

National Environment Awareness Campaign(NEAC) 2014-2015.

Theme

“COMBATING DESERTIFICATION, LAND DEGRADATION AND DROUGHT”

Background Note

Desertification is about land degradation: the loss of the land's biological productivity, caused by human-induced factors and climate change. It affects one third of the earth's surface and over a billion people. Moreover, it has potentially devastating consequences in terms of social and economical costs. In India, the conversion of vast areas of fertile farmland to wasteland has resulted in a mass exodus to the cities which, as we are well aware, are ill equipped to cope with this migration. Urban slums and ghettos and their related health and social problems are a direct result of land degradation.

Land Degradation Land is an important resource and central to primary productivity. When the soil loses its biological and economic viability, a global problem arises. It impacts the environment, climate and human society and it is termed as Land degradation. Both the pressures from biotic and abiotic made the land to suffer from different types of degradation over the years.

The total area of the country is 329 million hectares. Of these 266 million hectares are available for potential use. But in reality, land has been subjected to varying degrees of degradation which are mentioned below:

- Land suffering from serious water and wind erosion
- Land affected by salinity and alkalinity
- Land affected by water – logging
- Land affected by shifting cultivation
- Land affected by miscellaneous factors

India and land degradation

Of the 329 mha of India's land area, only 266 mha are available for potential use. Of these 266 mha, 175 mha suffer varying degrees of soil degradation in that they are either under erosion, water logged, shifting cultivation or salinity. There are several causes for land degradation, such as population pressure, deforestation and loss of vegetative cover, all of which lead to erosion. About 12,000 million tonnes of top soil are estimated to be lost every year. Over irrigation, floods, droughts and excessive grazing including removal of the dung, pollution caused by factories, and agricultural residues such as pesticides and fertilizers are among the other causes of land degradation. On account of all these reasons, dry land becomes wasteland and then desert.

These unique natural habitats with their incredibly diverse fauna have also seen the birth and growth of some of the world's oldest civilizations. They stand like open-air museums, bearing witness to bygone eras. The year will therefore also celebrate the unique heritage of the world's deserts.

The Process of desertification

The gradual degradation of dry lands/arid land in to unproductive It is a gradual process of loss of soil productivity and thinning out of vegetative cover that occurs as a result of human activities and climatic variations. When the top is soil is not protected and subjected to erosion either by wind and water, the soil losses fertility. The causes are over cultivation, overgrazing, deforestation, poor irrigation practices and induced desertification by pollution, waste dumping and pollution in aggravated form.

The International Food Policy Research Institute said that land degradation costs the world 2.3 trillion dollars yearly. As our land has suffered grievously, it has started to reflect a serious threat to people's food security across the world, as a result of human activities and hazards associated with it.

Effects Of Desertification

The degrading land and vicious cycles of water scarcity, drought, over flooding and decreasing productivity are the effects of desertification. The rural poor receive most of the effects of deforestation. Around 1.5 billion people globally depend on degrading areas for their livelihoods, and nearly half of the world's very poor (42%) live in degraded areas. The effect is multi-fold when the compounding of desertification and climatic calamity reaches the larger section of the people. There are around 110 countries at potential risk of desertification. Global estimates predict that by 2020 some 60 million people will migrate from the desertified areas in sub-Saharan Africa towards Northern Africa and Europe. It is unimaginable to estimate the climate refugees of the world when desertification aggravates the situation.

Half of the world's livestock are found in the dry lands. The situation of food security is very dismal if the food production in the dry lands collapses.

CAUSES OF LAND DEGRADATION:

Salinity and Water logging:

The thirst for increased agricultural productivity has led to intensive cultivation of marginal lands causing their degradation. Involving agricultural practices like irrigation, chemical fertilizers and pesticides which act as a aggravating factors of salinity and water logging.

A vicious inter-linkage of crop production, livestock economy and environment and land degradation has a major impact on the livelihoods of the people, especially the poor in rural India.

Soil Erosion

Nature takes 600-1000 years to make an inch of fertile top soil. The loss of top soil represents a permanent depletion of the resource base. A drastic degradation of natural vegetation caused by overgrazing by animals, deforestation and careless management of forests leads to soil erosion.

