CHAPTER: I

Introduction

The foundation of civilization was laid down when our ancestors started studying the plants around them for the fulfillment of their basic requirements. Thus, the relation between man and the plant world is as old as the demand of food, cloth and shelter came into existence. The knowledge of plants shared by the people of different societies engaged with the work has delivered it through different forms of literature like ancient literature, ethnographies, commentaries and travelogue.

Traditional knowledge in India by and large comes in the category of implicit knowledge. This knowledge also reflects in the kind of traditional work whether it is an art, craft, healing practice, food practices to use to manage disease treatment. This type of knowledge is generally confined to practitioners and needs lot of protection and many government and public agencies have come forward to increase the survival rate of this knowledge. Terms used in the field of sustainable development to designate this concept include indigenous technical knowledge, traditional environmental knowledge, rural knowledge, local knowledge and farmer’s knowledge.

This chapter has the brief introduction of knowledge and the various types of knowledge. A brief introduction of Traditional Knowledge with stress on publicity and preservation of traditional knowledge, scientific validation of traditional knowledge and threats to traditional knowledge have been given. After that the brief introduction of Traditional Knowledge Holders; who are dealing with the traditional knowledge, the categories of Traditional knowledge holders and threats faced by them have been discussed. TKHs use the medicinal plants to make the herbal medicine, thus the brief introduction to the traditional herbal medicine is also discussed. Few of the traditional knowledge resources at world and national level are also discussed to better project the significance of the study. The information about at global and national level also enhances the justification of the work done. This chapter also includes the objectives of this study and the hypotheses proved by this work.
1.1. Knowledge:

Knowledge is the major thrust of the society as everyone wants to know what is happening around us. In addition to this, IT has removed the geographic barriers and has pushed the society towards information intensive and networked society, thus making the role of libraries very important in the frequently changing society. This in turn creates a huge ocean of knowledge, which should be managed properly as our earth has 75% water and only 25% land area and if this water is not properly managed it can drown the whole land area. Similarly, the huge ocean of knowledge if not properly managed it makes the man helpless for every task and he will be not in a position to face the challenges of new era. Knowledge is the need of the society and thus, it becomes the basic asset of any institution.

When raw data is processed, it provides Information and when Information is processed and structured it becomes Knowledge. Thus, knowledge differs from information as it is derived from the processed information. Out of various forms of knowledge, information providers by and large use the explicit form of knowledge. Information centers are managing the knowledge so that it can fulfill the diverse demands of users in time.

![Diagram showing the transformation from Data to Knowledge](image)

Fig. 1.1: Shows the creation of Knowledge from the raw data

Knowledge is existing on the earth right from the existence of the man. Knowledge is what an individual knows and it has no importance without the knower. The information is the input of
knowledge. The longest lived most persistent sort of information is called knowledge. Knowledge is power but its vitality is measured in terms of its usefulness to society.

1.1.1. Definition

Bell (1973) defines knowledge as “a set of organized statements of facts or ideas, presenting a reasoned judgment or an experimental result, which is transmitted to others through some communication medium in some systematic form”. Porat (1977) states, “Information is data that has been organized and communicated.” Abram (1977) sees the process for knowledge creation and use as a continuum where data transforms into information, information transforms into knowledge and knowledge drives and undergoing behavior and decision making.

According to Davenport and Prusak (1998), “Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experience and information. It originates and is applied in the minds of knower. In organizations, it often becomes embedded not only in documents and repositories but also in organizational routines, processes, practices and norms.”

1.1.2. Types of knowledge:

Mainly, Knowledge is of two types:-

i) Tacit Knowledge.

ii) Explicit Knowledge. (The comparison between these two types of knowledge is given in Table 1.1.)

Further, tacit knowledge is of two types:

1. Embodied knowledge.

2. Embedded knowledge. (The comparison between these two types of tacit knowledge is given in Table 1.2.) (Jolly, 2005).

In addition to these two types of knowledge another form of knowledge familiar as “Traditional/ Indigenous/ Cultural Knowledge” also exists.
Table: 1.1: Difference between Tacit and Explicit Knowledge

<table>
<thead>
<tr>
<th>Tacit/ Implicit Knowledge</th>
<th>Explicit Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Subjective and experience based knowledge.</td>
<td>* Objective and rational Knowledge.</td>
</tr>
<tr>
<td>* This knowledge can’t be expressed in words.</td>
<td>* This can be expressed in words.</td>
</tr>
<tr>
<td>* Resides in the mind of a person.</td>
<td>* This can be well communicated for use among users.</td>
</tr>
<tr>
<td>* Observed in the behavior of a person who attained it.</td>
<td>* Available in one or the other forms of the media.</td>
</tr>
<tr>
<td>* This knowledge can’t be disseminated in formal form for use.</td>
<td>* Formal, systematic and easily disseminated as and when required.</td>
</tr>
<tr>
<td>* Can’t be freely and easily shared amongst users.</td>
<td>* Can be freely and easily shared amongst users.</td>
</tr>
<tr>
<td>* Personal asset and vanishes with the person.</td>
<td>* Not a personal asset so retain forever.</td>
</tr>
<tr>
<td>* Library and Information Centres by and large not dealing with this knowledge to satisfy the users.</td>
<td>*Library and Information Centres are dealing with this knowledge to satisfy the users.</td>
</tr>
</tbody>
</table>

Table: 1.2: Difference between Embodied and Embedded form of knowledge

<table>
<thead>
<tr>
<th>Embodied knowledge</th>
<th>Embedded knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot be detached from its knower so it is difficult to articulate.</td>
<td>Resides in the things (product as well as in process) created by the individual.</td>
</tr>
</tbody>
</table>

1.2. Traditional Knowledge:

One of the India’s proudest symbols of heritage is the Tribal Culture. The tribal communities in India are the primary source of folk culture and folk tradition. Folklore traditions in India bear testimony to the co-existence of tribal, non-tribal and even urban culture, many times influencing each other and developing into a common culture. The nature of the traditional knowledge is very
diverse. It covers; literary, artistic works, scientific works, songs, dances, medical treatments and practices and agricultural technologies and techniques.

It is noted from the ancient literature (Abul-Fazl, 1978), The Second Kind; shows the strange effects of actions on health of body and in the production of manifold diseases. Hindu philosophers class diseases under three heads:

I) Those that can be cured by medicinal treatment
II) Those that are removable by observing some courses of procedures
III) Those that require the application of both.

To diagnose each of these, certain symptoms are recognized which are classed under three states viz:

a) Actions deliberately committed in a state of wakefulness
b) Unconsciously done in a state of wakefulness
c) Effected during sleep.

To explain this, let’s elaborate an example of headache. It is caused by the use of violent language for father or mother by the sufferer. The remedy is to make the images of Kasyapa and Aditi of 2 tolahs of gold and give them to the poor. The first of these two is regarded as the father of the Devatas and the latter as the mother. Like this, other diseases mentioned in the literature are: madness, epilepsy, pain in the eyes, blindness, dumbness, colic, stone in the bladder, lameness, fever, consumption, tumor, asthma, dysentery and sterility (Abul-Fazl, 1978).

