

4. KNOWLEDGE AND BELIEF SYSTEMS IN THE INDIAN SUBCONTINENT

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A large number of cultures exist in Asia. Here only the civilisations from the Indian subcontinent will be elaborated. The Indian traditional knowledge systems have been documented in ancient texts known as the Vedas. A large number of traditional practices still exist in India and cover a variety of disciplines such as medicine, agriculture, architecture, metallurgy, music and arts. The traditional Indian sciences place special importance on linguistics and logic. The research methods and concepts within Indian science, such as Ayurveda, are different from those used in modern western science. This calls for an analysis of, and if possible, synergy between the different scientific traditions.

Asia is the continent with the largest population on the globe. It has a great diversity of landscapes, ecosystems and cultures. The brief historical overview presented below gives a glimpse of how this diversity came to be. But, before the historic facts as understood by conventional archaeology and history are presented, an important note has to be made in relation to the Indian concept of history and time. In the traditional Indian concept, time is considered cyclic. Classical epics reveal the story of creation of the Universe: once created, the universe passes through a number of cycles of growth and decay, and at the end is drawn back into *Brahman*, or Supreme God. This cycle of creation and disappearance of the universe is repeated according to the pre-defined flow of time. Within this large cycle, there are a number of shorter cycles. The total cycle constitutes 4,320,000 years and thousands of such cycles make merely one day of Brahma.

This cyclic concept of time is in contrast to that of the western civilisation. In the latter, dates of important events, ranging from the birth of Christ to the fall of an empire, are marked with respect to commonly accepted eras. While there may be differences between scholars on the exact dates of events, the importance of recording such dates is not disputed. When time is perceived as cyclic, however, the exact moment at which an event has occurred does not have the same unique status. This may explain why remarkably little importance is given to marking the exact dates of events in Indian history. Moreover, the spans of time conceived are so stupendously large, that the magnitude of the life of a human being or even the rise and fall of a civilisation, is considered insignificant. In a sense, one may say that a major lesson of the Indian time concept is the concept of the smallness of man in relation to the Universe. Similar notions of the cyclic nature of time are found amongst other indigenous peoples throughout Asia, Africa and South America.

Historical overview

Conventional archaeology indicates the earliest evidence of hominid occupation in two regions of East Asia: Youanmou in western China and Sangiran in Java, Indonesia. Also in Thailand, Korea and Vietnam, traces of early hominid occupation have been found. As

the sea level in that period was much lower than at present, human expansion to the south-eastern part of Asia, as well as to Australia and the Americas was possible.

The first agricultural systems on the globe are reported in the territory stretching from the Persian Gulf to Mesopotamia and Palestine, with the domestication of wheat, barley and sheep. This system allowed the growth of human population and the emergence of towns, as well as craftsmanship and trade. In northern China agriculture started with the domestication of foxtail and broomcorn millets, rice, cabbage, plums and hazelnuts, as well as pigs and dogs. Evidence of early farming in the Indian subcontinent was found between the hills of Baluchistan and the Indo-Gangetic plains, with grazing resources for sheep, goats and cattle, and crop production in the fertile plains. Rice cultivation started in the Ganges valley. The rise in sea levels after the last ice age created new coastlines and islands in South East Asia. This benefited the hunter-gatherer communities along the coast and estuaries.

For millennia, Asia has seen the rise and fall of large civilisations. Empires of great size and power emerged in the near East, followed by the Persian and the Greek empire of Alexander the Great. The Indian subcontinent was united for the first time under the Mauryan empire, while the Mediterranean and other parts of western Europe fell under the sway of the powerful Roman empire. China witnessed a period of empires over the last few centuries B.C. under the Han dynasty. The different Asian cultures were in contact through trade relations, exchanging political and cultural influences. As agriculture developed further, irrigation and terracing systems emerged, animals were used for traction, and the plough facilitated open field cultivation and increased agricultural yields. Salination and soil erosion were serious side-effects of these agricultural activities, to the extent that large parts of Anatolia, the Middle East and other parts of Asia turned into deserts. The decreasing population, together with warfare between different powers, most likely caused the decline of the early Asian civilisations [Scarre, 1991].

