MAN AND NATURE IN INDIA: THE ECOLOGICAL BALANCE

It is a matter of some satisfaction to all of us interested in the conservation of Nature that there is now, at last, a growing awareness and interest in India in the preservation of wildlife and wild places.

What is now required is the understanding of the fact that human ecology is an integral part of Nature conservation and all who take a view of life on earth must realise that man's future cannot be considered separately from that of other life .

From the time that man became an agriculturist and husbandman, thereby enabling himself to overcome the natural constraints that had kept the numbers of his predecessor—the hunter and forager—within the environmental capacity, man's impact on his environment has been largely disastrous.

As examples, one could consider the Cradle of Civilisation, West Asia, now largely arid, as a monument to man's misuse of the land. A number of ancient civilizations seem to have culminated in deserts in the same way—Egypt, the kingdoms of West Asia, Carthage and the Indus Valley civilization.

All seem to have gone to ruin down the same drain. None had profited from the knowledge of earlier disasters. Unhappily, the same sorry process continues today, only that improvements in communications and technology now permit man to exercise his expertise is a creator of deserts on a global scale and at a more accelerated tempo.

As far as forests and wildlife are concerned, there can be hardly any doubt that we in India have been living prodigally off an abundant capital. A study on any endangered natural resource shows that the basic problem in every case in human population, leading to a constant erosion of that resource.

In an article in *the Journal of the Bombay Natural History Society*, M.S Randhawa provides historical evidence to prove that in the last 2,000 years there has been a progressive desiccation of northern India. As an example, he cites the changes that have occurred in the Mathura region of Uttar Pradesh.

That area, apparently, once received over 2,000 mm of rainfall as against the present 600 mm. The evidence on which Randhawa bases his thesis in mainly the sculptures of the period and specific reference in the Puranas to the Ashoka tree (*Saraca asoca*), and other moisture loving plant species, whose present-day distribution is restricted to areas with over 2,000 mm rainfall. Thus, the Mathura region appears to have degraded within historical times from an area capable of supporting luxuriant forests to one with a semi-desert type of vegetation, rather similar to that of the Rajasthan desert.

The loss in the productivity of the land and the consequent degradation of the environment is nowhere more clearly shown than in the history of some of our endangered species of wildlife. The distribution of the Great Indian Rhinoceros sufficiently illustrates this point. This ponderous animal, now restricted to the swampy riverrain forests of a few sanctuaries in Assam, West Bengal and Nepal, was found in historic times from Peshawar—where the Moghul Emper or Humayun hunted it—eastward across the Gangetic Plain to Assam.

The fact that the rhinoceros requires a swampy grass jungle to exist is a pointer to the conditions then obtaining in areas which are now practically desert.

The pinheaded duck, another resident of the same swampy forest habitat, became extinct in the thirties of the present century. Loss of its habitat, combined with the fact that it nested on the ground among reeds and not up in tree-holes like our other resident ducks is possibly one of the main reasons for the disappearance of the species.

The distribution of the lion in this country is perhaps further evidence of the result of man-made environmental changes. The widespread extension in the range of the lion-an inhabitant of dry habitats—in North India was possibly correlated with the withdrawal of moist conditions in the Indo-Gangetic Plain. This was the result of large-scale clearing of the forests as more and more land was brought under cultivation for an ever-increasing human population. The lion itself eventually fell a victim to the rising population pressure, losing its habitat to cultivation.

'Habitat destruction is the primary reason for the disappearance or—rarity of most of our wildlife, and under present conditions there seems every likelihood that the process of destruction will continue.'

It is indeed, a tragic situation. There is not enough land for all the land-hungry and much of the land that is now being cleared under population pressure—some of it magnificent primaeval evergreen forest—will surely be abandoned in a permanently ruined state, another martyr to human irresponsibility! It would appear that what is really needed is not more land for cultivation, but better utilization of the land that is already under cultivation.

The disappearance of the rhinoceros, the lion or the tiger are examples striking enough to attract wide attention even of the layman, but there is a considerable invisible loss which, by nature of its obscureness, seldom comes to notice.

One example of such is the loss suffered by the agricultural economy of the country due to the thoughtless destruction of the predators of agricultural pests. And hardly any voice is raised in protest. The reptile skin trade, running into hundreds of tons annually—happily banned at last–effectively removed the snakes and lizards which are amongst the most stringent natural checks on rats and other rodent crop-pests.

