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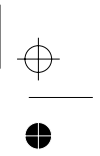
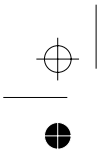
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Religion and biodiversity conservation: not a mere analogy

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Key words: Biodiversity conservation, culture, ethics, traditions and religion

SUMMARY

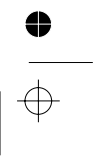
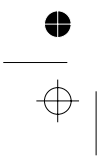
A symbiotic relationship exists between biological diversity and cultural diversity, and this relationship constitutes a determining factor in ensuring sustainable human development. Religious beliefs and rituals (such an invariable part of the cultural milieu) are very much inter-linked and intimately related to management of the ecosystems. Religion forwards the conservation of natural biodiversity in several different ways. The first is by providing ethical and social models for living respectfully with nature. For most cultures, religion is a primary means of defining right and wrong. Since nature has spiritual powers, it commands respect and is included in the religious code of morality and etiquette by all religions, even though they may differ in their *ways* and *means*. These ethical beliefs and religious values influence our behaviour towards others, including our relationship with all creatures and plant life. Lately, such beliefs and customs are being treated with disdain and defined with a singular term – *superstition*. Under such circumstances, religious values that acted as sanctions against environmental destruction do not retain a high priority and become displaced by economic factors. This paper is an attempt to document the different codes and ethics enshrined within the major world religions (Islam, Hinduism, Buddhism and Jainism) that have an inherent role towards the conservation of nature as a whole. The paper ends with a cautious note, that religion, rather than being declared obnoxious, needs to be reinterpreted to suit the secular premises of social living and thus has to be respected for its role towards the conservation of the vital linkages that sustain the very life on this planet.

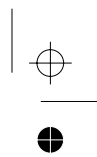
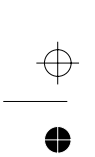
INTRODUCTION

Ordinary people are powerfully motivated to do things that can be justified in terms of their religious beliefs. Therefore, distilling environmental ethics from the world's religions is extremely important for global conservation. Religious values have often helped to protect natural biodiversity, and religion remains one of the most important wellsprings of human concerns for other species. Science attempts to understand the world through objective comparison. The

various elements in the environment become 'other', or differentiated from the scientist, who makes a conscious effort to distance himself/herself from the phenomenon he/she is observing. Religion in contrast, establishes a relationship or identification with the 'other'. The Shaman becomes an intermediary with nature and links the village with the surrounding forests and their creatures (Bratton 1999). Religion can speak *with* nature; science can only speak *about* it.

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According to Berkes (2001), religious traditions have little to say specifically about biodiversity, but they provide the values, worldviews, or environmental ethics that shape the way in which different societies interact with biological diversity and nature in general. In this sense, religion can be part of the problem or a part of the solution. Religion can encode adaptive strategies for resource management and biodiversity use, and supply emotionally powerful beliefs to put these strategies into practice. The anthropologist Eugene Anderson (1996) observes that all traditional societies that have succeeded in keeping their resources productive over time have done so in part through religious or ritual representation of resource management. The key point, he says, is not religion per se, but the use of emotionally powerful cultural symbols to help maintain a sense of sacred respect. Religions provide a central organizing myth and include cultural symbols for a moral code. Conceived that way, religions can be thought to include a wider variety of beliefs, within the definition of a superhuman controlling power. Again, in the same vein, Anderson holds that religion is best regarded as something providing an emotionally powerful way to 'sell' a moral code.

Religious sanctions may be invoked in two ways in direct support of biodiversity conservation: through the prohibition of areas or of species. 'Sacred groves' or sacred forests occur throughout the world, especially in India, Indonesia, South America and parts of Africa. Even small sacred groves may be surprisingly effective in conserving biodiversity, viz., a field study of small mammal communities caught in the sacred groves and the surrounding habitats conducted on the Accra plains of Ghana showed that the number caught within the sacred groves was 184, while the number was just 57 in the surrounding habitats (Decher 1997).

According to Bratton (1999), religion forwards the preservation of natural biodiversity in several different ways. The first is by providing ethical and social models for living respectfully with nature. For most cultures, religion is a primary means of defining right and wrong. Since nature has spiritual powers, it commands respect and is included in the religious code of morality and etiquette. They fear retribution in the form of bad luck if they violate taboos or are disrespectful of the animals they hunt, so their husbandry of natural resources is tightly

tied to an animist worldview (Nelson 1983). Second, religion often provides direct protection for wild and cultivated plants and animals. Example, many cultures have holy places, including mountains, which humans may approach only for religious purposes, if at all. Rivers or forests may be sacred environs, where wildlife and vegetation are not to be disturbed. Taboos are enforced, with an aim to prevent the killing of individual wildlife species. Lastly, religion ties the non-human residents of the cosmos to the divine or to the overall meaning of human existence, which gives the biota a value that science alone cannot provide.

