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# Breed Registration and the Gazette Notification: A Unique National Framework for Protecting Native Animal Germplasm

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The FAO's Global Plan of Action for AnGR (Interlaken Declaration), 2007 is global framework for the protection of Animal Genetic Resources (AnGR) diversity, which laid down four strategic priority areas including characterization, inventory of native AnGR for adoption by all countries. India possesses a wide range of AnGR diversity, distributed over diverse geographical and ecological regions, and bears the proactive responsibility to document its own native AnGR on priority. Registration of animal breeds is a step towards inventorizing and documenting precious resources at national level. In India, registration has been initiated by the Indian Council of Agricultural Research (ICAR) in the year 2008. Further to provide statutory recognition to the breeds, the registered breeds are the Gazette notified by the Govt. of India. At present, the number of registered and notified breeds has reached 202 belonging to 13 farm animal species in the country. Registration of animal breeds has shown a greater impact on socio-economic arena, including initiation of breed-based livestock census to formulating breeding policies and development programs for registered breeds in the country. The national framework for registration of native AnGR is unique in the world and may be a model to other countries, specifically African and South Asian countries for claiming sovereignty over and protecting their own native germplasm.

## Introduction

Protection of biodiversity has widely been perceived as global necessity. Year 1992 may be a benchmark timepoint, when The Convention on Biological Diversity (CBD) was held during Earth Summit held at Rio de Janeiro, envisaging protection, preservation and sustainable utilization of biodiversity. It necessitated to protect all bioresources including Animal Genetic Resources (AnGR) through taking appropriate measures and developing policies in that direction by all member-countries. India as a signatory of the CBD, also promulgated legislation for protection of biodiversity in form of The Biological Diversity Act in 2002. Protection of AnGR *per se* got the momentum after developing The Global Plan of Action for AnGR by the Food & Agriculture Organization (FAO) ass Interlaken Declaration in 2007 and subsequently CBD-Nagoya protocol for Access & Benefit Sharing and Indigenous Knowledge in 2010. Further, various targets specially CBD's Aichi Biodiversity Targets (2010) and the UN's Sustainable Development Goals (SDGs) have further crusaded the global efforts for the protection of AnGR diversity. SDG 2 (Zero Hunger) envisioned the proper management of all kinds of genetic resources to promote sustainable agriculture and achieving food security and oriented towards the preservation of farm animal biodiversity. 'Delhi Declaration' in 2016 is another milestone framework for protection of valuable germplasm globally.

India possesses a huge AnGR diversity distributed over a large range of geographical, ecological and climatic regions. A range of farm animal species like zebu cattle, riverine buffalo, swamp buffalo, sheep, goat, pig, horse, donkey, camel, yak mithun, chicken, duck and geese are natively inhabited in the region for centuries. In any given geographical regions in the world, none of country is that much rich in farm animal diversity. These species are further diversified in form of unique populations called breeds specific utility and unique attributes of adaptation. The animal breeds have been evolved through of various evolutionary processes including man-made selection for different needs. In fact, natural adaptation to specific climate and habitat has been confounded with human derived artificial selection and breeding in breed formation. It is widely assumed that a large number of the livestock and poultry breeds have been developed during last few centuries in the country. Further recent introgression of exotic grmplasm also generated new populations in form of synthetic breeds and variants with improved production traits. Today, treasure in form of hundreds of animal breeds - adapted to local climate and production system and highly resilient and resulting into

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a unique gene pool of allelic combinations - has been accumulated over the centuries. Creating inventory of animal breeds, with their unique attributes is important to recognise their characteristics and uniqueness. In fact, the characterization and inventory have been recognized as the foundation of proper management of AnGR.

**Registration of Animal Breeds**

'Animal breed' is considered as a referral point for the farm animal diversity, and as per FAO, it can be defined as "sub-specific group of domestic livestock with definable and identifiable external characteristics that enable it to be separated by visual appraisal from other similarly defined groups within same species. Moreover, breed is a group for which geographical and/or cultural separation from phenotypically similar groups has led to acceptance of its separate identity. Each breed serves a specific purpose to the food and agriculture for the mankind within a well-defined geographical region.