Mining and Industry

The two major activities contributed by mankind are mining and industry. Heavy amount of dust gets released during the process of surface and underground mining processes and thus leads to land degradation. Industries play a major role in polluting the land.

Degradation of Land due to Mining

After agriculture, mining is the second largest industry and most of the mines are open cast. Reclamation of lands disturbed by open-cast mining is a major ecological problem in many parts of the country. They lead to crust formation, reduced water intake and increased run-off, causing erosion and landslides. Therefore the immediate establishment of vegetative covers becomes all-important. High aridity, low fertility, drought and toxicity are the chief problems in mined areas.

Overgrazing:

It is very much to be proud that India ranks first in having the largest livestock population in the world as it has a major part in socio economic development. But a pathetic story behind the screen is 'Overgrazing' which affects both the quantity and quality of vegetation cover.

As we do not have sufficient land for the process of grazing, it turns out into overgrazing. Land degradation due to overgrazing leads to desert-like conditions which, in turn, reduce animal productivity and increase the

economic pressure on human beings who depend on animals for their livelihood.

Deforestation

Worldwide, 1.6 billion people rely on forest products for all or part of their livelihoods, at the same time, every hour, at least 4,500 acres of forest fall to chain saws, machetes, flames, or bulldozers. (Forestry Department, Food and Agriculture Organization of the United Nations).

Cutting down the natural forests, woodlands and shrub lands to obtain timber, fuel wood and other forest products leads to deforestation. And thus deforestation accompanies land degradation and contributes to desertification.

Floods and Drought

The modern curse of agriculture is too much water or too little water. In India, both floods and droughts occur frequently. Drought is both man-made and environment induced. However, the recent cycles of floods and droughts are due to human induced causes.

Drought prone areas arise due to over exploitation of natural resources like forests, degradation of grazing lands, excessive withdrawal of ground water, silting of tanks, rivers, etc. Floods, on the other hand, are caused by heavy rains in a very short period.

Measures to Combat Desertification:

Soil and Water Conservation

At present, soil and water conservation works are taken up by the State Governments and the involvement of the farmer is very minimal. Unless those who work on the land are made aware of the fact that the land is capable of producing much more than what it is producing today. We

cannot improve the quality of our lands or prevent desertification without conserving our soil and water. Excessive use of chemical pesticides and fertilisers, over-irrigation and too many crops are having a heavy toll on the productivity of the land.

Sustainable Agriculture and Rural rejuvenation

In order to increase rural employment opportunities without putting pressure on land sustainable farming practices have to be integrated. In many parts of India, water and wetland farming have become a problem due to decreasing water availability, less water intensive farming, sustainable agriculture would reduce the water requirements and be equally remunerative. The establishment of fodder banks would also reduce the pressures caused by grazing.

The poorer farmers and landless labour have suffered the most from the dwindling common property resources, such as pasture lands and open forest grazing lands. Today, technologies are available to improve their productivity and non-arable catchment areas could be made into common property resources.

Scarcity of Water and loss of land fertility

Land degradation automatically leads to scarcity of water. Small reservoirs in low to minimum rainfall areas and ground water recharge should receive priority. Water harvesting in drylands can be easily adopted and implemented. Again, vegetative covers are the best solution for preserving ground water.

Some of the soil conservation measures are :-

- Afforestation and increasing green cover.
- Controlled grazing, Stall feeding and proper Animal husbandry management
- Practice of Reduce, Recycle and Reuse.
- Alternative to chemical pesticides and fertilizers in agricultural activities.
- Proper management of industries and its effluents
- Use of biodegradable products and create dumping ground away from residential areas.
- Water shed management, Contour bunding and creation and restoration of small water bodies
- Frequent check on urban migration growth.
- Check on Industrial Pollution.
- Gaining knowledge on healthy system of agriculture and food pattern.
- Restoration of soil fertility.

Let us create awareness about the importance of land resources and also to commit ourselves to action and protection of land from desertification. The current concern of environmental degradation can be transformed into positive one with the act of each and every individual.