Cultural belief systems of various peoples have protected species, their habitats, and even smaller ecosystems. For example, several verses in the Vedas and the Upanishads mention conservation and protection of animals and plants, indicating that traditional conservation practices of many rural and indigenous groups of India go as far as the Vedic period (circa 5000 BC). In fact, a great many of the social mechanisms, such as social taboos, may be highly adaptive from an ecological perspective and contribute to biodiversity conservation (Colding and Folke 1997). In fact Colding and Folke (1997) found that species-specific taboos protect threatened species as well as species considered keystone and/or endemic by ecologists. It was estimated that about 30% of the identified taboos protect species listed as threatened by the IUCN (Table 1). All of the world's major religions are today sensitive to the importance of biodiversity, though of course their historical writings do not use today's conservation vocabulary. The following is a brief summary of some major religious belief systems and how they relate to modern biodiversity concerns.

ISLAM

Islamic ethics is founded on two principles—human nature, religious and legal grounds. The first principal, natural instinct (*Fitrāh*) was imprinted in the human soul by god at the time of creation (Surah 91: 7–8). Having natural instinct, the ordinary individual can, at least to some extent, distinguish not only between good and bad, but also between what is neutral—neither good or bad (Muhammad' Abd Allah 1973). Outside influences that include customs, personal interests and prevailing concepts concerning one's surroundings may corrupt the

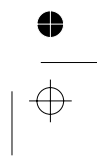
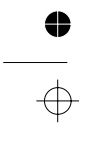


Table 1 Threatened species that are avoided as a result of Taboos (Colding and Folke 1997)

Species	Common name	Locality/country	IUCN status
<i>Kinosternon oaxacae</i>	Oaxaca mud turtle	USA, Mexico	I
<i>Chelonia mydas</i>	Green sea turtle	Buzios Island, Brazil	E
<i>Naja oxiana</i>	Oxus cobra	India	K
<i>Melanosuchus niger</i>	Black caiman	Peru	V
<i>Heloderma suspectum</i>	Gila monster	USA, Mexico	V
<i>Pavo muticus</i>	Green peafowl	India	V
<i>Gorillas gorilla</i>	Gorilla	Nigeria	V
<i>Colobus polykomos</i>	Black and white colobus	Ghana	V
<i>Pan troglodytes</i>	Chimpanzee	Nigeria	V
<i>Thomomys umbrinus</i>	Southern pocket gopher	USA, Mexico	V
<i>Perognathus alticola</i>	White-eared pocket mouse	USA, Mexico	V
<i>Dipodomys gravipes</i>	San Quintin kangaroo rat	USA, Mexico	E
<i>Dipodomys microps</i>	Chisel toothed kangaroo rat	USA, Mexico	K
<i>Canis lupus</i>	Grey wolf	India	V
<i>Tremarctos ornatus</i>	Spectacled bear	Ecuador, Peru	V
<i>Panthera tigris</i>	Tiger	India	E
<i>Felis concolor</i>	Puma	USA, Mexico	E
<i>Tapirus bairidi</i>	Central American tapir	Brazil, Venezuela, Ecuador	V
<i>Myrmecophaga tridactyla</i>	Giant anteater	Brazil, Venezuela, Ecuador	V
<i>Pridontes maximus</i>	Giant armadillo	Ecuador, Peru	V
<i>Antelope cervicapra</i>	Blackbuck	India	V

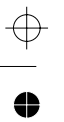
IUCN Status: E, endangered; I, indeterminate; V, vulnerable; K, insufficiently known; R, rare

ability to choose between good and bad. Legal instructions in Islam are not negative in the sense of forcing the conscience to obey. On the contrary, legal instructions have been revealed in such a way that the conscience approves and acknowledges them to be correct, thereby guaranteeing their application and success. Again, ethics in Islam is not based on a variety of separate scattered virtues, rather virtue in Islam is a part of a total, comprehensive way of life, which serves to guide and control all human activity (Quth 1985). Truthfulness is an ethical value, as are protecting life, conserving the environment and sustaining its development within the confines of what God has ordered.

