was recovered in May 2011 in Valmiki-nagar Range of VTR. Cases of crop raiding by the rhinos in Madanpur have been reported by villagers. Initially, there were some human casualities since the villagers were unaware of the behaviour of the rhinos, which used to attack them on approaching closer.

However, naturally settled rhinos along the Gandak floodplain in VTR provide an interesting case of species occupying its historic distribution range as a result of natural forces. This newly settled population needs to be managed for long-term conservation of the species in the landscape. Based on the ecological conditions and anthropogenic influences, the IUCN Rhino Specialist Group and the Rhino Sub-committee of the Indian Board for Wildlife suggested Dudhwa National Park (UP), Jaldapara (West Bengal), Intaki (Nagaland), Lalighabri Sanctuary (Arunachal Pradesh) and Champaran forest (which is restricted to the present VTR area) in Bihar as potential areas for re-introduction of the one-horned rhinoceros in India. Based on this, rhinos were re-introduced in Dudhwa National Park in 1984–85 (ref. 6). Strengthening of the recently established population through translocation of rhinos from other populations in Northeast India, providing adequate protection to the species and its habitat, and taking measures to reduce its conflict with human beings would be helpful in long-term conservation of the species in its new-found home in VTR.

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An exposition on environmental ethics

In 1854, when the environmental ethics was not yet conceived, Chief Seattle in his letter to the then President of the United States of America penned warnings as environmentally pensive and poignant as any uttered in the 150 years since: 'continue to contaminate your bed and you will one day lay in your own waste'.

More than 150 years later today, Chief Seattle's words echo in every Superfund site, landfill and oil spill. Public opinion has swung to the greenside and a new ethics known as 'environmental ethics' has evolved. Recently, with the environmental movements gaining strong ground all over the world, the concept of common good has expanded and been emphasized. Specifically, it lies at the heart of determining if an action is ethical.

'Ethics' in fact is defined as the science of human duty – the moral science; it expresses the basic principles of right action. 'Environmental ethics' thus means the principles of right action to sustain the environment in its pristine state.

Historically moral theories and philosophies have governed ethics. Also, historically ethics can be grouped into one of the following as it has expanded and emphasized (not a new ethic at all): (i) Utilitarianism focuses on good consequences for all. (ii) Duties ethics focuses on one's duties. (iii) Rights ethics focuses on human rights. (iv) Virtue ethics focuses on virtuous behaviour.

The modern mainstream involves two facets of environmentalism: Pure environmentalism for its own sake and Environmentalism for humanity's sake.

Both share a concern for the well being of the natural world, but there are fundamental differences between the two: (a) Environmentalism for its own sake is primarily ecological – 'A thing is right when it tends to preserve the integrity, stability and beauty of the total biotic community (redefining community to include non-human habitats of the land) and the existing landscape which includes the "land ethic" .' (b) Environmentalism for humanity's sake displays the inherent egocentric attitude of human kind. Thus, it is secondarily ecological.

What is needed is a widespread adherence to a perfectly familiar ethic, already defined. However, it is important to continuously remind ourselves that the major sources of ecological disasters, apart from ignorance are greed and shortsightedness, having no concern for the biotic community and the elements of nature.

The mainstreaming of the environment is, however, not any means worldwide. The countries in which the greatest impact has been felt are the most industrialized countries. Actually industrialization itself has been crucial to the development of the environmental movement. Not only do its environmental problems and pollution create concern, the citizens of the industrialized nations enjoy lives with the luxury of free time and options necessary to be able to devote themselves to such a concern. In poorer communities, the struggle of everyday survival far outweighs any aesthetic concern for the environment. Abraham Maslow's (in Barbour[1]) concept of a 'hierarchy of needs' can be applied in explaining the difficulty of establishing the environmental movement in poor countries. However, the exponential increase in population in the said communities and countries is a serious add-on problem. The questions sometime do arise in this context, whether a sense of ethics can be instilled into the minds of the poorer section of the human world. On the basis of five levels of need in the hierarchy of needs for every human being, the corporate social responsibility (CSR) concept in poor countries may be accommodated. The five levels of need in the hierarchy from the bottom to top are: (i) Survival (physiological needs): food, shelter and health. (ii) Security (safety needs): protection from danger and threat. (iii) Belonging (social needs): friendship, acceptance and love. (iv)

Self-esteem (ego needs): self-respect, recognition, status. (v) Self-actualization (fulfillment needs): creativity, realization of individual potentialities.

Lower levels must be at least partially satisfied before the poor individual can give attention to higher levels and then he may be able to commit himself to environmental needs. A prior imperative is, however, education. The corporate sectors in the context of social responsibility may work out the modes of action on the basis of Maslow's 'hierarchic needs' as applicable site-wise. The corporate sector will have to make a detailed status report on the basis of evaluation of the people concerned.

In poor countries like India, if the exponential growth of population is not controlled, our concern for environmental ethics may become redundant in the said scenario. CSR will tend to become only a theoretical proposition and unrealistic in the context.

Moreover, the survival needs of the impoverished community for food and shelter supersede any idealistic desire they may have to preserve the environment. For example, when a coal-mining company turns to 'strip mining' – a process that essentially rips the mountains to shreds and contaminates the groundwater with heavy metals released – can the poor miners (daily labourers?) be expected to jeopardize the welfare of their entire families by protesting because the methods of the employer are environmentally negligent. Their survival needs for food and shelter supersede everything.

Abuse of this natural hierarchy as discussed above has been defined as environmental racism and is epitomized by the disproportionately large number of landfills, chemical plants, metallurgical plants and toxic dumps in the region where the poorer communities stay in the poorer countries. India's political and industrial rich are in the same manner indulging in environmental racism. Environmental ethics in this connection can allay fear concerning ecological integrity and responsibility.

In the traditional ethical theories, established hierarchies of duties, rights, virtues and desired consequences exist so that situations where no single course of action satisfies all of the maxims can still be resolved. Debate continues over where the environment falls in this hierarchy.

Engineers/technologists in general affect the quality of life of all people in the society in the pursuit of their profession. Therefore, they shall participate in none but honest enterprises.

To bolster the conviction of a true ecological ethic, there must be an emergence of a new dominant paradigm. It may be defined as the collection of norms, beliefs, values, habits and survival rules that provides a framework of reference for members of a society. It is a mental image of social reality that guides behaviour and expectations.

The 'butterfly' theory of chaos illustrates the concept of interdependence as professed by Chief Seattle on the environment. This embracing of the connectedness of all things ushers in the new respect for simplified living, emphasis on global justice, renewable resources and sustainable development (as opposed to unchecked technological advancement) as the new emerging social paradigm. The concept of environmentalism is now widely held; its future is becoming deeply held.

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