Kant (2002) reported that in most of the South-East Asian countries including India, great voluminous information can be derived from folk-lores, epic poems, medicinal treatises, and old scriptures, palm leaves, copper plates etc. But still there is a vast store of knowledge, which has yet to see the light of the day and is hidden in Tibetan manuscripts and writings on herbals preserved in archives of the monasteries scattered all over the Himalaya from Ladakh to Sikkim and in Tibet.

World Trade Organization (WTO) came up with the Geographical Indicator (GI) tag, a certification which tells the consumer that the product comes from the place for which it is famous. The GI registry has 184 Indian products over the last 10 years which fall under four categories viz. handicraft – Muga Silk of Assam, Kashmiri Walnut Woodcarving of J&K, Maheshwari Saris and
Fabrics of M.P.; Agricultural – Darjeeling tea of West Bengal; Bikaneri Bhujia of Rajasthan, Vazhakulam Pineapple of Kerala; manufactured – Coimbatore Wet Grinder of Tamil Nadu, Feni of Goa, Nashik Valley Wine of Maharashtra and foodstuff – Triupati Ladoo of Andhra Pradesh, Hyderabadi Haleem of Andhra Pradesh and Dharwad Pedha of Karnataka (Dixit, 2013).

There are different style of textiles that have developed over the past centuries in different parts of the country and are being woven even today, like cotton fabrics and handlooms, silk weaves and brocades, tie and dye such as bandani and patola, hand painted, dyed and painted fabrics, folk embroideries and shawls. Alpanas are flowering linear patterns made on the floor of beaten clay by rice paste is the traditional handicraft of India (Kutty, 2002).

TK forms the basis for the local level decision making in various day to day activities like – agriculture, health care, food preparation, education, natural resource management etc. TK of human health and medicines has recently become a major global concern. Traditional knowledge of medicinal plants is now considered to play a vital role in addressing the health care needs of developing countries and indigenous people.

Fig. 1.2: Interrelationship of various subjects with the Traditional Knowledge
Sustainable development researchers, however, have found the following categories of IK to be of particular interest: resource management knowledge and the tools, techniques, practices and rules related to pastoralism, agriculture, agroforestry, water management and the gathering of the wild food; classification system for plants, animals, soils, water and weather, empirical knowledge about flora and fauna and inanimate resources and their practical uses; and the worldview or way the local group perceives its relationship to the natural world (Emery, 1996).

Table: 1.3: Some of the characteristics compared to so-called western scientific knowledge

<table>
<thead>
<tr>
<th></th>
<th>Indigenous Knowledge</th>
<th>Western Scientific Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship</td>
<td>*Subordinate</td>
<td>*Dominant</td>
</tr>
<tr>
<td>Dominant mode of thinking</td>
<td>*Intuitive</td>
<td>*Analytical</td>
</tr>
<tr>
<td>Characteristics</td>
<td>*Holistic</td>
<td>*Reductionist</td>
</tr>
<tr>
<td></td>
<td>*Subjective</td>
<td>*Objective</td>
</tr>
<tr>
<td></td>
<td>*Experimental</td>
<td>*Positivist</td>
</tr>
<tr>
<td>Data creation</td>
<td>*Slow/Inclusive</td>
<td>*Fast/Selective</td>
</tr>
<tr>
<td>Prediction</td>
<td>*Short time cycles</td>
<td>*Short-term linear</td>
</tr>
<tr>
<td></td>
<td>*Recognizes the onset of long</td>
<td>*Poor long term prediction</td>
</tr>
<tr>
<td></td>
<td>term cycle</td>
<td></td>
</tr>
<tr>
<td>Explanation</td>
<td>*Spiritual – includes the</td>
<td>*Scientific Hypotheses Theory</td>
</tr>
<tr>
<td></td>
<td>inexplicable</td>
<td>and Laws</td>
</tr>
</tbody>
</table>

(Source: Wolfe et al, 1991)

1.2.1. Definition of Traditional Knowledge:

Traditional knowledge is the knowledge that refers to the matured long-standing traditions and practices of certain regional, indigenous, or local communities. It is the knowledge which includes assumptions and beliefs. It is used to understand, describe and explain the reality as well as conventions. It is also useful to form the framework among organizational members, recognize the new information and evaluate alternative interpretations and actions.

Traditional knowledge is also known as indigenous knowledge and local knowledge as it generally refers to the matured long-standing traditions and practices of certain regional, indigenous,
or local communities. It also encompasses the knowledge, local practices and teachings of these communities. In most of the cases, this knowledge has been orally passed for generations from one person to another person. Some forms of this knowledge are expressed through stories, legends, folklore, rituals, songs and even laws and practices (Traditional Knowledge, 2008).

It is a form of knowledge which has a traditional link with a certain community. It is a knowledge which is developed, sustained and passed on within a traditional community and is passed between generations. The other names of TK are Indigenous Knowledge, Local Knowledge, Folk Knowledge, People’s Knowledge, Traditional Wisdom, and Traditional Science. It is the wisdom of the elders of a community. TK is the future combined with the past.

“Indigenous Knowledge is the knowledge developed around the specific conditions of the environment indigenous to a particular geographic area. Indigenous knowledge is cost effective, readily available, socially desirable and economically affordable” (Singh and Misri, 2006).

It is true that a lot of traditional knowledge is in oral form and there are no written documentary records. Acquiring it in recorded form can be challenging. In response to this Sahai says- “The huge corpus of knowledge lying outside of books must be put on a record at very high priority. For instance, there is a lot of knowledge available with the tribals of Jharkhand and Madhya Pradesh. But there is erosion of Indigenous knowledge among the Tharu tribals in Uttar Pradesh in the Terai region because of urbanization. In another two generations this knowledge will disappear. This documentation must be taken up on a war footing” (Menon, 2007a).

1.2.2. Publicity and preservation of Traditional Knowledge:

There is an enormous volume of indigenous knowledge existing in India. But it is cocooned in tribal communities and is widely dispersed and remains confined to local communities because of lack of publicity. Indigenous knowledge is also vanishing at an alarming rate. There is therefore an urgent need for its documentation, preservation of worthwhile knowledge, and its publicity. “In September 2001, a group of tribal leaders from Andhra Pradesh and Orissa in the Eastern Ghats, India, organized an indigenous knowledge mela. During this four day fair hundreds of tribal people exchanged their experiences related to agriculture, health, food preservation and socio-culture practices. The fair highlighted the level of organization of Naik Gotna, a network of tribal leaders,
and outlined ideas to improve the lives of the tribal communities on the basis of local knowledge and technology (Shankar et al, 2001).

Similar kind of networking and organization is taking place in some other holders of indigenous knowledge. “Ladakh Society for Traditional Medicine (LSTM, 2007) came into existence as nomad health and education in the year 1998-99 and later changed to nomad RSI. The organization was officially registered as a local NGO only in the year 2001 under the existing name LSTM. The society is quite unique to be engaged in the field, directly linked to amchi (health and education) system of medicine as in the past only the amchis seemed to care about the system. The programme is implemented since eight years through three different components, education, conservation and ethnobotany. It is entitled revitalization of sowarigpa (Tibetan medicine or amchi medicine) in Ladakh.”