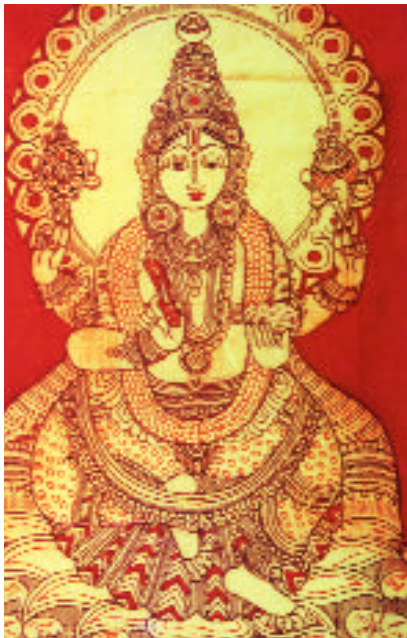


Image of Hindu Goddess Dhanwantri holding a leech. In Ayurveda leeches are used for blood letting treatment.

tion, and the plough facilitated open field cultivation and increased agricultural yields. Salination and soil erosion were serious side-effects of these agricultural activities, to the extent that large parts of Anatolia, the Middle East and other parts of Asia turned into deserts. The decreasing population, together with warfare between different powers, most likely caused the decline of the early Asian civilisations [Scarre, 1991].

All major religions, such as Hinduism, Buddhism, Judaism, Christianity and Islam, as well as Taoism and Confucianism, were founded in Asia. They have all put their marks on the continent. It goes beyond the scope of this book to present detailed information about each knowledge and belief system throughout the continent. Here, we put emphasis on the most widespread traditional knowledge systems in the Indian subcontinent: Hinduism, Buddhism and the animism of tribal peoples. Other important knowledge systems and cultures in the area, such as the Chinese knowledge system and Islam, are briefly described in chapter 2.

Hinduism

Archaeological excavations in northwest India revealed an ancient and advanced civilisation with several cities along the Indus river. The total complex of cities and villages covered nearly half a million square miles and may represent the largest political entity before the Roman empire [Hopfe and Woodward, 1998]. The cities were made of fired brick and were supported by advanced agricultural communities that made use of irrigation. This population had a written language, which has not been deciphered.

We can sum up some characteristic features of today's dominant Hindu civilisation as follows: the society is organised into four *varnas*, loosely translated as castes, which include *brahmins* or priests, *kshatriya* or rulers, *vaishyas* or trading class, and *shudras* or the labour class. Over a period of time, the category of outcastes, or *Dalit*, became a striking phenomenon in India. Other key features of Hinduism are the doctrine of transmigration of the soul, and the doctrine of *karma*, which includes the concept that the current status of every human being has been decided by his or her past actions and deeds, not only in this life but also in previous lives. Similarly, future births are decided by actions in the present life. In the Hindu concept, the soul is essentially divine and migrates from one living form to another through rebirth. This has profound implications for the Hindu understanding of life in which human, animal and plant life are considered aspects of the divine. The Buddhist worldview, in contrast, includes the concept of transmigration, but the 'soul' is replaced by the concept of 'the ever-changing stream of consciousness'.

In many parts of Asia, Hinduism and Buddhism, as well as Islam and Christianity, co-exist with what may be considered animistic or shamanistic practices. Hinduism does not view these practices as a challenge to its legitimacy. In fact, it appears that such animistic practices and what may be considered as 'mainstream Hinduism' have often influenced each other. This process has resulted in a variety of religions, beliefs and modes of worship, which seem to fit within the broad framework of Hindu thought.

The Vedas. Traditional Hindu knowledge in India has been traced to the vedas, ancient texts that include a collection of hymns, mantras and prayers written in Sanskrit. They are considered the results of divine revelation to visionary sages, who have collected them over a period of 7,000 years. India has the largest collection of ancient manuscripts in the world; some estimates indicate that there may be as many as 300 million manuscripts, which today can be found in monasteries, universities and other institutes. They pay a great deal of attention to agriculture, livestock, rains and harvests. There are a total of fourteen *sastras*, or branches of knowledge: the four vedas, the four *upavedas*, or auxiliary vedas, and the six *vedangas*, or limbs of the vedas. The four upavedas are: ayurveda, literally 'the science of life', which constitutes the ayurvedic medical system; *arthasastra*, which includes political theory; *dhanurveda*, which includes the art of warfare, and *gandharvaveda*, including music, drama and the fine arts.

