forest Division	4352	Kamlang Nagar	Tropical Wet Evergreen Forests	150	27.64	96.16
		<b>Total area</b>	<b>37,451</b>					

**B) List of proposed Forest Gene Banks in Chhattisgarh**

<i>S. No.</i>	<i>District</i>	<i>Forest Division</i>	<i>Area of Forest Division in Sq.Km (forest area)</i>	<i>Name of the proposed Forest Gene Bank</i>	<i>Forest Type</i>	<i>Altitude (M)</i>	<i>Lat. &amp; Long.</i>	
							<i>N</i>	<i>E</i>
1.	Koriya	Koriya Forest Division	2450	Sonhat	Tropical Moist Deciduous Forests	300-1000	23.70	81.94
2.	Surguja	Sarguja Forest Division	2200	Pratappur	Sub-Tropical Broad Leaved Hill Forests	300-1350	23.93	83.41
3.	Jashpur	Jashpur Forest Division	2150	Manora	Sub-Tropical Broad Leaved Hill Forests	150-1350	23.13	83.89
4.	Bilaspur	Marwahi Forest Division	1850	Lamni	Tropical Moist Deciduous Forests	300-900	22.18	81.58
5.	Rajnandgaon	Rajnandgaon Forest Division	1650	Chauki – North Manpur	Tropical Dry Deciduous Forests	150-1350	21.40	80.82
6.	Bastar	Bijapur Forest Division	2850	Bijapur	Tropical Moist Deciduous Forests	150-1400	19.91	80.83
7.	Dantewada	Dantewada Forest Division	2150	Gourella	Sub-Tropical Broad Leaved Hill Forests	100-1200	19.23	80.87
		<b>Total area</b>	<b>15,300</b>					

**C) List of Proposed Forest Gene Banks in Uttaranchal**

<i>S. No.</i>	<i>District</i>	<i>Forest Division</i>	<i>Area of Forest Division in Sq.Km (forest area)</i>	<i>Name of the proposed Forest Gene Bank</i>	<i>Forest Type</i>	<i>Altitude (M)</i>	<i>Lat. &amp; Long.</i>	
							<i>N</i>	<i>E</i>
1.	Uttarkashi	Uttarkashi Forest Division	3071	Kandara	Sub-Alpine Forests	4000 - 4400	30.87	79.35
2.	Dehradun	Rajaji National Park	1486	Rikhand	Himalayan Moist Temperate Forests	~2400	30.92	77.96
3.	Tehri Garhwal	Tehri Forest Division	1080	Gangi / S. Tal	Sub-Tropical Pine Forests	2100 - 2400	30.26	78.37
4.	Haridwar	Haridwar Forest Division	612	Shyampur Range	Tropical Dry Deciduous Forests	600 -1000	30.08	77.94
5.	Bageshwar	Pauri Garhwal Forest Division	965	Liti, Juli	Himalayan Moist Temperate Forests	2000 - 3000	30.15	79.95
6.	Pithoragarh	Pithoragarh Forest Division	2033	Martoli (Johar)	Himalayan Moist Temperate Forests	> 3300	30.48	80.27
7.	Champawat	Chamapawat Forest Division	1125	Prunagiri	Himalayan Dry Temperate Forests	1000 - 1200	29.44	80.12
		<b>Total area</b>	<b>10,372</b>					
	<b>Grand total area in 3 states</b>		<b>63,123</b>					

**SIGNATURE PAGE**

**[Note : leave blank until preparing for submission for CEO endorsement]**

Country: \_\_\_\_\_

UNDAF Outcome(s)/Indicator(s):

\_\_\_\_\_

*(Link to UNDAF outcome., If no UNDAF, leave blank)*

Expected Outcome(s)/Indicator (s):

\_\_\_\_\_

*(CP outcomes linked t the SRF/MYFF goal and service line)*

\_\_\_\_\_

Expected Output(s)/Indicator(s):

\_\_\_\_\_

*(CP outcomes linked t the SRF/MYFF goal and service line)*

\_\_\_\_\_

Implementing partner:

*(designated institution/Executing agency)*

\_\_\_\_\_

Other Partners:

\_\_\_\_\_

\_\_\_\_\_

Programme Period: _____
Programme Component: _____
Project Title: _____
Project ID: _____
Project Duration: _____
Management Arrangement: _____

Total budget: _____
Allocated resources: _____
• Government _____
• Regular _____
• Other: _____
○ Donor _____
○ Donor _____
○ Donor _____
• In kind contributions _____

Agreed by (Government): \_\_\_\_\_

Agreed by (Implementing partner/Executing agency): \_\_\_\_\_

Agreed by (UNDP): \_\_\_\_\_