Table: 1.4: Some of the leading organizations active in the field of indigenous knowledge in India

<table>
<thead>
<tr>
<th></th>
<th>Leading Organization</th>
<th>Active in</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>CIKS, Chennai</td>
<td>Active in applications of Vrikshayurveda to organic agriculture.</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:info@ciks.org">info@ciks.org</a></td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td>NIF, SRISTI &amp; GIAN,</td>
<td>Active in documenting rewarding and value addition to Grass – root innovations many of which particularly in the fields of agriculture and healthcare are based on IK</td>
</tr>
<tr>
<td></td>
<td>Ahmadabad</td>
<td></td>
</tr>
<tr>
<td></td>
<td><a href="mailto:admnif@sifv.com">admnif@sifv.com</a></td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>TKDL, New Delhi,</td>
<td>Documenting classical herbal formulations and their therapeutic uses in computerized form that can be searched by patent offices world wide in order to evaluate (and reject) patent claims based on prior art belonging to the Indian systems of medicine.</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:vkg@nisci.res.in">vkg@nisci.res.in</a></td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>MSSRF, Chennai</td>
<td>Documenting IK in agriculture, in order to establish farmer’s rights under the ‘plant varieties act’</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:bhavani@mssrf.res.in">bhavani@mssrf.res.in</a></td>
<td></td>
</tr>
<tr>
<td>e)</td>
<td>Kerala Government</td>
<td>First state govt. active in documentation and value addition of IK in fields like Agriculture, medicine and bio-technology.</td>
</tr>
</tbody>
</table>
f) Govt. of India,  
- CSIR  
- AYUSH Dept.  
- MoEF  
- Ministry of Commerce  
TKDL described above and latest amendments to patent act which disallow patents on products derived from traditional medical knowledge, and the legislation called Indian Bio Diversity Act 2002, are the policy and legal initiatives of Govt. of India to protect TK from bio-piracy and to ensure access and benefit sharing in line with provision of CBD

g) Centre for Ecological Sciences, IISc, Bangalore  
In collaboration with several other organizations like FRLHT/MSSRF/TBGRI/NIF etc, it has developed modules for recording TK of local bio-resources in a document, called the “People’s Bio-diversity Register” (PBR)

(Source: Status of IK in India, 2010)

1.2.3. **Scientific validation of Traditional Knowledge:**

A number of scientific studies are ongoing in India for scientific validity and development of drugs based on medicinal plants. “Several herbal drugs developed by the CSIR are already in the market - saheli family planning pill, asmon (for asthma) and herbal agents for leukemia. The institute of microbial technology, Chandigarh has come out with streptokinase using cow’s urine which is a blood clot dissolver and thereby plays an important role in heart and brain disorders (Gautam, 2005)” On the basis of leads provided by the kani community in Kerala, a stress busting drug namely Jeevani has been developed from the plant Arogyapacha. Big industrial houses engaged in the production of ayurvedic drugs are doing their own research to develop medicinal plant based products. From Aloe vera juice, wheat grass juice to miswak toothpaste and herbal hair conditioners, industry is coming out with several products based on indigenous knowledge. Shaheen (2009) resident of Pakistan during her research has identified potent substances from traditional medicinal plants that could potentially prevent convulsions in epilepsy. As per her statement so far, only preventive medicines exist for epilepsy, but none of them cures the underlying disorder and the disease prevails for the entire life of the patient. The available antiepileptic drugs are also associated with severe side effects when used over the long term and the compounds she has identified may provide an alternative treatment option for these patients.
Some Western researches have also shown interest in scientific investigation and validation of indigenous knowledge resources especially for providing alternative medicine and supplementary therapies for cure of chronic diseases. However, indigenous knowledge resources in a country like India are so diverse that in depth study of every case provides different and interesting information.

1.2.4. Threats to Traditional Knowledge:

There are several other problems related to indigenous knowledge that are cause for concern for continuous accessibility of potential ideas that may be opening new vistas for medical research and follow integrated approach to overcome life threatening diseases. The extinction of many useful plant species due to increasing temperature and rapid deforestation is leading to erosion of indigenous knowledge base of local communities. When there are difficulties in collecting herbs and other plant sources, the related practices to cure diseases face a setback.

The extinction of plants not only profoundly affects the ayurvedic practices and other indigenous prescriptions for diseases treatment but also other indigenous knowledge applications based on plants. “The Gaddi tribes of Himachal Pradesh neighbouring Uttarakhand use nearly 20 plant species for preparing dyes” (Singh and Kumar, 2000). Some of such plant species are under threat of extinction. The non-availability of herbs and other plant based raw materials compel some practitioners to opt for other professions and hence seriously affect the traditional knowledge practices. “The traditional health care system is facing serious challenges because of migration of younger people to cities for taking up employment; breakage of joint family system, due to which the indigenous knowledge which is passed by word of mouth from generation to generation remains confined to the traditional healers or only to a few knowledgeable persons. This ultimately leads to lack of knowledge regarding the use of medicinal plants, time of collection, plant parts used, storage and preparation or formulation as the local healers don’t pass their knowledge to other members of the community as it is their only source of income and they also fear that it could be misused” (Kanwar et al, 2006). There are instances where older indigenous knowledge practitioners remained possessive and always pleaded that they will transfer their knowledge before they leave this world and they died out without doing it.

The loss of indigenous knowledge can be prevented if the indigenous knowledge practitioners are incentivized to divulge their knowledge in the larger public interest and some
system of protection of their knowledge and ideas is developed. Scientific institutions can also approach the indigenous knowledge practitioners to further work on ideas and share the benefits. “Scientists at the Tropical Botanical Garden Research Institute in Thiruvanthapuram, Kerala have used the traditional knowledge of the Kanis to produce a stress-busting drug called “Jeevani” from the plant’s leaves. Half of the royalties and license fees from the sale of ‘Jeevani’ are paid to the Kani in recognition of their IPR. It is one of the few cases in India where traditional knowledge has been rightly respected and paid for” (Menon, 2007b).

On one hand urbanization has put this knowledge on the verge of extinction and on other hand residential areas of several traditional knowledge holders are not reachable by road or rail transport. Majority of the population of traditional knowledge holders are localized in the rural hilly and far flung areas. Moreover, there are no suitable health facilities due to the lack of the proper motorable roads. Modern medicinal facilities are scanty and could not reach these inaccessible areas inspite of Government’s best efforts.

1.3. Traditional knowledge holders:

The groups that hold traditional knowledge are very diverse. The custodians of this knowledge may be individual, groups, groups of communities. These people may be indigenous to the land or descendents of later settlers. They are known by different names in their communities.

The local people have a deep faith in Vaidyas. As the tribal and rural communities are greatly depend on the herbs for medicinal uses hence every village has one or two local medicine men popularly known as Vaidya Ji. The tribal and locals face lot of problems particularly dealing with health problems. They have a nomadic way of life i.e., migrate across the difficult tracks and often take a heavy toll in terms of injuries and diseases. In the absence of modern facilities, they are wholly dependent on plants available around them for treating various ailments by using the plants in their own traditional methods. All plant parts were being used by the locals and tribals as source of medicines. The usual methods of applications were decoction, paste, powder, juice and pellets. The most common part of plants used by the tribals is the leaf, roots and fruits; in some cases flowers, bark, stem, seeds and in rare cases the whole plant.