Within the Islamic faith, an individual's relationship with the environment is governed by certain moral precepts. These originate with God's creation of humans and the role they were given upon the Earth. The role of humans is not only to enjoy, use and benefit from their surroundings, they are in fact expected to preserve, protect and promote their fellow creatures. According to prophet Muhammad, 'All creatures are God's dependants and the best among them is the one who is most useful to God's dependants' (Ismail 1983). In other words, Islam permits the utilization of the natural

environment, but this utilization should not involve unnecessary destruction, and that utilization is not without controls. A theory of the sustainable utilization of the ecosystem may be deduced from Islam's assertion that life is maintained with due balance in everything: 'Allah know that which every female beareth and that which the wombs absorb and that which they grow; and everything with Him is measured' (Surah 13:8). Humans, thus, are not the owners but the maintainers of the due balance and measure.

The Holy Koran provides a set of principles that define the relationship of man to God and of God to the environment in its totality. For Islam, the role of people on Earth is that of a *khalifa* or trustee of God, so humans are entrusted with the safekeeping of Earth and its biodiversity. People are answerable for their actions, including maintaining the unity of Allah's creation, the integrity of the Earth, and its biodiversity. The Koran says, 'With it we have produced diverse pairs of plants, each separate from the others. Eat (for yourselves) and pasture your cattle; verily, in this are signs for men endowed with understanding' (Surah 20:53). While humans have the right to utilize and subjugate natural resources, this involves a commitment to conserve them both



quantitatively and qualitatively. In the Koran, God says, 'There is not an animal (that lives) on the Earth, nor a being that flies on its wings, but (forms part of) communities like you' (Surah 13:15). Thus, Islam looks upon biodiversity as an expression of God's wisdom and omnipotence and as support for human development. The Prophet Mohammed said, 'There is a reward in doing good to every living thing'. The only surviving population of a freshwater turtle, *Trionyx nigricans*, which survives in a sacred pond dedicated to a Moslem saint in Bangladesh offers the best example of the precepts of Islam towards conservation in practice. The legal and ethical reasons for protecting the environment can be summarized as follows (Mawil 1985, 1990);

1. The environment is God's creation and to protect it is to preserve its values as a sign of the creator. To assume that the environment's benefits to human beings are the sole reason for its protection may lead to environmental misuse or destruction.
2. The component parts of nature are entities in continuous praise of the creator.
3. All the laws of nature are laws made by the creator and based on the concept of the absolute continuity of existence (Surah 22:18).
4. The Quran's acknowledgement that human-kind is not the only community to live in this world – that other creatures too are beings and like us, are worthy of respect and protection. The prophet Muhammad considered all living creatures worthy of protection (*hurmah*) and kind treatment (Ibn Hajar 1970).
5. Islamic environmental ethics is based on the concept that all human relationships are established on justice ('*adl*) and equity (*ihsan*) (Surah 16:90). The prophetic tradition limits benefits derived at the cost of animal suffering.
6. The balance of the universe created by God must also be preserved (Surah 2:29); and, lastly,
7. The environment is not in the service of the present generation alone. Rather, it is the gift of God to all ages – past, present and future.

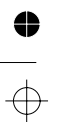
Thus, in Islam, law and ethics constitutes the two inter-connected elements of a unified world-view. When considering the environment and its

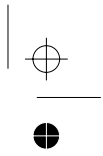
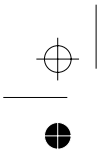
protection, this Islamic attitude may constitute a useful foundation for the formulation of a strategy towards conservation. Inception of such a strategy could begin with the Muslim world, who may vary in local habits and customs but are remarkably united in faith and in their attitude to life. Recently, a group of Saudi scholars scoured the Koran for environmentally relevant passages and drafted *The Islamic Principles for the Conservation of the Natural Environment*. While reaffirming 'a relationship of utilization, development, and subjugation for man's benefit and the fulfillment of his interests', this landmark document also clearly articulates an Islamic version of stewardship: 'he (man) is only a manager of the Earth and not a proprietor, a beneficiary not a disposer or ordainer' (Kadr *et al.* 1983). The Saudi scholars have also emphasized a just distribution of 'natural resources', not only among members of the present generation, but also among members of the future generations. As Norton (1991) has argued, conservation goals are well served when future human beings are accorded a moral status equal to that of those current living.

