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“Filling gaps and removing traps  
for sustainable resource management”

## A Social-Ecological Framework for Managing and Adding Value to the Lagune Cattle Breed in Benin

COSSI MAURICE AHOZONLIN, MAHAMADOU DAHOUDA, LUC HIPPOLYTE DOSSA

*University of Abomey-Calavi, Fac. of Agricultural Sciences, School of Sciences and Technics of Animal Production, Benin*

### Abstract

The West African Shorthorn Lagune cattle breed of Benin is known for its adaptability to humid regions and resistance to parasitic diseases: But since the 1970s', its population size, estimated to about 37000 in 2004, is sharply decreasing. Yet, past initiatives of conserving this small-bodied breed were limited to its characterisation out of its production system context, paying little attention to interacting ecological, social, cultural and economic factors. Consequently, the results are not translated into policies and legal institutions favourable to a large motivation of the main stakeholders for its conservation and sustainable use. We explore how a social-ecological framework can be used to better understand the relationships between the different social, economic and ecological factors affecting the sustainable use of this breed. We carried out, from February to May 2017, questionnaire-based interviews of 312 Lagune cattle keepers in the two agro-ecological zones (AEZs) of Oueme Valley and Pobe. Owing to its cultural value, the Lagune breed was used for sacrifices and social events in both AEZs. However, the opportunities for its *in situ* conservation varied between AEZs, being greater in Pobe where breed admixture was almost inexistent. Similar to farmers' breeding practices, feed constraints and farmers' resilience strategies varied ( $p < 0.001$ ) between AEZs. In contrast to Pobe, seasonal river flooding in the Oueme Valley prompted collective actions related to Lagune cattle herd management. The results of a logistic regression analysis revealed AEZ, socio-cultural factors (main income source and ethnicity) and cattle herd size as the main determinants of farmers' decision to keep Lagune cattle in purebred herds. Furthermore, on-farm sale accounted for more than 95 % of all Lagune cattle sales. This might be explained by the absence of a physical cattle market in both zones which probably prevents farmers to upgrade their lagune cattle with zebus. Nevertheless, because of their proximity to urban areas, few keepers (17.7 %), produced or expressed their willingness to produce crossbred cattle to satisfy the urban market demand for large-sized cattle. Using the social-ecological framework can further assist in the identification of sound actions and policies towards a better management and promotion of this local breed.

**Keywords:** Agro-ecology, animal genetic resources, collective actions, conservation, multi-stakeholder approach, socioeconomic factors