A report of FRLHT (2010) indicates that the citizens spend 4 times more than what the Government spends on their healthcare. Health related expenditure constitutes 2nd most important
causes of rural indebtedness. It is estimated that about 12 lakhs of folk healers are practicing across the country. They are known to manage many kinds of simple to complex health conditions from common cold to cough, from common fever to jaundice, and from poisonous bites to bone fractures etc. are the carriers of the indigenous health traditions.

The traditional healers specialize in particular areas of their profession. Thus we find some medical practitioners are expert in bone setting, wound healing, poisonous bites, neurological disorders, etc. and some others in spiritual healing, especially the use of incantations, while still others combine both in their treatment.

As per the belief of some of TKHs, the traditional medicine has spiritual and curative power in it and they normally does not disclose the secrecy over remedy formulation, believing that the medicines will lost their potency to cure if the sanctity of the curative power of medicinal plants is disclosed to other people.

Gupta (2009) said that many communities such as Zuni in North West America, the Madhubani painting tradition in Eastern India and the Patan textile tradition in Northern Gujarat do permit originality and innovation. Families carried out patan textile work start using synthetic dye in silk saries about 35 years ago but they reverted to the original tradition of vegetative dyes ignoring a discontinuity of more than 100 years.

India is blessed with rich and diverse heritage of cultural traditions. These traditions are linked with the use of wild plants as medicinal herbs. This tradition is still exists among the people living in the undulating plains and at foothills of dense forests.

Being close to nature, people make maximum use of herbs to cure various diseases. Like Lama practicicing herbal lore all over the region to maintain this tradition. The medicinal and aromatic plants of cold deserts have been a boon and a major source of income and livelihood for the poor backward and tribal people. The farmers, who are the producers and collectors of medicinal and aromatic plants, sell the produce generally to local vaids, contractors and traders of the village. The tribal communities have their own system of diagnosis and cure and prefer to use indigenous natural remedies to cure different diseases instead of modern synthetic drugs.
1.3.1. Categories of Traditional Knowledge Holders:

A number of people practicising the traditional means for the treatment and cure of several diseases and they are known to the community by a different name like traditional knowledge holders, traditional healers, traditional folk healers (TFH), traditional doctor, Vaidya, Hakim, Amchi, etc. In this research work, the terminology used for this kind of people is Traditional Knowledge Holders and in this research work the different groups undertaken for study are: housewives, midwives, amchis, ojhas, bone settlers, hakims, vaids, special healers, some ayurvedic practitioners and yoga practitioners.

Table: 1.5: Different categories of TKH with approximately count of their population in India

<table>
<thead>
<tr>
<th>TFH and Medicine-men</th>
<th>Art of healing</th>
<th>Approx. number of TFH and medicine-men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housewives and village healers</td>
<td>Home remedies</td>
<td>Several million</td>
</tr>
<tr>
<td>Traditional birth attendents (mid-wives)</td>
<td>Normal delivery</td>
<td>7 lakhs</td>
</tr>
<tr>
<td>Herbal Healers</td>
<td>Common ailments</td>
<td>3 lakh</td>
</tr>
<tr>
<td>Ojhhas and Amchis</td>
<td>Common ailments</td>
<td>11 lakh</td>
</tr>
<tr>
<td>Bone settlers</td>
<td>Orthopaedics and bone fracture</td>
<td>60,000</td>
</tr>
<tr>
<td>Hakims and Vaids</td>
<td>Common ailments</td>
<td>4 lakh</td>
</tr>
<tr>
<td>Vish Vaidya (snake bite, scorpion sting, dog bite, fish poison)</td>
<td>Poison ailments</td>
<td>60,000</td>
</tr>
<tr>
<td>Special healers Vaidyas</td>
<td>Eye, skin, dental, arthritis, liver, wounds, piles, kidney, bowel</td>
<td>Several thousand</td>
</tr>
<tr>
<td>Ayurvedic Practioners</td>
<td>Ayurvedic herbal drugs</td>
<td>3,60,740</td>
</tr>
<tr>
<td>Unani Practioners</td>
<td>Unani herbal drugs</td>
<td>29,701</td>
</tr>
<tr>
<td>Siddha Practioners</td>
<td>Common ailments</td>
<td>11,644</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------</td>
<td>--------</td>
</tr>
<tr>
<td>Homeopathic Practioners</td>
<td>Common ailments</td>
<td>1000 in each district in prominent localities in N. India</td>
</tr>
<tr>
<td>Accupressure Therapists</td>
<td>Common ailments</td>
<td>Several thousand</td>
</tr>
<tr>
<td>Yoga Practioners</td>
<td>Common ailments</td>
<td>Several thousand</td>
</tr>
<tr>
<td>Reiki masters</td>
<td>Common ailments</td>
<td>Several thousand</td>
</tr>
</tbody>
</table>

(Source: Shanker, 1998)

1.3.2. **Problem faced by Traditional Knowledge Holders:**

Traditional knowledge holders did not disclose their knowledge unless they feel a level of security. Some of the problems faced by them for sustaining their traditional knowledge are enumerated as under:

a) Practices of rural and tribal communities are under threat of imitation of their ideas.

b) External social pressures such as adoption of less labor intensive professions by younger generations.

c) External environmental pressures such as deforestation, forest fire.

d) Migration of population of communities to towns, cities for better opportunities.

e) Adoption of modern life styles.

f) Changing behaviour of the patients.

g) The patients are impatient and desire quick relief instead of slowly and completely uprooting the disease.

h) Disruption of traditional ways of life also weakens the traditional means of maintaining and passing knowledge on to future generations.

i) Losing the very language that gives the primary voice to a knowledge tradition.

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1 Cited in Malhan and Wadhera, 2010(a)
j) Lack of respect and appreciation for traditional knowledge practices.

k) Commercial exploitation of their knowledge by others.

1.4. Medicinal Plants:

India, with its geographic area of about 329 million hectares and the meeting ground of three major bio-geographic realms, the Indo-Malayan, Eurasian and Afro-tropical, is fortunately endowed with a wide spectrum of biodiversity. Among the different forms of plants (tree, shrub, herb climber), medicinal plants contain herbs as the primary source covering around 57% of the different forms. Western Himalayan region is unique in its biodiversity due to diverse climatic ranges and thus, has a rich collection of medicinal plants.

India is a veritable emporium of medicinal and aromatic plants. It has been estimated that of the 15,000 higher plants occurring in India, 9000 are commercially useful, of which 7,500 are medicinal, 3,900 are edible, 700 are culturally important, 525 are used for fiber, 400 for fodder, 300 for pesticide and insecticide, 300 for gum, resin and dye and 100 for incense and perfume (Rajendran and Gunasekaran, 2006).

Medicinal herbs are going to play an important role in future Materia Medica. These herbal drugs provide strength to the body organs and stimulate normal functioning. The herbal drug act selectively and gently without disturbing the other systems of the body, whereas, modern medicines affect several metabolic activities in the human body system and has side effects which makes the body more susceptible to other diseases.