Registration of native breeds of livestock and poultry has been envisioned to protect and check the bio piracy of indigenous AnGR and our country has developed the mechanism for recognising breeds with known characteristics in form of authentic national documentation system. Indian Council of Agricultural Research (ICAR) initiated "Registration of Animal Germplasm" specifically indigenous livestock and poultry breeds in the country in the year 2007. In the year, 2008, ICAR-National Bureau of Animal Genetic Resources (NBAGR), Karnal was given the temporary authority for the registration of germplasm related to livestock and poultry in the country. Subsequently, in 2008, ICAR constituted a Breed Registration Committee (BRC) under the chairmanship of Deputy Director General (Animal Science), ICAR for the registration of new breeds. This mechanism is the sole recognised process for registration of "Animal Genetic Resources" material at national level.

**Breed Registration Process**

The registration of Indian livestock and poultry germplasm revolves around the concept of a breed. Breeds of domesticated animals, which are unique, stable and uniform, and have potential attributes of academic, scientific, or commercial value can be registered. Any livestock population which has been characterized must be documented and inventoried, if having the breed characters. First, all of the information recorded during phenotypic characterization, should be formatted in a shape of breed descriptor. Such a physical characterization along with management practices can be published in different scientific journals. After phenotypic characterization, it should be clear that If the population is found distinct, then only it should to be registered as breed.

First, all of the information recorded during phenotypic characterization should be shaped as a breed descriptor. Such a physical characterization along with management practices can be published in different scientific journals. The registration involves a process for screening of the applications submitted for registration as per Guidelines developed for this purpose. The application can be submitted by any citizen of India /breed society/NGO/Govt. Agency. The application must be accompanied by a complete description of the breed using standard descriptors. All claims concerning the material submitted for registration should accompany scientific evidence for uniqueness, reproducibility, and value. The population, for consideration of registration should have at least 1000 animals. The breed should complete a minimum of 10 generations. A detailed history of the breed, Difference, distinction, and details that are specific for that breed should also be provided. Representative photographs, a list of the registered animals of the breed, letters explaining certain questions about the breed from at least three different breeders/owners of

**Breed registration criteria**

- Unique, stable and uniform population with potential attributes of academic, scientific or commercial value
- Population: at least 1000 animals and also maintained in field conditions for minimum of 10 generations
- Breed application, with standard descriptors
- Accompanying with scientific evidence
- Signed by the applicant
- countersigned by Director, AHD of concerned state with rubber seal
- A detailed history of the breed
- List the difference, comparison to other breeds
- Photographs of the breed
- Letters from at least three different breeders/ owners of the breed.

the breed should also be submitted. After registration, NBAGR provides the unique Accession number to each breed after registration. The newly registered breeds are also notified through Official Gazette published by the Government of India. Detailed guidelines, descriptors and application form for registration of new breeds can be accessed at www.nbagr.res.in/guidelines.html.

### *Present Status of Breed Registration*

Initially, the known breeds of livestock and poultry were registered as extant breeds, and simultaneously process for registration of new breeds was initiated. First time in the year 2008, all 129 extant breeds of livestock and poultry were registered by the ICAR-NBAGR. Further 73 new breeds were added and by 2021, the number reached 202; which included 177 breeds of livestock and 22 of poultry and 3 of dog. The breeds include 50 of cattle, 19 of buffalo, 34 of goat, 44 of sheep, 7 of horses and ponies, 9 of camel, 10 of pig, 3 of donkey and one of yak in livestock and 19 of chicken, one of geese and two of duck in poultry and three for dog species. During the last 10 years, more than 100 new populations were identified across the country and 73 breeds of different farm animal species were registered.