Similarly, the six branches of the vedangas, or the limbs of the vedas, explain the knowledge required for understanding, interpreting, and applying the vedas. They are *vyakarana* or grammar; *chandasa* or metrics; *siksha* or phonetics; *nirukta* or etymology; *kalpa* or ritual and *jyotisa* or astronomy and mathematics. These vedangas are essential, as the

vedas had to be understood correctly (needing etymology and grammar), pronounced and chanted accurately (needing metrics and phonetics), used properly in various contexts (needing ritual), and with the correct timing of these performances, related to time and planetary movements (needing astronomy and mathematics). In the following sections, we will discuss a few aspects of the vedic knowledge system that illustrate its basic nature.

Traditional medicine

We can use the case of traditional medicine to understand various aspects of Indian traditional knowledge systems. The most remarkable characteristic of the Indian medical tradition is that it prevails at two different levels: the classical and the folk system. By the classical system, we refer to the codified systems such as Ayurveda, Siddha and Unani. They are characterised by institutionally trained practitioners, a body of texts originating since ancient times, and highly developed theories to support the practices. These traditional medical systems encompass knowledge of life, health and disease of all living forms, not only human but also of animals and plants. The branch dealing with traditional medicine for animals is known as *mrgayurveda*.

Ayurveda is also present outside India, especially in other parts of Asia, such as China, Thailand, Cambodia and Indonesia, and is increasing in the western world. The Unani system, which came up during the Arab period, also enjoys great popularity and over time has interacted successfully with the Ayurvedic system. Both systems of medical tradition are supported by a rich textual base. It is estimated that there are 10-30 million manuscripts in Sanskrit alone, many of them relating to medicine. The Tamil University at Thanjavur has made a catalogue of 24,000 Tamil manuscripts in libraries and public collections, including 8,000 related to science and technology, of which 4,000 pertain to medical sciences. Most of these have not been printed. In addition, innumerable manuscripts exist with individuals and families of *vaidyas*, or traditional healers.

Parallel to these systems, folk traditions exist, which have been transmitted orally in tens of thousands of our villages throughout the ages. These folk traditions are rich and diverse and include specialised practitioners as well as home remedies for common ailments. These traditions include knowledge and beliefs regarding the relation between food and health, as well as yoga and other physical practices of a preventive nature. Specialist practitioners work with specific diseases, bone setting, poisoning treatment and birth attendance. A conservative estimate stipulates that there are around 70,000 traditional bonesetters throughout the country, who attend to over two-thirds of the fractures, as modern orthopaedic facilities are few in number and concentrated in cities and urban areas. Some 600,000 traditional birth attendants perform home deliveries.

In the tribal areas the folk medical practices include herbal treatments, often in combination with reciting certain verses called *mantras* and the use of symbols, such as ritual chalk drawings or *gondas*. Often the sacred stick and rings are used to invoke the blessings of the Gods for healing. Moreover, there is a tremendous depth of tribal knowledge regarding the use of natural resources. The tribal communities alone use over 9,000 plant species, including some 7,500 species of plants for medical properties. Besides this, a considerable number of materials of animal and mineral origin are used in traditional medi-

cine.

It is important to note that Ayurveda, Siddha and Unani do not devalue or suppress these folk traditions, but have a symbiotic relationship with them. These codified medical systems and folk traditions draw from and get enriched by each other's practices and insights.

Categories of understanding in Ayurveda

Various traditions of sciences and technology have adopted different categories for studying the same phenomena. If one were to describe the nutritional properties of food substances in modern biochemistry, it would be done in terms of proteins, carbohydrates, fats, vitamins, minerals, and calorific values. Medicinal plants would be described in terms of active ingredients. Moreover, in the western tradition, the scientific temper is limited to the use of the five senses: smell, taste, hearing, touch and sight.

In Ayurveda completely different categories are used, while the analytical methods are not limited to these five senses. Complete awareness is sought at a level of perception, by which the observer both reaches out and looks within, establishing a subjective flow between the observer and the observed. Thus, in Ayurveda, the senses are complemented with the mind, preferably free of the six prejudices: lust, anger, greed, intoxication, delusion and jealousy. The senses make it possible to decipher the world around us, while the mind moves inwards and outwards [Shankar, 1999].

Ayurveda is also based on the recognition of a range of fundamental principles, known as *dravya*, *guna*, *rasa*, *veerya* and *prabhava*.