Local communities protect a small patch of forest on religious grounds is known as sacred groves. Sacred groves are the traditional Indian way of in-situ conservation of biodiversity especially medicinal plants as it is the repository of medicinal plants. In India, a number of sacred groves are conserved. Bhakat and Pandit (2004) highlighted the 18 sacred groves of Purulia District of West Bengal and stressed upon the role played by these groves in medicinal plants conservation. The description for the first time of 56 species of medicinal plants growing in these groves and threats to these groves also highlighted.
1.4.1. History of use of Medicinal Plants:

The history of medicine in India can be traced to the remote past in the Vedic period. Vedas embodied the vast treasure of knowledge regarding multifarious uses of plants with major emphasis on medicinal, magico-medicinal, magico-religious and mythological aspects. In all early civilizations there was much interest in drug plants. References to miracle herbs or wonder drugs are often found in old literature. Vedic knowledge is based on the panchbutas- earth, water, air, fire and ether and the disturbance among these five elements is the reason of any problem in the body.

“The Rig-veda perhaps the oldest repository of human knowledge, having been written about 4500-1600 B.C. claims about 99 medicinal plants, the Yajur-veda having description of 82 plants and the Sam-veda too have the description of medicinal plants. Atharva-veda deals with 288 plants almost all having medicinal value and were used for deadly disease” (Kapoor, 2003). In addition to these ancient sources, other ancient works on medicinal value of plants are: Caraka Samhita, Susruta Samhita, Vagbhata I, Vagbhata II, Vagbhata III, Madhavakara, Cakrapanidatta, Sarangadhara and Bhava Misra.

The flowers of the *Asclepeas* are placed upon the idol of Mahadeva. It secrets an acrid milky juice which flows from wounds in the shrub, and is applied to various medicinal purposes and preparations of the plant are employed to cure all kinds of fits, epilepsy, hysterics, convulsion and poisonous bite (Abul-Fazl, 1978).

The use of the medicinal plants for the cure of the diseases has been in practice from the Vedic period as explained earlier. The science which deals with the use of the medicinal plants for the cure of the diseases from the Vedic period is known as “Ayurveda” and it differs from other systems of medicines on the sole base i.e. use of herbs and herbal based medicines. “Ayur” means age or life and “Veda” means the knowledge. Thus, the knowledge of age is actually Ayurveda. As per Ayurveda if someone follows the rules of eating and living he/she will attain the long life. As per myth Lord Brahma has originated Ayurveda for the good health, long life and welfare of human beings.

According to Charaka, a noted practioner of Ayurveda in ancient India - a physician who fails to enter the body of a patient with the lamp of knowledge and understanding can never treat diseases. He should first study all the factors, including environment, which influences a patient’s
disease, and then prescribe treatment. It is more important to prevent the occurrence of disease than to seek a cure (Kapoor, 2003).

In Ayurveda there are no such things as instant relievers, pain killers or antibiotics. The herbs used in Ayurvedic remedies don’t operate against the body’s metabolism; their effect is registered gradually and hence there are minimum side effects. Knowledge of this art was spread among sages, hermits and medicos who roamed from place to place and it was passed from generation to generation.

Primitive people of all ages derived knowledge of medicinal plants from their ancestors and through trial and error. From time immemorial, diseases have been a part of human life and they sometimes have threatened the existence of human race on the face of the earth. It is realized that the traditional knowledge base system is gradually sparkling as the source of the knowledge base for scientific endeavour to study and to make sustainable use of biodiversity which has an immense importance for biological science at present. This entailed the use of herbal medicine as healthcare and as medicinal treatment of various diseases. It is well known fact that rural areas, particularly the areas inhabited by the tribal people and socio-economically backward communities are the major source of the traditional knowledge based on use of various plants.

Amrit Kalsi, Senior Medical Officer, Delhi Government in an interview with the Daily Excelsior reporter says “the demand for homeopathic and ayurvedic medicines has increased in the last few years and to cure chronic ailments such as respiratory diseases, fevers, skin diseases, viral infections, asthma and allergic disorders, people are choosing the traditional way of treatment before allopathic.” In addition to this Anoop Misra, Department of Diabetes and Metabolism, Fortis Group of Hospitals, says that “the demand for Ayurvedic medicine has also gradually improved for the rising number of lifestyle diseases like stress, migraine, asthma, obesity” (Daily Excelsior, 2008).

1.4.2. Traditional herbal Medicine:

Traditional medicine is defined as: the sum total of all knowledge and practices, whether explicable or not, used in diagnosis, prevention and elimination of physical, mental or social imbalance and relying exclusively as practical experience and observation handed down for generation to generation whether verbally or in written.
Sources of Traditional Knowledge on Medicinal Plants in the Western Himalayan Region

Fig. 1.3: Shows the creation of Traditional Herbal Medicine

The importance of traditional medicine as a source of primary health care was first officially recognized by WHO in 1978 in UN at its Alma Ata Conference (Dey et al, 2007). In various parts of the world like Australia, Africa, America, Bangladesh, Brazil, China, Europe, Spain, Russia, the practice of traditional herbal medicine (THM) is used especially in the areas where ethnic communities are living. It is clear from the ancient records that the man living on the earth has been using plants, animals, micro-organisms and minerals for treating the various health ailments. The THM has gained importance in the developed countries during the last decade.

The traditional medicinal knowledge is thought to be within every one’s reach and does not require any study or training to practice it. THM is the mother of all other systems of medicine such as Ayurveda, Siddha, Unani, Nature cure and even modern medicine.

Fig.1.4: Depicting the relationship of Traditional System of medicine with other systems of medicines.
India is considered the leading country promoting medical tourism. This is due to the fact that the medical facilities and healthcare professionals in India are of international standard and healthcare facilities are available at drastically lesser costs than in Western countries. India has over 150000 medical tourists each year and this figure is rising at a high pace. Currently, the medical tourism market in India is estimated to be worth over US $300 million with approximately 170,000 foreign patients coming in every year. The reports estimate that medical tourism to India is growing by 30% a year. In a developing country like India, alternative medications like Ayurveda, Yoga, Unani, Siddha and Homeopathy have an important role to play in alleviating diseases—both chronic and acute. The cost effectiveness, low toxicity, efficacy, and few side effects make them invaluable, viable and highly desirable alternatives to modern medicine (Paul, 2010).

In Ayurvedic, Unani and Siddha systems, the drugs are used in crude forms only. Further the drugs used in indigenous system are unevaluated i.e. they have not been thoroughly screened out on modern scientific lines as compared to allopathic system. In the THM many medicinal herbs can be used for a single ailment. The Traditional healer used one or combination of few medicinal herbs to prepare the THM for curing a particular disease according to symptoms and secondary effects of the disease.

Bhangalis are a repository of traditional knowledge especially on the utilization of plants for medicinal purposes. This can be easily understood from the following local sayings which are very popular in the area. “Bana, basuti te bare jethi houn thethi manu kian mora” meaning a man cannot die of disease in an area where Vitex negundo (bana), Adhatoda vasica (basuti) and Acorus calamus (bare) are found, provided that he knows how to use them. Similarly another verse that is common in the area is “Harad, bahera amla bich payi giloye, jithonye char chijan utho admi kyon moye.” It means that a person will not succumb to disease in an area where Terminalia chebula (harad), T. bellerica (bahera), Emblica officinalis (amla) and Tinospora cordifolia (giloye) plants are available (Uniyal et al, 2006).