Hima – The concept of sacred zones

The concept of *Hima* (religious legislation towards protection of certain zones) has existed since the time of the Prophet Muhammad. *Hima* involved the ruler or government's protection of specific unused areas. No one may build upon them or develop them in any way. The concept of *Hima* can still be seen in many Muslim countries such as Saudi Arabia, where the government practices it to protect wildlife. In a less formal way it is still practiced by some *Bedouin* tribes as a custom or tradition inherited from their ancestors. The Maliki School of Islamic law described the requirements of *Hima* to be the following (Wahbah 1985);

- The need of the Muslim public towards the maintenance of land in its unused state.
- Protection is not granted to satisfy an individual unless there is a public need.
- The protected area should be limited in order to avoid inconvenience to the public.
- The protected area should not be built on or cultivated.
- The aim of the protection is the welfare of the people.





Unity, trusteeship and accountability, that is *tawheed*, *khalifa* and *akhras*, the three central concepts of Islam, are also the pillars of the environmental ethics of Islam. They constitute the basic values taught by the Quran. It is these values which led Muhammad, the Prophet of Islam to say; 'Whoever plants a tree and diligently looks after it until it matures and bears fruit is rewarded,' and 'If a Moslem plants a tree or sows a field and men and beasts and birds eat from it, all of it is charity on his part,' and again, 'the world is green and beautiful and God has appointed you his stewards over it.' Environmental consciousness is born when such values are adopted and become an intrinsic part of our mental and physical makeup.

HINDUISM

Hindus believe that at the core of all phenomena there is one and only one Reality or Being. God, in other words, is not a Supreme Being among other lesser and subordinate beings, as in the Judeo-Christian-Islamic tradition. Rather, all beings are a manifestation of one essential Being, called *Brahman*. And all plurality, all difference, is illusory or at best only apparent. Such a view would not seem to be a promising point of departure for the conservation of biological diversity, since the actual existence of diversity, biological or otherwise, is denied. Yet in the Hindu concept of *Brahman*, Naess (1989) finds an analogue to the way ecological relationships unite organisms into a systemic whole. However that may be, Hinduism unambiguously invites human beings to identify with other forms of life, for all life forms share the same essence. Believing that one's own inner self, *atman* is identical, as an expression of *Brahman* with the selves of all other creatures, invariably leads to compassion for them. The suffering of one life form is the suffering of all others; to harm other beings is to harm oneself. As a matter of fact, this way of thinking has inspired and helped motivate one of the most persistent and successful conservation movements in the world, the Chipko movement, which has managed to rescue many of the India's Himalayan forests from commercial exploitation (Guha 1989; Shiva 1989).

The principle of the sanctity of life is clearly ingrained in the Hindu religion. Only God has absolute sovereignty over all creatures, thus human beings have no dominion over their own lives or

non-human life. The idea of the Divine Being as the one underlying power of unity is beautifully expressed in the *Yajurveda* (the sacred Hindu text):

The loving sage beholds that Being, hidden in mystery,
Wherein the universe comes to have one home;
Therein unites and therefrom emanates the whole;
The omnipresent one pervades all souls and matter;
Like warp and woof in created beings.
(Yajurveda 32.8)

The sacredness of God's creation means no damage may be inflicted on other species without adequate justification. Therefore, all lives, human and non-human, are of equal value and all have the same right to existence. According to the *Atharaveda*, the Earth is not for human beings alone, but for other creatures as well. The most important aspect of Hindu theology pertaining to treatment of animal life is the belief that the Supreme Being was himself incarnated in the form of various species. The Lord says: 'This form is the source and indestructible seed of multifarious incarnations within the universe, and from the particle and portion of this form, different living entities, like demi-gods, animals, human being and others are created' (Goswami and Sastri 1982). Further, the Hindu belief in the cycle of birth and rebirth, where a person may come back as an animal or a bird, gives these species not only respect but also reverence. This provides a solid foundation for the doctrine of *Ahimsa* – non-violence against animals and human beings alike.

As early as in the time of the Rigveda, tree worship was quite popular and universal. The tree symbolized the various attributes of God to the Rigvedic seers. The Rigveda regarded plants as having divine powers, with one entire hymn devoted to their praise, chiefly with reference to their healing properties (Rigveda 10.97). During the period of the great epics and Puranas, the Hindu respect for flora expanded further. Trees were considered as being animate and feeling happiness and sorrow. It is still popularly believed that every tree has a *Vriksa-devata*, or 'tree deity' (refer Figure 1), who is worshipped with prayers and offerings of water, flowers, sweets and are encircled by sacred threads, and thus the cutting of trees and destruction of flora were considered a