### The Gazette Notification of Registered Breeds

After realizing the need to protect the valuable agricultural genetic resource biodiversity specific to indigenous farm animal germplasm in the country and claiming its sovereignty over the germplasm, the Gazette notification for the livestock and poultry breeds was initiated by the Government of India in October, 2019. To provide legal safeguards for germplasm protection, notification of indigenous breeds being registered by ICAR has started in the year 2019 through publishing the Official Gazette by the Government of India. All registered breeds upto that year (total 184 breeds) were first time notified by the Government of India to provide statutory recognition of and claiming sovereignty over the native germplasm [Gazette Notification: Ministry of Agriculture and Farmers' Welfare, No. 3364 (S.O. 3699(E)) (October 14, 2019)] and further all newly registered breeds (18 breeds) in subsequent years were notified through three more Gazette notifications. These breeds got the statutory recognition; and shall be the notified breeds for the whole of India for purposes of animal husbandry, production, breeding, conservation, utilization, consumption and trade from the date of publication of the notification in the official Gazette of Govt. of India. The notified breeds of the specified States received the statutory recognition; and were recognised as notified breeds for the whole of India for keeping and rearing for various purposes as mentioned in the notification.

### Impact of Breed Registration

Registration of breeds of native livestock and poultry has a broader impact through modulating various policies and programs and affecting all stakeholders of the livestock sector in the country. Most importantly, it enabled to conduct breed wise livestock census by the Govt. of India which could ensure the precise population of each of the breed in the country. This has come to be much useful for suitable policy formulation for their conservation and development if the breed is endangered. A total of 73 new breeds were added after the initiation of the registration process, which has put about 25 million livestock and poultry into the descript category in the country. In the 19th Livestock Census (2012), a total of 143 breeds were included in breed wise survey. Further, 20$^{th}$ Livestock Census was carried out on 184 registered breeds in the country. Based on breed wise census, it is imperative to define the risk status of the breeds and as per preliminary data about 24 breeds are a risk in the country. Breeding policies have been formulated for many newly registered breeds in many states with recent example of Haryana, Odisha, Nagaland, Ladakh (UT). At national level, National Kamdhenu Breeding Centre, An initiative by Govt. of India has covered all NBAGR registered breeds of cattle (41) and buffalo (13) for conservation, promotion, and development. Farmers are best benefitted by the registration process. After breed recognition, superior quality germplasm of the breed becomes available to the livestock owners. Various governmental facilities for animal-based farming, small to large /commercial scale become available to the farmers when the animal farming is based on the registered breeds. Breed societies have been developed for various native livestock breeds in their native tract by the local livestock keepers, which ensured improvement of germplasm, strengthening of the production system and marketing of the products and benefit-sharing among the society. As an example, benefits of Ongole embryo germplasm export were disseminated among the society of the breed.

The Gazette Notification also provided legal support to germplasm protection of the registered breeds and for developing mechanisms for sharing benefits among the

animal keepers. In an era of globalization, there remains a constant threat of germplasm piracy as well as forged patenting and IP rights to the inherent characteristics. Registration and notification would keep the proper check for such spurious activities related to precious native germplasm. Notification of breeding areas of registered breeds also enables to develop suitable breeding strategies for the genetic improvement and development programme of low productive native animals. As defined in Livestock Breeding Policy, such breeds can be improved by their own germplasm through selective breeding and no other germplasm can be introduced in the notified breeding tract of registered breeds. In this way, registration of native breeds would be helpful in not only the protection of our germplasm but also their improvement as well as avoiding genetic dilution. Breeding policies for many newly registered breeds are being developed by the respective state departments.

Nevertheless, the framework of breed registration and the gazette notification has certainly broadened its impact through modulating various policies and programmes. Along with preserving the biodiversity as mandated, the stakeholders specially Farmers would be the best benefitted. After breed designation, superior quality germplasm of the breed become available to the livestock owners. This *sui generis* system would also provide the legal support to Intellectual Property Rights of the registered breeds and for developing mechanism for sharing benefits among the animal keepers.

## Future Action Points

- New breeds of indigenous livestock and poultry with unique characters may be explored and registered specifically from remote and inaccessible regions of the country.
- Synthetic populations of livestock species evolved by different organizations in India may also be registered.
- A legislation may be promulgated for animal breed protection and farmers rights in this direction.

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