During the preparation of manuscript for WIPO, Gupta (2009) reported that in Nigeria nowadays the traditional healers take notes and write up their diagnosis, whereas earlier they did not do that. Chief Omotosho almost articulated the rationale for modern intellectual property rights when he said, “if I share you can improve upon it, make my knowledge more useful, if I keep it to myself, my know-how cannot be improved upon.” He did feel, however, that unauthorized access to
a healer’s knowledge is not acceptable. If a firm develops a medicine based on healer’s knowledge, it should share the technology of making that medicine with the healer. For example, modern medicine does not have any treatment for blood pressure merely keep it in check. Traditional medicine claims to have a treatment for the purpose. There are about 4000 medicines of this kind in Nigeria.

As per the fact sheet of WHO (2008) number; 80% of the population depends on Traditional Medicine for the primary health care in some Asian and African countries. Herbal medicines are the most lucrative form of traditional medicine generating billions of dollars in revenue. Traditional medicine can treat various infectious and chronic conditions. New anti-malarial drugs were developed from the discovery and isolation of artemisinin from *Artemisia annua* L., a plant used in China for almost 2000 years. More than 100 countries have regulations for herbal medicines.

1.5. Traditional Knowledge Resources in World:

People around the globe have tested herbs and other plant sources for prevention and cure of diseases and well being of human beings. During difficult situations of famine and food scarcity, mankind made every possible effort for survival. Thousands of people died in African region due to famine but some who tried Blue Green algae from a pond as last resort for survival, could survive as this algae provided all the essential nutrients for life. This algae is now scientifically processed and marketed as a food supplement. “In the best circumstances, we should all live to be about 120 years. In Tibet there are people living to be about 125 years old. They attribute to their longevity to blood circulation and the daily consumption of herbs. The favourite herb of the Tibetan people is alfalfa. It is the only known plant that contains every nutrient that we need for growth and health” (Carter and Weber, 1994).

The man before putting himself to test for herbs, mostly preferred to feed the animals and make observations. “Reports from South Africa tell us that Ostriches that were fed alfalfa produced stronger babies and their feathers had extremely brilliant and of beautiful new color” (Carter and Weber, 1994).

The traditional/indigenous knowledge pertaining to herbs and other plants now is put to use by the pharmaceutical industries to develop plant based pharmaceutical products. WHO estimates that “80 percent of the world’s population uses herbal medicines for cure aspect of primary
healthcare. WHO notes that of 119 plants derived pharmaceutical medicines, about 74 percent are used in modern medicines in ways that correlate directly with their traditional uses as plant medicines by native cultures” (Regulatory norms for nutraceutical, 2008).

Traditional/ Indigenous knowledge had been acquired over ages, refined through experiential knowledge and treasured by tribal and other local communities. It is transferred from one generation to another through practice and to a large extent through oral communication and therefore remains confined to some areas, communities and individuals. A large number of people all over the world make use of medicinal plants and their products for health because of easy accessibility, reliability, efficacy, and affordability and least possible or no side effects of consumption of such materials. Besides herbal oils, breathing techniques, yogic asana, mantras, use of gemstones, several other indigenous systems exist for health and well being of human being.

According to the WHO (2001) report, “traditional healers such as herbalists, midwives and spiritual healers constitute the main source of assistance with health problems for at least 80% of rural population in developing countries.” A number of pharmaceutical products and therapeutics measures are based on indigenous knowledge related to flora and fauna. “Aspirin, the most widely used pharmaceutical in the world was derived from the salicyclic acid discovered in meadowsweet. The cure for cancers like Hodghin’s disease and acute lymphocytes leukemia was discovered from the rosy periwinkle plant grown in Madagscar. The saliva of the vampire bat of South America opens clogged arteries faster. The list is long and impressive (Nijar, 1996).” There are great times ahead for a pharmaceutical, biotech and cosmetic industries to develop a variety of products based on worthwhile indigenous knowledge. “Out of the 120 active compounds currently isolated from the higher plants and widely used in medicine today 75% show a positive co-relation between their modern therapeutic use and the traditional knowledge of their use from which they were derived (Nijar, 1996).” Enormous numbers of medicinal plants based healers exist in the world and this knowledge is not generally widely accessible. Therefore whatever exists in the recorded form is just tip of the iceberg.

From centuries human population in different parts of the globe continuously strived to improve their natural environments with the temptation to make it a better place for living. Human beings also used the natural resources like medicinal plants for treatment of disease and maintenance of health. Though they transferred such knowledge from one generation to another, yet because of
lack of mobility and means of communication, such knowledge remained confined to communities of practice and specific tribes that not only remained custodians of such knowledge, but also accumulated it and made new additions over a period of time. “Over thousands of years, Amazonian tribes have accumulated a vast store house of knowledge of medicinally useful plants growing in the rainforest. Although a large number of important pharmaceuticals have been discovered from studying the traditional medicine of indigenous people, medicinal plants are just one component of traditional health systems. Ceremonies and rituals, songs and colourful dances, incense and innovations often accompany the use of medicinal plants in healing (SURINAME, 2010).” A large number of medicinal plants are found in Sri Lankan forests and local populations make enormous use of such plants and plant based products in cure of disease. Countries like Brazil, Nepal, and Thailand have flora traditionally known for medicinal value. Chile exports some sea weeds that have medicinal and food value.

Countries rich in biodiversity have over generation accumulated knowledge of use of their indigenous plants for treatment and cure of human beings and domestic animals. “In Ethiopia about 80% of human population and 90% of livestock rely on traditional medicine. Ethiopian plants have shown very effective medicinal value for some ailments of humans and domestic animals. The major reasons why medicinal plants are demanded in Ethiopia are due to culturally linked traditions, the trust the communities have in medicinal values of traditional medicine and low cost of using them (Endshaw, 2009).” Along with the use of parts of various medicinal plants, the indigenous healers augment this knowledge with their experiential knowledge and belief systems. “Seven fruits of Dodonaea viscosa were reported to be crushed either freshly or in dried form and mixed with honey to be eaten for the treatment of malaria. It was emphasized that if a person takes this medicine on the first day of a new year, it will be potent upto seven years (Gidey, 2010).” Interestingly some plants show their effect when they are just kept in touch with the human body and subsequently intake of something else for specific days is advised. “The twig of sterile Cordia africana was believed by traditional healers to stop urination at night by wearing it as a necklace in addition, the patient should take red honey for five consecutive days (Gidey, 2010).”

A number of persons in South Asia are engaged in the collection and sale of medicinal plants which are bought by medicine plant based pharmaceutical industries and some physicians producing their own medicines. “The traditional uses of some medicinal plants of Swat Valley, Pakistan was
studied and found that 51 species of medicinal plants are used traditionally for curing different ailments in the area. The people living there are poor and cannot afford buying allopathic medicines. People also started selling these medicinal plants in the local, national and international markets (Hamayun, 2007).”

Tibetans medicinal plant based system is also well known because of global accessibility of information and presence of some healers and folk medicine based distributors on the web. The Tibetan system of medicine is receiving greater global attention because of longevity of people living in this region which is generally attributed to consumption of some herbs by the indigenous people for their health and maintenance.

1.6. Traditional Knowledge Resources in India:

India is recognized as one of the world’s top “Twelve Mega Biodiversity” nations. “The country has some of the richest, oldest and diverse cultural traditions associated with various aspects and one of the aspects is the use of medicinal plants which is still amply practiced in several parts of India. This is borne out by the fact that around a million traditional village based carriers of herbal medicines in the form of birth attendants, bone setters, herbal healers and so on….existing even in today’s modern world. Apart from these specialized carriers, there are millions of women who have this knowledge of herbal home remedies and their use for food, nutrition and cosmetic purposes” (Kapoor, 2003). “Complimenting the village based carriers; there are over 4 lakhs licensed, registered medical practitioners of Indian medicines like Ayurveda, Siddha, Unani, Tibetan and Homeopathy Systems of Medicines. Medicinal plants have a high market potential as the world demand for herbal products is growing at a rate of 7% per annum” (IEMR, 2003).