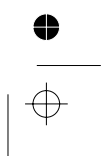
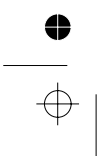


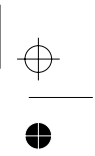
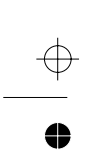


Figure 1 The sacred species of Shiling (*Osmanthus fragrans*), a very rare tree species, often found only within the temple precincts in the Garhwal hills and Kumaun Himalayas

sinful act. The Hindu worship of trees and plants has been based partly on utility, but mostly on religious duty and mythology. Hindu ancestors considered it their duty to save trees and in order to do that they attached to every tree a religious sanctity. Not only in the Vedas, but also in later scriptures such as the Upanishads, the Puranas and subsequent texts, the Hindu viewpoint on nature has been clearly enunciated. It is permeated by a reverence for life and an awareness that the great forces of nature – the Earth, the sky, the air, the water and the fire, as well as various orders of life including plants, forests and animals – are all bound to each other within the great rhythms of

nature. The divine is not exterior to creation, but expresses itself through natural phenomena.

It is reasonable to assume that *traditional Hindu society recognized individual species as objects of worship, based on accumulated empirical knowledge and their identified value for specific uses* (Sensarma 1995; Badoni 1988; Burman 1995). Thus, *Ficus religiosa* and other species of the same genus form components of a range of ecosystem types and support a variety of plant and animal biodiversity. The sacred basil, called *tulsi* (*Ocimum sanctum*) is worshipped in all traditional homes as a goddess and indeed is a multipurpose medicinal plant (Ramakrishnan 1996). Other species may not be worshipped in a



religious sense but are part of socio-cultural traditions. The socially valued multipurpose *Quercus* sp. of the Garhwal and Kumaon Himalayas are vital fodder and fuelwood species and serve several important roles in the functioning of the mountain forest ecosystems.

Searching into prehistoric times, the concept of the sacred grove in India has its roots in antiquity, even before the era of the Vedas, which presents the only recorded remains of the thoughts of the ancient Aryans who migrated into the subcontinent. In their migration from the steppes of central Asia, through Balkh in Khorassan to the Indian subcontinent, the ancient Vedic people assimilated new environmental values and the concept of *the sacred grove* forms the value system of the original inhabitants. Though many traditional societies value a large number of plant species from the wild for a variety of reasons, such as food, medicines – sacredness attached to floral species in India is, perhaps a more recent aspect of post-vedic Hindu rituals. Thus the existing concept of sacred groves at the landscapes or ecosystem level of the original pre-vedic inhabitants of India was interpreted by the migrants of the Vedic age down to the level of particular species.

‘A sacred grove is a patch of vegetation, ranging in extent from a few trees to forty hectares or more which is left undisturbed because of its association with a deity.’ In its original form this protection forbade any interference with the biota of the grove, and not even leaf litter was removed from it, nor was grazing or any hunting permitted within the grove (Gadgil and Vartak 1981). The sacred groves in India have been in existence from very ancient times and are as ancient as the civilization itself, going back to the prehistoric, pre-agricultural times (Ramakrishnan 1996).

Hinduism involves sacrifice forms of ritual worship that are designed to protect life through reinvigorating the powers that sustain the world by securing cosmic stability and social order. Hindu scriptures reveal a clear conception of the ecosystem. On this basis a discipline of environmental ethics developed, which formulated codes of conduct (*Dharma*) and defined humanity’s relationship to nature.

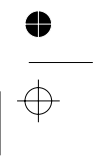
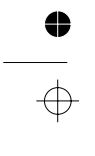
At this point, one needs to note that the effectiveness of any religion in protecting the environment depends upon how much faith its believers have in

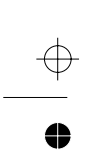
its precepts and injunctions. It also depends upon how those precepts are transmitted and adapted in everyday social interactions. Needless to elaborate, many of the precepts enshrined in Hindu religion, became ingrained in the daily life and social institutions of the people. It is important to emphasize here that the Hindu tradition of reverence for nature and all forms of life, vegetable or animal, represents a powerful tradition, which needs to be renurtured and reapplied in our contemporary context.

BUDDHISM

Buddhism, with a total of about 300 million practitioners found in many Asian countries, teaches that a behaviour has a natural relationship to its resulting consequences in the physical world. Right actions lead to progress toward nirvana while negative actions, such as killing animals, leads to regression from that goal. Committed to the ideal of nonviolence, Buddhism also attaches great importance to wildlife and the protection of biodiversity. Respect for life in the natural world is essential, and by living simply one can be in harmony with other creatures and learn to appreciate the interconnectedness of all that lives. The Buddha taught that all things are interrelated and do not have an autonomous existence, and thus the health of the whole is inseparably linked with the health of the parts and the health of the parts is inseparably linked with the whole.

