



Conservation and management of domestic animal genetic resources

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Domestic animal genetic resources include different species, breeds and unique genotypes of domestic animals. This biological resource is considered as one of the vital resources for the country in the globalised era. In India there are 30 recognised cattle breeds, 12 buffalo, 23 goats and 42 sheep breeds. This is apart from the 17 poultry breeds, 9 camel breeds, 7 horse breeds and one each of donkey and pig. They will make India one of the major domestic animal bio-resources centres of the world.

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The different breeds of animals and birds were evolved by the farming communities since time immemorial by intensive selection for specific purposes. This includes low food consumption, heat tolerance,

disease resistance, draughtability and other similar characters.

The quantum jump in animal productivity in Asia during last three decades is mainly through the exotic germplasm introduced. The high producing cross bred genotypes require better management,

lesser stress and thus higher inputs. But animal husbandry activities of the country or Asia as a whole do not have good management systems. Hence there exists problems associated with crossbreds.

Objectives of domestic animal diversity conservation.

The major objectives of conservation of domestic animal resources is listed under six headings (Gupta 2000)

1. Genetic insurance
2. Ethical and cultural requirements
3. Research and development requirements
4. Environmental considerations
5. Health of consumers of animal products
6. Economical potential in a particular niche

Parmar *et al.* (2000) defined the objectives for conservation of cattle genetic resource in India under three categories.

- (1) Conservation of a breed or genotype for survival of the population
- (2) Conservation of genes for favorable genetically controlled characteristics
- (3) To demonstrate the national pride in preserving indigenous native cattle breed which may or may not be of commercial value

Methods of conservation

Broadly the conservation methods can be classified as *in-situ* and *ex-situ* conservations.

In- situ conservation

Basic idea behind *in-situ* conservation is the wise use of locally adopted livestock genetic resources. These



locally maintained sustainable animal germplasm can be developed further to meet the future requirements. In other words *in-situ* conservation envisages more of live populations of animals in their breeding tract *in-situ* conservation can be done

- (a) As farmers herds
- (b) As institution herds.

The role of breed societies in improvement and development of breeds cannot be overemphasised. Most of the European breeds owe their existence, improvement and sustenance to these breed associations. The collection and recording of the field data on performance of the breed is very much essential for chalking out suitable improvement programme for every breed. The breed associations are playing this vital role. In India, the registration of outstanding animals of six cattle breeds and two buffalo breeds were started long back in their respective home tract but the progress in this field was negligible.

Ex-situ conservation

Preservation of germplasm in a place away from the breeding tract of the breed is *ex-situ* conservation. But for maintaining a herd of sufficient population size and to avoid inbreeding it will be necessary to maintain a huge herd. The breeding strategy of this herd is to be carefully formulated and implemented.

Conservation efforts

The National Agricultural Technology Project (NATP), which is funded by World Bank, is actively involved on conservation of animal genetic resources in India. The National Bureau of Animal Genetic Resources (NBAGR) established at Karnal, Haryana, is the leading organisation in the country concerned with this aspect. The project on animal genetic biodiversity conservation is implemented by NBAGR as a lead centre and 12 other centers as cooperating centres. Kerala is also one of the co-operating centers.

The aim is to characterise and conserve all the available breeds and genotypes of animals in the country. Efforts are on to identify and describe all the different genotypes of cattle and buffaloes in the state. The scheme headed by the author needs help from the field veterinarians. The local animals if available may be intimated to the author, and it will be helpful for the research team to carry out the scheme work.

The various net work projects established by Indian Council of Agricultural Research (ICAR) is also playing a key role in conservation and evaluation of native germplasm. As a part of the same Kerala Agricultural University is entrusted with Attappady Black goats. Moreover there are individual conservation schemes of ICAR for specific breeds. As a whole one or other conservation schemes in India now cover almost all breeds of domestic animals. In Kerala Centre for Advanced Studies in Animal Genetics and Breeding (CASAGB) of Veterinary College is doing a lot of work in this aspect. At present Kerala Agricultural University is having both *in-situ* and *ex-situ* conservation programmes for Vechur breed of cattle. Apart from the herd maintained at the college, interested farmers through out the state maintain around 50 field units.

The characterisation and evaluation of Malabari breed of goats is another major work undertaken by the Centre. A research project on Attappady Black goats is also progressing in the CASAGB.

It is very important to look at the essential elements required for drawing out the strategy for conservation and application of molecular techniques to characterise genetic variability. Efficient management of domestic livestock resources coupled with proper utilisation after in depth understanding of the implications of different options is the need of the post globalised era.