- *Dravya* refers to the 'nature of the substances', based on the understanding that all is composed of the five elements: earth, water, wind, fire and ether or space, in varying combinations. In the Indian case, each of these categories is defined in the texts of Indian logic, and each one is correlated with one of the five sense organs.
- *Guna* refers to 'properties of matter' that can be evaluated using the sense organs; describing it in terms of cold, heavy, stable, rough, hard, dry, or oily.
- *Rasa* refers to 'taste': sweet, bitter, sour, salty, hot and astringent. Each of these is attributed certain nutritional or therapeutic properties. For example, sweet substances help in tissue building, bitter substances help to purify blood, and hot substances kindle the digestive capacity.
- *Veerya* refers to 'hot' or 'cold'. This does not imply the direct temperature of the material, but the metabolic impact on ingestion. Thus, raw papaya is considered hot, while cow's milk is considered to cool the body. These significant properties have direct application in food, medicine and even agriculture.
- *Prabhava* refers to 'special properties' of substances. For example, a substance may be described as *deepana*, meaning increasing digestive capacity, *muthrala*, meaning increasing the output of urine, or *Chaksusya*, beneficial to eyesight.

Moreover, according to the Ayurvedic classification, all beings - humans, plants and animals - can be classified according to three different types of constitution, or *doshas*: *vaatha*, *pitta* and *kapha*. These characteristics also exist within every living organism and, if in good health, are well balanced. The *vaatha* constitution is slender and tall, light and dry. The *pitta* constitution is medium in size, weight, colour and height, and is warm and dry. The

kapha constitution refers to organisms that are short, bulky, humid and cold. The Ayurvedic treatments in case of disease are based on re-establishing the balance between these three doshas within the organism.

Traditional Plant science, or Vrکشayurveda. Vedic literature also pays attention to plant sciences. The texts are vast, detailed and varied, and include subjects such as seed collection and selection, germination, cultivation, sowing, planting, nursery techniques, soil, manuring, pest and disease management, as well as the traditional names and description of plants. It is a real challenge to interpret and use these texts in today's context, as the prescriptions are often not described with enough detail to understand them directly.

Recently there has been a revival in the interest for traditional practices relating to agriculture and natural resources management. The Compas partners CIKS and KPP have started to collect material on vrکشayurveda, and are testing selected practices. In this process it is important to perceive these traditional agricultural practices as more than a mere collection of technologies, and understand their theoretical foundations (see chapters 4.1 and 4.4).

Tribal knowledge systems



*In tribal cosmologies food crops are seen as gifts from ancestors and divine beings. The Peepal leaf (*Ficus religiosa*) symbolises Mother Goddess Devi.*

According to the 1991 census, around 6% of the Indian population, some 53 million people in 550 ethnic communities, have a tribal background. Many of them have maintained traditional lifestyles, knowledge and values. They believe in the existence of a wide range of divine beings and ancestral spiritual forces with benevolent and malevolent characters that inhabit houses, villages, agricultural fields, burial grounds and surrounding forests. The tribals believe that these divine beings are beyond human control and able to help or harm nature and human beings. The tribal people also believe that the good and bad ancestral spirits always watch over them and may help them in times of danger and distress. Therefore, the tribal people perform certain rites and rituals to appease the divine beings and ancestral spirits, thereby protecting themselves and getting rid of evil influences. They do not start constructing a house, distributing land, felling trees, performing a

marriage, or going hunting until they have performed the appropriate rites.

The tribal people believe they are the children of Mother Nature and that she protects and guides them. Some trees, such as tamarind and mango, wild animals, such as the Indian bison, tiger and common langur (monkey), peacock and dove, are considered to be holy and to contain sacred elements. Besides this, they also believe in sacred hills, forests, streams, mountains and caves which are inhabited by divine beings. Hence, they are worshipped through rituals, ceremonies and fairs.

The majority of the tribal cosmivisions contain beliefs related to their agro-ecological and health practices. Certain crops, such as the major and minor millets, hill paddy and red gram, are not only perceived important as food crops, but also as sacred gifts from their ancestors and the Goddess of nature and earth. Hence any ritual would not be complete without offering these grains to the divine beings and ancestral spirits, both good and bad.