To cite Chaturman Kabilsingh (1990), ‘When nature is defiled, people ultimately suffer. Negative consequences arise when cultures alienate themselves from nature, when people feel separate from and become aggressive towards natural systems. When we abuse nature, we abuse ourselves’. Buddhist ethics follow from this basic understanding. In 1985, the *Buddhist Perception of Nature Project* was launched to extract and collate the many environmentally relevant passages from Buddhist scriptures and secondary literatures, so that the relevance of Buddhism to contemporary conservation concerns could be demonstrated and the level of conservation consciousness and conscience in Buddhist monasteries, schools, colleges, and other institution could be raised (Davies 1987). Bodhi (1987) provides a succinct summary of Buddhist environmental ethics:





- With its philosophic insight into the interconnectedness and thorough-going interdependence of all conditioned things;
- With its thesis that happiness is to be found through the restraint of desire;
- With its goal of enlightenment through renunciation and contemplation and its ethic of non-injury and boundless love, kindness for all beings. Buddhism provides all the essential elements for a relationship to the natural world characterized by respect, care, and compassion.

The origins of these ethics could be traced to the Buddha's study, which was in the company of a banyan, and his enlightenment was under the spreading branches of a tree recognised for its special place in human faith, even in its scientific name, *Ficus religiosa*. Also known as the Bo, Bodhi, or peepul, this tree is sacred in both Buddhism and Hinduism. The Buddha encouraged acting with compassion and respect for the trees, noting that they provide natural protection for the beings that dwell in the forest. On one occasion, the Buddha admonished some travellers who, after resting under a large banyan tree, proceeded to cut it down. Much like a friend, the tree had given them shade. To harm a friend is indeed an act of ingratitude (*Paccittiya*).

The communities of monks are forbidden by the *vinaya* – the ancient rules of conduct – from eating ten different kinds of meat, mostly animals of the forest (*Gradual Sayings*). The Buddha taught his disciples to communicate to animals their wishes for peace and happiness, which was only possible when they did not eat the animal's flesh, and harboured no thoughts of harming them. Now, when every healthy forest is a home for wildlife and when a monk accepts the forests as his home too, he also respects the animals that live in the forests! Among the beautiful expressions in Buddhist literature showing mutual relation and interdependence of human and wildlife, is a realization that survival of certain species was in danger, and that losing such creatures diminishes the Earth. The statements, 'we should be wary of justifying the right of any species to survive solely on the basis of its usefulness to human beings' and 'the divine is not exterior to creation, but expresses itself through natural phenomena,' clearly brings forth these facts. Today's world is rich in technological and economics means, but it has little clue about the ends

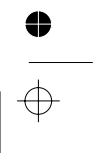
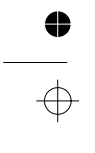
that are most appropriate for the use of those means. Buddhist economics proposes the solution that appropriate means would lead to appropriate ends, which, in turn, could be guided through our place as caretakers of the world around us, and the appropriate means will then become obvious.

JAINISM

Jainism, very similar to Buddhism is based on the principle of *ahimsa* (nonviolence) toward human beings and all of nature. Jainism teach that no human quality is more subtle than nonviolence and no virtue greater than reverence for life. While people often affect biodiversity negatively, the intention to harm is what makes an action violent, and without violent thought no violent action is recognized. Jain cosmology recognizes the fundamental natural phenomenon of symbiosis or mutual dependence, with all aspects of nature belonging together and bound in a physical as well as a metaphysical relationship. Jains believe that every living thing is inhabited by an immaterial soul, no less pure and immortal than the human soul. *Ahimsa* (non-injury of all living things) and asceticism (eschewing all forms of physical pleasure) are parallel paths that will eventually free the soul from future rebirth in the material realm. Hence, Jains take great care to avoid harming other forms of life and resist the fleeting pleasure of material consumption. Extreme practitioners refuse to eat any but leftover foods prepared for others, and carefully strain their water to avoid ingesting any waterborne organisms – not for the sake of their own health, but to avoid inadvertently killing other living beings. Less extreme practitioners are strict vegetarians and own few material possessions. The Jains are in fact bidding for global leadership in environmental ethics. Their low-on-the-food-chain and low-level-of-consumption lifestyle is held up as a model of ecological right livelihood (Chappel 1990).