Similarly, the trade in frog's legs removes one of the important Regulators of the populations of harmful insects and other small animals. One observable effect of this commercial exploitation of frogs is the marked increase in land crabs (*paratelphusa sp.*), which destroy paddy seedlings, and whose numbers were kept in check by the frogs.

Due to superstitious prejudice and ill founded allegations against owls and the diurnal birds of prey, man axes his own legs, as it were. Their senseless destruction deprives agriculture and forestry of the services of some of man's staunchest allies in the ceaseless battle against the fecund tribe of rats, and other scourges like the locust.

In recent years advanced technology has paradoxically enough, added dangerously to the hazards to wildlife and environments by the introduction of chemical pesticides and herbicides in the campaign to grow more food for the burgeoning human population. By the poisonous pollution these have brought about, of water, earth and air, they are boomeranging on man himself.

Whatever conservation measures are now undertaken, or may be undertaken in the future, can be expected to function as no more than stop-gaps, and no permanent remedy for the ecological imbalance can be devised unless and until the human population is effectively contained.

This, then, is the problem. Unless man is able to discipline himself there is no hope of avoiding the ecological disaster towards which he is rapidly heading. In order to restore and regulate the ecological balance, conservation now demands that the human population be drastically controlled, not only for the wise use of the available natural resources but for the very existence of man himself.

To find the remedies one must examine the causes. The evolution of man, unlike that of other animals has, above all, been the evolution of his brain. This is what has enabled him to overcome the limitations natural to other animals. He meets and deals with his environment at two levels ; firstly, the intellectual, aided by the vast area of knowledge available to him because of his intellect, and secondly, the physical level in which he is in no way different from other animals.

Man's reproductive capacity lies in the second plane, and to control it, the approach should be through knowledge of the reproductive function of other animals. To this end, fruitful research could be undertaken on the factors that cause seasonal reproductive behaviour in other animals and on whether it would be possible to permanently extend the inhibitory forces.

On the face of it this does not seem an impossible task since, in reverse, we have succeeded in breaking down the seasonal inhibitory force in domestic animals. For instance, the Red jungle Fowl—the ancestor of our domestic poultry—has, unlike the latter, a fixed and limited breeding season in nature. It is a curious fact, but true, that in truly social insects such as ants and bees the majority of individuals are sterile;

thus there is a built-in population control mechanism in the community. Can this model not be emulated by humans?

Whatever method we employ, the intellectual or the physical or a combination of both, time is running out for man. He must realize that his body, like that of other animals, is subject to narrow physical and chemical constraints and that, however intellectually versatile he may be, he could become a victim of ecological disaster just as any other animal if he refuses to pay heed to the warnings of a misused natural system working under fixed natural laws. To us in India especially this is the Writing on the Wall.

- **Salim Ali**

About the essay

In this essay Salim Ali discusses the importance of human ecology as an integral part of nature's conservation. Man's life cannot be happy unless the lives of plants and animals are ensured. Ali expresses sorrow over man's incapability of learning from the disasters of the past. The extinction of many species of animals is an indication that man will also be a victim of ecological disaster if he goes on misusing the natural eco-system working under fixed natural laws.

Salim Ali was an ornithologist and naturalist, sometimes referred to as the "Birdman of India".He was among the first Indians to conduct systematic bird survey across India. He became the key figure behind the Bombay Natural History and created Bharatpur Bird Sanctuary. He was awarded the Padma Bhushan in 1958 and Padma Vibhushan in 1976.

GLOSSARY

ecology	:	the environment as it relates to living organisms
husbandman	:	farmer
predecessor	:	one who comes before you, forerunner
forager	:	someone who hunts for food and provisions
arid	:	land or climate having little or no rainfall; dry.
expertise	:	expertness
accelerated	:	speeded up
prodigally	:	spending money or resources too freely;extravagant.
erosion	:	a gradual decline of something
ponderous	:	slow and dull because of weight
swampy	:	(area of) soft wetland, marsh.
sanctuary	:	a shelter from danger
habitat	:	the type of environment in which an organism normally lives
extinct	:	no longer in existence
magnificent	:	glorious
primeval	:	having existed from beginning
martyr	:	one who suffers
obscureness	:	the state of being unimportant

stringent	:	rigourous,tight
seedlings	:	young plant grown from a seed
herbicide	:	substance that is poisonous to plants; used to destroy weeds.
emulated	:	imitated
versatile	:	having great diversity or variety