The indigenous knowledge, values and cosmivision of the tribal population also found expression in the form of a rich tradition in arts, such as music and visual presentations. The subjects included in traditional knowledge and practices include management of natural resources, herbal medicine, agriculture, animal husbandry and aspects of the relationship between people and every other facet of the universe. The Compas partner IDEA in Andrapradesh and Orissa, and in a more limited form also Green Foundation in Bangalore, work with tribal peoples. In their chapters (4.9 and 4.7) a more detailed description of the knowledge and belief systems of these tribal populations is presented, as well as the practical experiences of enhancing endogenous development.

Buddhism

De Zoysa [2002] describes the main characteristics of Buddhism in the following way. The teachings of Buddha began in India some 2,500 years ago, from where it spread to China, Japan, Korea and South-East Asia. Buddhism persists in many parts of Asia, though in India the number of followers has reduced considerably. Buddhism differs from the other Indian religions because it rejects the caste system, denies the relevance of the Gods and the necessity of worship and sacrifice. The ultimate goal of each individual is to reach enlightenment. Buddhism teaches the relationship between organism and environment,



Image of Buddha in Anuradhapura, Sri Lanka.

human and nature, which is based on reverence and compassion. Therefore an ethic for a sustainable society is implicit in Buddhism, recognising the limits of resources, compassion for life in all of its diversity, and action out of the responsibility of the individual for nature.

The knowledge systems, which emerged during the 'enlightenment' period in Europe, place utter-most importance on knowledge based on verified theories and propositions. This is also called 'propositional knowing'. In contrast, in the ancient systems from the East, knowledge is derived from direct experience, which is also called 'experiential knowing'. According to the Buddhist viewpoint, experiential as well as propositional knowledge has to be ultimately experienced by the knower, and meditation is used as a methodology to accomplish this. The question of subjectivity is dealt with in Buddhism by developing *sila*, or the correct ethical attitudes and behaviour in the experiencing individual. Without such parallel ethical development, experiential knowledge will merely lead to individualism and result in a bias fashioned by individual desire. An ethically informed process can lead to validity beyond the limits of individuality [De Zoysa, 2002].

Box 4a Experiential knowing in Buddhism

Buddhist philosophical discussions emphasise the importance of experiential knowing. This is expressed, for example, in the text of the Kalama Sutta: "*Come, Kalamas. Do not go upon what has been acquired by repeated hearing, nor upon tradition, nor upon rumour, nor upon what is in scriptures, nor upon surmise, nor upon specious reasoning, nor upon a bias toward a notion that has been pondered over, nor upon another's ability, nor upon the consideration "The monk is our teacher". Kalamas, when you yourselves know; these things are good; these things are blameless, these things are praised by the wise, undertaken and observed, these things lead to benefit and happiness, then enter on and abide in them*". (Kalama Sutta, Soma Thera)

The second important point of departure from modern systems of knowledge lies in the theory of substances. Modern science is strongly materialistic, and does not take into account phenomena which can be recognised as part of 'consciousness'. Buddhism recognises the world as a collection of phenomena, devoid of substance, and the human mind as a sixth sense. Consciousness is the organising force of all six senses. De Zoysa, therefore, concludes that modern science with its insistence on propositional knowledge, may be a poor candidate for understanding, interpreting and developing the use of traditional knowledge systems, when compared to other scientific systems in the world.

Tradition, modernity and change

Indian Hindus have a long-standing belief that the divine repeatedly incarnates in various forms to lessen the burdens of the earth. Sometimes the complexity of the world becomes too much to bear, the sense of right and wrong gets clouded, and the natural balance of life, or *Dharma*, is lost. At such times, according to the Indian beliefs, the divine incarnates on earth, to help restore the balance and to make life flow smoothly once again. It is therefore not surprising that, when Mahatma Gandhi arrived in India in 1915, many

Indians saw him as another *Avatara of Vishnu*. The state of India at that time seemed to many as beyond redress through mere human efforts, and ripe for divine intervention.

Mahatma Gandhi coupled an acceptance of traditional Indian social structure with the recognition that it needed to be changed and reformed. Thus, he accepted the Dharma of the traditional Hindu society, while starting his battle against the discrimination of the lower castes. At the same time other approaches were present, such as from Dr Ambedkar, who claimed that the 'untouchables' could not obtain justice within the Hindu society, and initiated a movement for their conversion to the Buddhist faith. In a sense, even in modern India, one can find movements in science, technology and development, with roots that can be traced to these two modes of thinking.

