The need for exchange of genetic resources

The dependence of countries on each other to breed new crop varieties and hybrids is bound to increase

FARM VIEW

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Consider the following pointers to dwindling natural biodiversity: Of over 7,000 plant species nurtured over ages for food, no more than around 150 are cultivated and traded commercially to any reckonable extent today. Worse, two-thirds of them produce 90 per cent of the world's food, with nearly 50 per cent of the total calorie intake of the population coming from only three species — rice, wheat and maize.

The state of animal diversity is no different. Wildlife across the globe is vanishing by nearly two per cent a year. The number of species of fish, mammals, birds and reptiles has already plummeted by 58 per cent between 1970 and 2012. This number may surge to 67 per cent by the end of this decade. Thus, nearly two-thirds of the wildlife could be gone by 2020, says the latest bi-annual "Living Planet Index" compiled by the World Wildlife Fund with inputs from the Zoological Society of London.

Even the agriculturally important insects and microorganisms — vital for agro-ecosystems and health of plants, animals and human beings — are not safe. Though estimates of how many of them have already perished are not available, but the reality that their range has declined noticeably is beyond dispute. Many important species of insects and microbes have become rare and may not survive for long.

Furthermore, the overall biodiversity profile of over half of the earth's land surface and nine out of 14 terrestrial biodiversity hotspots has fallen below safe threshold.

All this leads to just one conclusion — that the biodiversity, which, for all practical purposes, is a non-renewable natural resource, is diminishing at a menacing pace, boding ill for the future of mankind. Though the loss of biodiversity of all kinds is worrisome, it is more so in the case of agricultural biodiversity as it has a direct bearing on the food and livelihood security of people. India's position in this respect is special because it is one of the most significant hubs of agro-biodiversity. The country, with only 2.4 per cent of the world's land area, harbours seven to eight per cent of all recorded species, including 45,000 species of plants and 91,000 of animals. It was, therefore, appropriate that New Delhi was the venue of the 1st International Agro-biodiversity Congress held last month to deliberate on this issue.

Fortunately, India is among the few countries which realised the value of agro-biodiversity early enough to initiate remedial action. Apart from institutions involved in preserving agro-biodiversity, Indian farmers, too, have played a notable role in safeguarding traditional strains (land races) of food and other crops. Konamani rice of south India, Agnibora paddy of Assam and Bhalia wheat of Gujarat are among the countless classic crop strains which have been kept alive by farm communities.

The country's national agricultural research system, spearheaded by the Indian Council of Agricultural Research, began taking conscious steps to conserve agro-biodiversity over half a century ago. India's National Bureau of Plant Genetic Resources, which runs the national gene bank for plants, is deemed a unique institution mandated to preserve plant germplasm for future generations. It now holds the world's second largest collections of plant germplasm, comprising 4,29,000 samples, for long-term upkeep. Similar facilities have been developed to preserve the genetic resources of animals, fish, insects and micro-organisms. A distinct feature of these bureaus is that they are constantly organising expeditions to gather germplasm from the wild and remote areas to augment their holdings.

According to Indian Society of Plant Genetic Resources president R S Paroda, countries have historically depended on each other for their needs of genetic resources to breed new crop varieties and hybrids. Such dependence is bound to increase in view of climate change; need for expanding food basket; and for meeting the changing consumer preferences. It is with this end in view that the New Delhi Declaration, adopted by the Biodiversity Congress, called for "global exchange of plant, animal, aquatic, microbial and insect genetic resources of food and agriculture to meet the ever-growing food and nutritional needs of each country".

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