Activity 1: COMPREHENSION

A. Tick the correct alternative:

1. The ancient civilizations that seem to have culminated in deserts are the--
   (a) Indus Valley civilization
   (b) kingdoms of West Asia
   (c) civilization of Egypt
   (d) All of these

2. Distribution of the moisture loving plant species is restricted to areas with over--
   (a) 2,000 mm rainfall
   (b) 1,000 mm rainfall
   (c) 500 mm rainfall
   (d) 100 mm rainfall

3. In order to restore and regulate the ecological balance we need to--
   (a) control the human population.
   (b) use the available natural resources wisely.
   (c) conserve forests.
   (d) all of these.

B. Answer to the following questions should not exceed 10-15 words each:

1. What does the history of some of our endangered species of wildlife illustrate?
2. What will happen if man refuses to pay heed to the warnings of a misused natural system working under fixed natural laws?
3. What has enabled man to overcome the limitations natural to other animals?
4. Who is the ancestor of our domestic poultry?
5. What is a curious fact about truly social insects such as ants and bees?

C. Answer to the following questions should not exceed 30-40 words each:

1. What causes ecological imbalances?
2. How does the progress in communication and technology affect the ecological balance?
3. What does Salim Ali say about dryness in the North India?
4. Why are tigers and lions disappearing in India ?
5. How does population pressure affect ecology?

D. Answer to the following questions should not exceed 60-80 words each:

1. Describe the relationship between man and nature.
2. What measures must be undertaken to restore and regulate the ecological balance?

***Activity 2* : VOCABULARY**

1. Match the following words in column 'A' with their meanings in column 'B' given below:

Column 'A'		Column 'B'
conservation	:	farmer / one who plows and cultivates land
preserve	:	a natural source of wealth or revenue
husbandman	:	the protection of animals, plants, and natural resources
resource	:	a chemical used to destroy plants or stop plant growth
habitat	:	living with or under the care of human beings
obscureness	:	relating to the ability to think in logical way
herbicides	:	to keep safe from injury, harm, or destruction
restore	:	not well-known : not known to most people
Intellectual	:	the place where a plant or animal naturally lives or grows
domestic	:	to put or bring back to an earlier or original state

***Activity 3*: GRAMMAR**

The Present Perfect Continuous and the Past Perfect Continuous

Look at the following sentences:

A. We *have been* working here since 1995.
He *has been* teaching English for a long time.
They *have been staying* here for an hour.

B. They *had been drilling* for two years before they found oil.
I *had been working* for two hours when I found him.

The verb groups in (A) are called the Present Perfect Continuous and the verb groups in (B) are called the Past Perfect Continuous. Both the groups are formed by combining the perfective and the continuous aspects.

Look at the form of the verb groups given below:

Present Perfect Continuous:
have been living
has been studying

Past Perfect Continuous:
had been drilling
had been walking

The present perfect continuous is used for an activity that began in the past and which is still going on now:

I have been living here since 1970.
I have been waiting here for an hour.

The past perfect continuous expresses the duration of an action up to a certain point in the past:

The telephone had been ringing for three minutes before it was answered.

Exercise:

Combine each of the following sets of sentences, using the past perfect continuous.

Examples**:**
I worked as a teacher (for three years). Then I became a lecturer.
I had been working as a teacher (for three years) before I became a lecturer.

i. They lived in Kolkatta (for ten years). Then they came to Mumbai in 2003.
ii. I was reading a book. Then I fell ill.
iii. We waited for thirty minutes. Then the bus arrived.
iv. He studied politics for five years. Then I met him.
v. I walked for ten minutes. Then I noticed that I had forgotten to put on my socks.
vi. I slept for one hour this morning. Then the telephone rang.

Activity 4:SPEECH ACTIVITY

You are the President of the Environment Club of your school. The Club organizied a three day trip to Jim Corbett park. Share your experiences with your friends.

Activity5: COMPOSITION

According to Indian spiritual tradition, "Nature does not need to be controlled or transformed or decorated; she needs to be accepted in her entirety as a whole… She can be loved and celebrated as she is… But she is alive and must not be diminished or reduced." In the light of this statement, write your ideas about Indian traditions of nature conservation.