Bruun and Kalland [1995] conclude that India and most other Asian societies are in a process of rapid change. The aspirations of the Asian governments usually include large-scale industrialisation, as well as rapid modernisation of agriculture and other economic sectors. The economies of the 'Asian tigers' Japan, South Korea, and Taiwan, have had formidable growth rates. Huge world financial centres and large cities with highly sophisticated life styles are surrounded by simple peasant economies. Sections of the population seem to feel so overwhelmed by the external forces of modernisation which have brought about powerful changes, that there is a tendency to withdraw into their inner space rather than to interact with the outside world. Though rarely explicitly stated, some sections of traditional society tend to wait and 'bide their time', in the hope that modernity will 'exhaust itself'.

Simultaneously, the ecological challenges are enormous. Industries are producing toxic wastes, while forest cover and biological resources are declining. Even scarcely populated countries like Nepal and Tibet are facing deforestation and pollution at an alarming rate. The environmental degradation is also the result of a change in power relations, as rural people increasingly lose influence over the natural resources on which their life depends. Local communities not only face competition from the state and its agencies, but also from the urban elite, who want to use the countryside for hunting and other forms of recreation. The environmentalists sometimes care more for the survival of endangered animal and plant species than for human welfare, while business sees great profits by turning nature into a commodity for tourism, housing and industry.

In this process, rural people are becoming increasingly alienated from efforts to conserve their bio-resources and biodiversity. But, the study of Bruun and Kalland also reveals that respect for nature and natural processes is still explicit in many rural communities, in which environmental concern is often expressed in religious terms. Yet, these values do not always result in sound environmental behaviour. The appeal of material gain,



"It is good to swim in the waters of tradition, but to sink in them is suicide." (Mahatma Gandhi)

promoted by governmental policies, mass media and the educational system, can be stronger than traditional values. Still, today's increasing attention for traditional cultures and values also expresses a general sense of renewed interest in 're-finding one's cultural identity' as well as the local natural resources, as a reaction to the cultural domination of the West. This process implies a strong cultural creativity, which is absent in the case of 'pure' ecological environmentalism.

Indian and western scientific knowledge systems

In any scientific discourse it is essential to achieve precision and rigour. In the western tradition, the geometry of Euclid is considered a supreme example of an ideal theory. In contrast, in Indian tradition, an attempt was made to use natural language and to sharpen its potential by technical operations. As a result, particularly in Sanskrit, even the most abstract and metaphysical discussions regarding grammar, mathematics, or logic, are written in natural language. Therefore, in traditional Indian knowledge systems, the science of linguistics occupies the central place, which, in the west, is occupied by mathematics.

Identifying the different Indian traditional scientific concepts, as well as the cultural values implicitly included in them, may be a good starting point for endogenous development. This can be compared to the western scientific and cultural concepts. Complementing different knowledge systems is not a matter of simply comparing them. Complementary lines of action can only be achieved after the contradictions, misperceptions and anomalies in terms of domination and control of each knowledge system are corrected. In this respect, the practice of prospecting knowledge, as well as the methodology of research and the scientific concepts for understanding reality, should be analysed for each knowledge system.

Prospecting indigenous resources and knowledge. Research on traditional knowledge by scientists from 'mainstream' western science and technology institutions is not a new phenomenon. A lot of this research, however, suffers from the limitations of a mind set, which essentially looks upon physical resources, as well as the technologies and knowledge of the local communities, as raw material that needs to be scanned, prospected and refined, in order to get incorporated into the modern/western framework. Over the past centuries, a large number of herbs have been screened in this way for their potential pharmacological action, leading to some outstanding success stories, such as quinine from the Cinchona bark. At the same time, many perceive that these research activities do not lead to the revitalisation of traditional knowledge and endogenous development of the communities involved. Another example is given in box 4b.

Box 4b Scientific research on herbal medicine

Rauvolfia serpentina is a plant known in Ayurveda for a very long time. This small shrub used to be widely distributed throughout India, reputed for its medical potential in treating hypertension, fever, wounds, insomnia, epilepsy and certain conditions of Kapha and Vatha (Ayurvedic categories) disorders. At the beginning of the 20th century modern research was carried out on this plant, and the 'crude drug' was fractionated into 'active ingredients'. One of these ingredients, the alkaloid Reserpene, was identified as a powerful drug for hypertension. Subsequently, the drug based on Reserpene had several undesirable side effects, which were not present in the original formulation of *Rauvolfia serpentina* used in traditional medicine. Meanwhile, the research and use of the plant did not lead to strengthening of the traditional knowledge of the subject, while the industrial demand resulted in over-exploitation of the plant in the wild. In fact, *Rauvolfia serpentina*, once growing abundantly throughout India, is today on the list of endangered species, and the traditional medical practitioners are unable to get sufficient supplies for local use. Similar cases of modern research to traditional herbal medicine have led to patenting of the knowledge and violating the intellectual property rights of the original carriers of the knowledge.

