Conservation of Traditional people and their knowledge systems

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Introduction

Indigenous communities with distinct historical and cultural identity are known to be the stewards of biodiversity and traditional knowledge. However, they are fast disappearing from the modern world. Today, the boundaries between civilizations are highly amorphous and we are fast progressing from the national civilizations towards a broad globalized civilization. This process had its own backlashes and Indigenous cultures and people world over has been the victims. Civilizations can't progress without replacing the old with the 'new and better'. However, it is a matter of debate whether today's development is really for the 'better'. Some historians see striking uniformities in the histories of civilizations. The German philosopher Oswald Spengler in his 'The Decline of the West' (1922) described civilizations as living organisms, each of which passes through a life cycle of growth and decay comparable to the biological cycle of living organisms. If this view is of any significance, it is time to have a rethinking of our present mode of progress completely forgetting the past, leaving no scope for a return.

Agriculture is probably one of the greatest environmental damages we have been doing for the past ten thousand years. The shifting cultivation, fertilizers, pesticides, and even the new kid on the block, -the genetically modified crops- all have made sizable contribution to the environmental degradation of the planet. In the wake of the unfortunate aftermaths of the much-hyped Green revolution, the only solution for a sustainable farming system for the third world lies in the indigenous systems that unfortunately our modern development process is relentlessly destroying.

Traditional Knowledge

Over the centuries, people living in close association with the nature have developed and refined a variety of knowledge systems. Most of them are intricately associated with the local biodiversity. Many indigenous knowledge systems have made significant direct and indirect contributions to the research and development in various fields of science and industry. Pharmaceutical and Cosmetic industries are known to be among the most benefited from indigenous knowledge. Although it is difficult to differentiate indigenous knowledge from other knowledge systems, there are certain distinct features that characterises the former such as,

- Collective rights on the knowledge
- Close association and interdependence with the local environment
- Mostly transferred from generation to generation orally
- Sacredness and secrecy associated often there are strict rules and regulations of the community governing the practice and transfer of this knowledge.

However, owing to these characteristics related to ownership and transmission, it was not recognised as an intellectual property and no IPR law has any provision to safeguard the indigenous knowledge systems or ensure benefit sharing. However, the scenario is changing in the wake of Rio Declaration and CBD of the Rio Declaration states that:

"Indigenous people and their communities, and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development".

The CBD also recognises the sovereign right of the countries over their biological materials and leave it to the countries themselves to devise strategies to safeguard this right. The biodiversity bill before the Indian parliament is a part of our attempts towards this end.

Sustainable Management

One of the basic issues regarding the management of indigenous people is to decide the mode of management. Should we manage them *in-situ* so as to sustain them as traditional people away from the modern world or should we try to wean them away from their traditional practices and natural abodes and bring them to the mainstream populations and urban lands. Accordingly the management options would also differ. From the past experience it can be seen that the first option is often a better and viable one compared to the second option unless the people opt otherwise. Accordingly they should be given assistance to sustain their traditional knowledge and practices. Traditional knowledge and cultural heritage should be allowed to transmit across generations. The curriculum for the education of traditional people should be designed with their representation and co-operation, which should emphasise their traditional knowledge systems.

However, it may not be always possible to allow them to lead their traditional life unchecked. Some of the age-old traditional practices, such as slash and burn cultivation or traditional hunting practices, which were harmless and sustainable in the past, cannot be practised in a sustainable manner any longer. It is our responsibility to educate them on the present status of our highly depleted natural resources and assist them to do away with unsustainable practices, or to modify them to be more sustainable. There cannot be a panacea solution applicable to all the traditional people; the problems and solutions would be highly site specific in this case. Often it is the absence of alternatives that force the people to adhere to the unsustainable practices, rather than their ignorance.

Hence, future programmes should aim primarily at weaning away the people from their unsustainable practices by providing them with viable alternatives. In the present globalized world it is not possible to expect help from the governmental agencies to sustain their livelihoods. What is required is to make themself reliant by efficiently utilizing their resources and potentials with minimal external help.

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The primary step to achieve this goal would be the scientific documentation of their knowledge systems.

Documentation of traditional knowledge

It is widely felt that we have to rescue the traditional knowledge very quickly before it vanish. But it is easier said than done. The traditional knowledge that is evolved according to the local environmental conditions is often very difficult to document or practice in isolation. Hence the documentation programmes should be well thought out and designed to meaningfully document the knowledge in the context of the 'cultural relativity' (a concept that cultural norms and values derive their meaning within a specific social context). This should involve documenting various traditional practices encompassing all facets of traditional life, such as, medicinal plants, agricultural practices, traditional varieties of cultivars, hunting skills, handicrafts, ceremonies, festivals, arts and so on, using appropriate medium of documentation. In the absence of proper documentation of their knowledge systems they can be easy targets of exploitation from the market forces.