RELIGION: THE BASIS OF TRADITIONAL ECOLOGICAL KNOWLEDGE

Many traditional approaches to conservation are supported by religious beliefs, often based on various kinds of animism that have the effect of



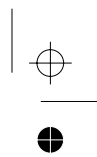
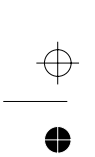
fostering respect for plants and animals. In many parts of the world, people have established sacred sites on the basis of inherent spiritual or religious significance. Such sacred sites, based ultimately on animistic beliefs, are often sanctuaries for biodiversity. Many animistic systems of belief are accompanied by the idea of taboo – that which is forbidden; breaking a taboo can bring sanctions such as illness, social ostracism, or even death. Taboo often applies to certain sets of natural resources that are particularly vulnerable to over-exploitation; and among local resource users, the imposition of temporal taboos regulates access to resources on either a sporadic, daily, weekly, or monthly basis (Colding and Folke 2000).

Animism is also often associated with totemism, a complex of ideas and practices based on the belief in a mystical relationship (often kinship) between people and certain animals or plants. These relationships often include reverential and genealogical relationships between social groups or individuals and the totems. Totems normally are associated with taboos of avoidance, so an Amazonian Indian hunter within a social group that has the peccary as a totem may be forbidden from hunting peccaries. Thus totemism also helps to restrict exploitation of harvestable resources. Similar examples are encountered throughout the Central Himalayas, India, where the hunting of deer having white marks on their foreheads is forbidden and they are referred to as divine souls! According to Gadgil *et al.* (1993), practices are often geared to sustainable use of local resources and ecosystems, with biological conservation resulting as an indirect outcome. They are often tied to cultural belief systems, which makes it difficult to separate the belief component from actual management practices and the ecological knowledge system on which they are built. Knowledge, practices and beliefs tend to intermingle in most traditional management systems. This constitutes the basis behind traditional ecological knowledge (TEK), denoting that resource management patterns are the products not only of a people's physical environment and its resources but also of their cultural perceptions of the environment and its resources (Ruddle 1994).

Berkes (2001) define traditional ecological knowledge as a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural

transmission, about the relationship of living beings (including humans) with one another and with their environment. As a knowledge, practice, belief system of a traditional society, it is both cumulative and dynamic, building on experience and adapting to changes. It is an attribute of societies with historical continuity in resource use on a particular land. Traditional ecological knowledge is a subset of indigenous knowledge, generally defined as local knowledge held by indigenous peoples or local knowledge unique to a given culture or society. The dealings of traditional societies with nature are often hedged by prescriptions as to what, when, and how much is to be left undisturbed. These prescriptions become part of a culture and are mediated by religious traditions. Madhav Gadgil and colleagues (1993) identified four kinds of widely used 'rules of thumb' as social restraints leading to indigenous biodiversity conservation practice:

1. Provide total protection to some biological communities or habitat patches. These may include pools along river courses, sacred ponds, sacred mountains, meadows and forests. For example, sacred groves were once widely protected from Africa to China, and in fact, throughout the Old World.
2. Provide total protection to certain *k*-selected species (often the keystone species), viz., the species of the genus *Ficus* are protected in many parts of the Old World. It is notable that *Ficus* is considered a keystone genus significant to the conservation of overall biodiversity. Local people seem to be often aware of the importance of *Ficus* as affording food and shelter for wide range of birds, bats and primates, and it is not difficult to imagine that such understanding was converted into widespread protection of *Ficus* trees at some point in the distant past. Taboos with apparent functional significance may also be placed on some less obvious species within the ecological community. For example, some Amazon fish species considered important for folk medicine are taboo and are avoided as food.
3. Protect critical life history stages of a species, viz., in south India, fruit bats may be hunted when foraging, but not at daytime roosts on trees that may be in the midst of villages. Many



waders are hunted outside the breeding season but not at heronries, which may again be on trees lining village streets. The danger of over-harvest and depletion of a hunted species and the protection afforded to them seems to be a clear case of ecological prudence.