Methodology of research. Quite often we come across researchers, who claim not to oppose traditional knowledge and to be very open to it, as long as it can be examined and validated according to western scientific terms. This viewpoint implicitly assumes that the methodologies used in modern western sciences are universal, in the sense that they are 'above and beyond' all other scientific traditions. When this claim is examined in more detail, one can find that several methods, currently employed by modern western sciences, are the products of a specific historical and cultural context. For example, in researching the effect of drugs in clinical trials, the system of blind and double blind trials is widely prevalent (see box 4c). It is assumed that valid knowledge about the efficacy and use of any drug can be obtained by following such an approach. The fact that the patient is 'blinded' for the control of the trials, however, goes against the Ayurvedic notion of the active role of the patient in his own healing process.

As mentioned earlier in this chapter, there are many other differences in the conception and understanding of various aspects of health and diseases between Ayurveda and western science. These include the categories of the properties of plants, animals and humans Vaatha, Pitta and Kapha, as well as the categories of understanding the properties of food and drugs Dravya, Guna, Rasa, Veerya and Prabhava. However, once we get rid of the notion that modern western science is the only way to understand and analyse these phenomena, the search for synergy between the scientific traditions becomes an important challenge.

Synergy between multiple traditions

In retrospect, we can see that through the ages, every geographical location of the world has nurtured and produced sciences and technologies that bear the distinct stamp and character of its own people and civilisation. However, during the last few hundred years

Box 4c Control experiments based on blind and double blind trials

In modern testing procedures, only one group of the patients receives the new drug, while the others are given a 'placebo'. But what if we are dealing with a medical system where the patient is not just a passive recipient of a treatment, but as an active participant in the therapy? If a patient is treated by an Ayurvedic physician, not only a drug may be prescribed, but the patient is also given advice about how to regulate his diet - to avoid certain foods or methods of preparations - and may be given specific behavioural guidelines, such as the timing of meals, the spacing between meals, or sleeping habits. This difference is even more striking, if a patient is being treated by the system of Yoga, which implies the active participation of the patient by performing certain *asanas* (assuming specific postures) or *pranayama* (regulated breathing). In such cases, it is impossible to 'blind' the patient. Hence, it appears that the system of performing blind or double blind trials is, in fact, the product of the cultural context in which the patient is the passive recipient of treatment. Therefore, we need to re-examine the assumptions behind the various methodologies of research, and determine the methods suited to the specific knowledge system.

and increasingly for a hundred years or so, a myth has developed to the effect that the western tradition of science and technology is unique and universal. This viewpoint has not only been propagated by the mainstream scientists in the West but has also been internalised by professionals in various other parts of the world, particularly developing countries. While, it is true that in the West, there is scholarship that points to multiple traditions of sciences and technologies, most often, this literature and discussions are confined only to theoreticians and professionals working in the frontiers of philosophy or epistemology of science. Meanwhile, this has not influenced the thinking of mainstream scientists, policy makers and others in any significant way.

Therefore, there is an urgent need for new initiatives and paradigms of development, with a balanced view on traditional sciences, technologies and knowledge systems. While modern science and technology has limited its benefits to a minority of people, the vast majority of the people in the world still survive on the material and intellectual sustenance from their own indigenous traditions.

The activities of the Compas partners in India and other parts of Asia may be considered a contribution to this re-evaluation of indigenous traditions of sciences and technologies. They all take traditional knowledge and values as the starting point for endogenous development. They include the cosmovisions and relationship to nature of the people whom they work with, the role of the senses and the mind, the way the fundamental principles are being used, the role of traditional leaders, the methods of scientific research, and the way these relate to western approaches. The experiences in supporting endogenous development of the five Compas partners in the Indian sub-continent, as well as the partners in Nepal, Sri Lanka and Nepal, are presented in the subsequent chapters.