In India the plant based medicine system by and large is in use for centuries and, is operated as a system for well being of communities rather than commerce. But now it is viewed as an area that has potential to obtain enormous commercial value. India has huge potential for medicinal plant based products. “Upto Rs. 80,000 crores can be earned from exports. At present the government is giving upto Rs. 1 crore to some of the farmers in Nalgonda and Mahabubnagar in A.P. to cultivate medicinal plants” (Pimbert and Tom, n.d.)

Very few countries in the world can boast of the variety and vastness of traditional knowledge that India has. The traditional knowledge is widely scattered, confined to pockets of
populations and sometimes rarely known beyond the boundaries of particular communities. Traditional knowledge if properly processed may lead to some breakthroughs in medical and pharmaceutical research activities. However closer interaction between herb collectors, communities of plant based medical practitioners and scientists will be desired. “The magic properties of Arogyapacha did not come from scientists sitting in a laboratory, but from a community” (Menon, 2007b).

India has the indigenous plant-based medicine system known as Ayurveda. This system of medicine identify the root cause of the disease and ensure holistic treatment of the human body instead of just curing the specific ailment. There are other systems such as Unani, Tibetan, Naturopathy and yoga for maintenance of health and well being of people besides the allopathy. Ayurveda offers some treatments that are uniquely provided by this system of medicine. “Ayurveda had described a beautiful scientific replacement therapy as a solution for addiction (any bad habit like drinking, smoking). Satmyikaran offers an excellent everlasting change without any relapse. One can easily be able to accept the single procedure to change their bad habit without any cost (Nath, 2009).” Indigenous medical knowledge in India is so diverse and complex that ranges from chanting of mantras, diagnosis by oracles, administration of holy water and biphutis for cure to use of sand of a specific place for cure of skin diseases. Indigenous medicinal knowledge is also practiced by different cultures according to their treatment for prevention and cure of disease their cultural according to their beliefs and folk medicine.

“India has one of the oldest, richest and most diverse cultural traditions associated with the use of medicinal plants. Uses of the herbs as a medicine and food supplement dates back to the very ancient periods of the known human history. Ayurvedic herbs or Indian herbs have been used since 1000’s of years to produce herbal remedies. Now-a-days it is a well established fact that herbal remedies are more suitable to human body than isolated chemical medicines (Natural herbs and natural extracts, 2009)”.

There are enormous number of ethnic groups in India and a number of them have their own system and approach or beliefs for cure of diseases and well being of their communities e.g. Rajbanshi community in North Bengal. “The people of this community, particularly those living in rural areas think that disease is the cause of supernatural power, evil spirits and black magic (Nagani). They also try to get relief from certain diseases by supernatural method or by magical
ways instead of availing modern medicinal treatment. Rarely, they are found to go to the modern allopathic doctor for treatment. They believe that many diseases are caused by the wrath of some gods or goddesses. So they prefer healers, sadhak or village ojha or kabiraj who try to diagnose the patient by chanting mantras or sometimes giving some folk medicine like Jalpora (water) or Telpora (oil) or sometimes the healers or ojha prescribe them to workshop the god or goddesses for promotion to get relief from diseases (Barman, 2010).”

It has been found from the study of Aparna Pallavi Gadchiroli (2011) that among the tribals of the Maharashtra, one of the strategies for surviving the rains is to consume bitter vegetables and herbs e.g. Dregea volubilis (Ekdodoi), Holarrhena antidysenterica (Kuda), Glossogyne pinnatifida (a small creeper), Solanum anguivi (Chichurda), Andrographis penticulata (Bhuinimba), Phyllanthus niruri (Bhui amla). Mainly consumed as decoctions or kadha and also relished as seasonal delicacies with faith that they are good for health and should be eaten. With the passage of time young persons and children are developing a taste for food products available in market thus the practice of consumption of wild bitters is on the decline and in contrary visit to doctors are on the rise. Among the tribals it has been believed that teens and adults do not get worms as they eat bitter and mothers feed seeds of Embelia ribes (vavding) to eliminate worms from their children.

In rural India, people generally approach the big hospitals only when disease reaches a very critical level and normally consult local doctors and there are different types and levels of doctors doing their medical practice. “Apart from 600,000 licensed medical practitioners of classical systems like Ayurveda, Siddha and Unani, there are over one million community-based traditional health workers in rural India. These are India’s traditional barefoot doctors (Nati Vaidyas). These community health workers assist in around 80% of all rural deliveries; treat over 40% of broken bones and 50% of snake, scorpion and dog bites (Hafeel and Shankar, 1999).”

In addition to this women have traditional knowledge of herbal remedies for treatment of some diseases and food processing. “Several ethnic communities of North East India have invented the traditional technology of converting protein rich soybeans into flavoured fermented food with easy digestibility and bio nutrients. This is exclusively carried out by the ethnic women in Sikkim, Manipur, Meghalaya, Nagaland, Mizoram and Arunachal Pradesh. Worthwhile native knowledge of these women has been documented and six sticky fermented soybean foods have been listed out (Tamang etal, 2009).” There is a general belief that family of a home that plants neem (Azadirchta
indicata) never suffers from a diseases like tuberculosis. This plant is used in several ailments ranging from skin diseases to diabetes. Hindu families generally grow a plant of Tulsi (Ocimum sanctum) at their homes both in rural and urban India and worship it. Tulsi is used in Ayurveda system of medicine for cure of several diseases.

In the state of Assam Bihu is the most important festival. “On the first day of Bohag Bihu called as Goru (Cow) 101 plant species are collected known as Akhohata Sak by each family and a recipe is prepared in the evening. They believe that this special recipe has number of photochemicals in it which enhances its medicinal value and which is good for health. The knowledge of using these plants in the recipe had been transferred from one generation to another from the times immemorial (Sofiaka and Gogoi, 2007).”

There are indigenous communities in Himachal, Uttarakhand and Kerala that have sound knowledge of local medicinal plants e.g Kani community in Kerala forests. “Over 90% of tribal population in the two tribal pockets of India i.e Patakot and Dangs depends on traditional medical practice for day to day healthcare and these two remote areas of India are the places where traditional herbal practices are performed on a large scale (Acharya, 2007).” Beside the plant based medicinal knowledge, some animal based systems and products have been developed in India. Olive green leeches had been traditionally used for purification of human blood as leech therapy in the Unani system of medicine. As per the report of the Expert (2010) “Camel milk contains five times more vitamin C as compared to cow and buffalo milk and strengthens the immune system. It is a nutritional food and beneficial for human health, especially for patients suffering from tuberculosis, arthritis and diabetes. The Raika and Rewari tribes are the main tribes involved in camel rearing. It has been observed that children living at a home run by an NGO in Fridkot (Punjab) had shown tremendous mental and physical improvement after regular consumption of camel milk in the past two months.”