However, care should be taken while documentation, so that the knowledge in is documented in appropriate manner and in appropriate detail. Here it should be understood that the traditional knowledge often are 'context specific'. In other words, these knowledge systems are evolved in harmony with the local conditions, and the documentation invariably should also involve the local environmental conditions and the exact context in which the knowledge evolved and applied. For instance, recording traditional medicinal plants by recording just the plant species, used part of plant, mode of administration (external/ internal) and the disease against which it is effective alone may not necessarily do full justice to the knowledge. There might be several other factors that affect the effect of the medicine such as, diet regulations, time of application, season for the plant collection, shelf life of the raw materials and the final preparation and so on. Even the location from where the plant should be collected might matter in the effectiveness of the drug. Hence, the documentation process should involve all the relevant factors and can only be successful with the wholehearted co-operation and involvement of the concerned community.

The traditional knowledge on the medicinal properties of the plants is one of the most sought-after types of traditional knowledge and is already well known and documented from various parts of India. There had been national and regional level initiatives to document ethno botanic knowledge. For Instance, in Kodagu of Western Ghats the traditional knowledge of 'Kodavas' was documented by WWF during 1993- 97. For example, the leaves of the plant *Ageratum conyzoides* (Asteraceae) and the latex of *Jatropha curcas* (Euphorbiaceae) have wound-healing properties; *Ervatamia heyneana* (Apocynaceae) is widely used in the treatment of respiratory disorders and sometimes for snakebite; the leaves of *Ardisia solanacea* and *Memecylon umbellatum* are used in treating acute dysentery in infants and livestock, and hepatitis respectively; the root of *Carissa inermis* is used in conjunction with other roots to treat various infectious fevers; the bark of *Zanthoxylum rhetsa* is used in congestive respiratory tract infections; and the climbing plants *Pothos scandens* and *Rhaphidophora jaciniata* are used in treating a variety of ailments. Of special interest are the plants used in the care of newborn babies. The juices of some plants are administered to babies during their first twelve days, such as *Centella asiatica, Anisochilus carnosus, Kalanchoe pinnata, Momordica charantia, Solanum nigrum* and *S. torvum*. The Susala Gene Bank project (in Susala island of Mulshi Reservoir of Pune) is an ongoing community-based project, supported by WWF and TATA aimed at establishing a botanical gene bank of flowering plants found along the Western Ghats in high rainfall tracts.

Conclusion

The Indian knowledge systems has many time-tested information most of which are being scientifically proven during relatively recent years. For instance, the medicinal and pesticide properties of Neem (*Azadirachta indica*) and Turmeric (*Curcuma longa*), known to the Indian communities for several centuries have been patented recently after laboratory tests in the West. Although most of the commercially exploitable knowledge of the traditional people has already been exploited, there are lesser-known and probably less commercially potent knowledge still available with the traditional communities and could be of great value. For instance, the knowledge that 'avoidance of a particular item from our usual diet would prevent mosquito bite' would be of less commercial value, since it does not involve the use of a new substance, that can be commercialised. But is still is a piece of knowledge useful for the mankind and is required to be tested and publicized.

Here is the importance of involving the governmental and other non-profit agencies in the documentation and publicizing processes. Other lesser-known knowledge may involve knowledge regarding insects and other invertebrates. Once this knowledge is documented scientifically, the indigenous people can claim and ensure the benefit share from the exploiters and would be benefited from any future applications of their knowledge. There are new legislations coming up, such as Biodiversity bill and farmers right bill that would help protect the rights of the traditional people. There are examples from within India, where the awareness generation and ensuring the rule of law and benefit sharing principles proved to work out wonders for the conservation of the biodiversity and the well being of the people. Eg:- Warlies of Dahanu, Maharashtra and the Kani tribe of Kerala.

Finally, the people's attitude is the single most important factor in the management of traditional people and their knowledge systems. Unless the people feel that their traditional knowledge is valuable and worth conserving for the well being of our future generations, the sustainable management cannot be achieved in its real sense. Hence, top priority should be given for the efforts for inculcating this attitude in the minds of the people, so that they can be made to share their knowledge with outside world ensuring the benefit sharing in case of any commercial use of the knowledge.

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A case report of snake eating by Rosy Pelican (*Pelecanus onocrotolus*)

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In Maitri Baag zoo, which is located in the industrial area of Bhilai is categorized as a medium class zoo by the Central Zoo Authority, India. Fifteen Rosy Pelicans have been kept in an enclosure, through which a canal flows. The pelicans are in healthy state and have been observed breeding successfully 2 times. They attract the visitors a lot.

Normally rosy pelicans feed on fish and snail (Pandey, 2005; Ali, 1977). However, on one occasion the zoostaff, including first author have observed an unusual behaviour of snake feeding by a male rosy pelican. Water snake(*Natrix piscator?*) made its way into the enclosure through a gap in the chain link fencing of the enclosure and was immediately caught by a male pelican by its beak and engulfed into the mandibular pouch. The bird started shaking the pouch sideways by movements of head. During the processes of engulfing the remaining portion still outside of the beak of the bird violently moved, as an attempt to escape. But those attempts were futile and snake gradually moved into the pouch. In the processes of swallowing started, in which the bird repeatedly raised the head in an almost vertical position obviously to straighten the oesophagus and helps swallowing.

In this phase of eating the prey repeatedly emerged to the mandibular pouch and showed violent movements after four such attempts the snake was fully swallowed.

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