4. Mandate local stewards to supervise resource use. Traditional resource harvesting systems in diverse parts of the world rely on the guidance of a traditional expert to organize the harvest, control access, supervise local rules, and generally act as a 'steward'. This practice also ensures the proper use and transmission of knowledge. Further, in some societies, major events of resource harvest are carried out as a short-term prescribed group effort. Thus, many tribal groups engage once a year in a large-scale communal hunt. Such a group exercise may also serve the purpose of assessing the status of prey populations and their habitat and may help to adjust resource harvest practices to sustain yields and conserve biodiversity. The mass killing of fish during the *Maun* festival in the Juansar-bhabar region in Central Himalaya, India, is one such prime example of resource exploitation collectively, where powder of *Timru* (*Zanthoxylum alatum*) is poured into the river in sackfuls. Poisonous affects of the powder makes the fish an easy catch.

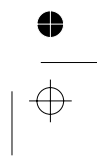
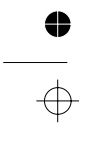
CONCLUSIONS

According to Paul W. Taylor (1981), 'the ethics of respect for nature is made up of three basic elements: a belief system, an ultimate moral attitude, and a set of rules of duty and standards of character. These elements are connected with each other in the following manner. The belief system provides a certain outlook on nature, which supports and makes intelligible an autonomous agent's adopting it; ultimate moral attitude brings forth the respect for nature, that it recognizes the attitude of respect to be the only suitable or *fitting* attitude to take towards all forms of life. Living beings are now viewed as the *appropriate objects of the attitude of respect* and are accordingly regarded as entities possessing inherent worth. One then places intrinsic value on the promotion and protection of their good. As a consequence of this, one makes a moral

commitment to abide by a set of rules of duty and to fulfill the same, certain standards of good character in which the attitude of respect for nature is manifested. The overall well being of *Homo sapiens* is dependent upon the ecological soundness and health of many plant and animal communities, while their soundness and health does not in the least depend upon human well being!

If such has been the tradition, philosophy and ideology of world religions, what then are the reasons behind the present state of environmental crisis? Our ethical beliefs and religious values influence our behaviour towards others, including our relationship with all creatures and plant life. If, for some reason, these noble values become displaced by other beliefs, which are either thrust upon the society or transplanted from another culture through invasion, then the faith of the masses in their own cultural tradition is shaken. As the foreign culture, language and system of administration slowly takes root and penetrates all levels of society, and as appropriate answers do not come, it is only natural that the people or the locals will become more inward looking and self-centered. Under such circumstances, religious values, which acted, as sanctions against environmental destruction do not retain a high priority and more often than not economic factors display respect for nature. The globalization of Western culture has meant, among other things, the globalization of Western modes of production (e.g. monocultures) and resource conservation (expert-knows-best positivist science).

It needs no elaboration that the ecological relationships between any community of living beings and their environment form an organic whole of functionally interdependent parts. Each ecosystem is a small universe itself in which the interactions of its various species populations comprise an intricately woven network of cause-effect relations. Such a dynamic but at the same time, relatively stable structure as food chains, predator-prey relationships and plant succession in a forest are self regulating, energy recycling mechanisms that preserve the equilibrium of the whole. As far as the well-being of wild animals and plants is concerned, this equilibrium must not be destroyed, that in the long run, the integrity of the entire biosphere of our planet is essential to the realization of the good of its constituent communities of life, both human and non-human. Its ethical implications for



our treatment of the natural environment lie entirely in the fact that our *knowledge* of these causal connections is an essential *means* to fulfilling the aims we set for ourselves in adopting the attitude of respect for nature. In addition, its theoretical implications for the ethics of respect for nature lie in the fact that it makes the adopting of that attitude rational and intelligible thing to do.

In this regard, traditional knowledge/practice/belief systems, tapping the wisdom of many traditional cultures with pantheistic traditions, offer a number of lessons. These systems are characterized by a similarity of concepts of nature, in which humans are part of nature. One important lesson from traditional ecological knowledge is that values and beliefs are important in encoding the ethics of conservation. As Rappaport (1984) and Anderson (1996) point out, the use of emotionally powerful cultural symbols is important to implement a moral code. If this is true, the incorporation of values and beliefs into biodiversity conservation efforts is more likely to succeed than the use of purely scientific arguments or purely economic incentives. Each

provides an approach to the understanding of reciprocal ties that bind humans with the natural world, and these ties invariably have a spiritual or religious aspect. It is important to highlight the fact that approaches to conserving biodiversity that are based on cultural and religious values are often much more sustainable than those based only on legislation or regulation (McNeely 2001). And, thus, religion, rather than being declared obnoxious, needs to be reinterpreted to suit the secular premises of social living. What is being reinforced is not religion per se, but the sanctioning mechanisms that underlie the whole corpus of myths, beliefs, and practices (Joshi 1992).

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