The Himachal Pradesh is being developed as a state having rich resources of medicinal plants so that this state may lead in the supply of plant based raw material for pharmaceutical formulations and biodegradation of natural resources is avoided. “The flora of the state consists of around 3500 species of plants. Of these around 800 species (including a few introduced in the

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2 Cited in Malhan and Wadhera, 2010(b)
region) are attributed to the medicinal value. 165 plant species are collected for commercial purposes. Using the threat criteria developed by the IUCN, 60 medicinal plant species from the state have been categorized as red-listed (12 species being ‘critically endangered’, 21 species being ‘endangered’ and 27 species being ‘vulnerable’) (Jan-Jan Sanjivani Van Abhiyan, 2008).

The state has a huge potential to provide herbs for herb based pharmaceutical industries and thus improve the social economic conditions of small landholders and boost the economy of the state. The Chief Minister launched the Jan-Jan Sanjivani Van Abhiyan on August 3rd, 2008 and the forest department and people of the state were actively involved in this program. “It would, perhaps be a world record, that 15,15,027 medicinal saplings were planted on a single day as every family in the rural and urban areas of the state participated in the campaign. Forest department deputed its entire workforce to distribute medicinal plants free of cost, of over 84 species to every household (12, 47,847 rural and 1, 26,308 urban) in the state through a vast network of 4,887 distribution centres (4614 rural and 273 urban)” (Jan-Jan Sanjivani Van Abhiyan, 2008).

3Himachal Pradesh bordering the Tibetan region of China is known for some of the rare herbs. For example Codyceps sinensis is a fungus that is popularly known as winter worm and summer grass because its morphology changes with change in seasons. “For centuries Tibetan nomads added caterpillar fungus to soups or tea believing it boosted stamina, endurance, lung capacity…..” (Barbara, 2008). In case its propagation is encouraged in high altitudes of Himachal, it can enormously improve the socio-economic conditions of cultivators as its exports are worth nuggets of gold. 4Himachal is not only a place for less known miracle herbs but also known for some of the miracle healers practicing indigenous knowledge. Jeet Ram of Kandhakhat died, now his grandson do this practice. “On an average, he examines more than 100 patients every day and stories abound on how he cured thousands of people of cancer, diabetes, hypertension, gynecological disorders, arthritis, gout, gangrene, mental disorders, skin disorders, barrenness, heart ailments, etc…. A team of five American doctors visited this miracle healer to find out as to how he cures patients of these deadly diseases without the intervention of modern medicines and surgical techniques” (Chib, 2002).

3Cited in Malhan and Wadhera, 2009
4Cited in Malhan and Wadhera, 2009
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Before the scientific institutions approach and work on some of the potentially useful ideas, the adequate documentation of indigenous knowledge is essential. Some of the practitioners of indigenous knowledge live in difficult terrains like hills and far flung rural areas and some of them are not even connected with roads and rail track. Some of such indigenous knowledge based healers lead a nomadic life and are not available all the time at the same place.

1.7. Justification:

According to WHO, 80% of the people in developing countries rely on traditional natural medicines and 85% of the traditional natural medicines involve the use of plant extracts. Medicinal plants grow in about 80% of the forests in India. The rural and tribal population has generally been living near in the areas of forest and agricultural lands. It is of interest to note that according to FAO and UNESCO estimates, the original area of tropical rain forest of the world was 16 million km² but in 1975 it was only 9.35 million km² i.e. it was reduced by 41.5%. At the global level, it has been estimated that “in the time it takes to read this sentence, 8 acres of forest will disappear” (Newsweek, 1982) and in India 30 ha of forest are lost every minute (Chaturvedi, 1981).

The region is not only the repository of a large number of official drugs but several other drugs which serve as recognized substitute for official drugs for the manufacture of pharmaceutical preparations. A large number of drugs which are used in the Ayurvedic and Unani system of medicine in India also occur in this area.

Samples of drugs whether leaf, root or bark collected from Kashmir Himalayn region have been investigated at the drug Research laboratories throughout India. It has been shown that almost all the drugs growing here if collected at the proper time and dried in proper way contain the standard percentage of active principles (Nawchoo and Buth, 2002).

The area of study has different agro-climatic regions and covers a huge area as a forest zone. Due to the urbanization this area is getting reduced day-by-day. Urbanization, copyright act, theft of traditional knowledge and others reasons pose a serious threat on the existing traditional knowledge. For instance, CSIR has maintained to establish the patent claim was not new in the Turmeric case as there are so many evidences about the use of Turmeric but if the use/s of a specific plant or herb is
known only to a particular community or tribe or individual it become difficult to protect the plant from patenting.

At the Earth Summit held in 1992, the Convention on Biological Diversity (CBD) was concluded, to which India is a party. The basic objectives of the CBD are:

- conservation, sustainable use of biological diversity and equitable sharing of benefits arising from the use of biodiversity.
- To respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities and encourage the equitable sharing of benefits arising from the utilization of such knowledge, innovations and practices (Anuradha, 2001).

In response to this, India has started to explore the biodiversity of the nation. There are the reports of the centre for Research, Planning and Action, New Delhi and Institute of Economics and Market Research, New Delhi with Ministry of Environment and Forests is working together for the commercial utilization of medicinal plants in selected tropical areas but for the temperate areas the work is still unexplored. In these reports the information of around 130 medicinal plants of that particular areas are given in detail.

Traditional Knowledge Digital Library (TKDL) is a collaborative project between CSIR, Ministry of Science and Technology, and Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy, Ministry of Health and Family Welfare and is being implemented at CSIR in New Delhi (Menon, 2007c).

While working on the phytodiversity characterization of district Kathua using remote sensing and GIS, Jhangir (2004) has explained that the upper reaches of the district Kathua of J & K state are inhabited by a class of people generally referred as ‘Paharis’ having their own dialect, culture, beliefs, religious rites and practices. The nomadic tribes like Gurjars and Bakerwals also migrate to the area and rely on the local flora for their medicinal and allied needs.

A great need is being felt that relevant and up to date information on the inherent traditional knowledge on medicinal phyto-diversity of Western Himalayan region be made available, since the area has never been explored earlier in detail. In the light of above facts, it can be justified that the proposed research work can help to create a database of traditional knowledge in Western Himalayan region with special reference to use of medicinal plants.
1.8. **Objectives:**

With the realization of the fact of the continuous erosion of the traditional knowledge of many valuable plants being used for medicine in the past and renewal of interest in this area currently, special attention has been paid to extract and gather knowledge from the various sources so that it can be compiled in a consolidated form. Keeping these facts in view the present was study undertaken with the following objectives in mind:-

1. to locate the various sources of traditional knowledge in the proposed areas.
2. to study how the medicinal plants are being used by select rural communities as a source of traditional knowledge.
3. to compare the information about the traditional medicinal uses of plants gathered from study areas with the information available in the literature.
4. to explore and document the medicinal plants used by the different tribal and rural communities.
5. to collect detailed information of plants and plant parts used traditionally by the tribals and rurals.

1.9. **Hypotheses:**

1. Several traditional knowledge based prevention and cure systems exist in Western Himalayan region.
2. Large parts of traditional knowledge are local community centered and are yet to form the part of public knowledge nationally and internationally.
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44. *Newsweek. (1982, October 6). Where all the forests gone?


* original not seen.