AFRICAN UNION
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FOR ANIMAL RESOURCES

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Applying Ecosystem Services Approach for Animal Genetic Resources Management in Africa

Policy Brief: 1

KEY MESSAGES

- *Public and private partnerships, to engage significantly more actors in animal genetic resources (AnGR) issues, increase awareness of their value and increase the number of people taking positive action.*
- *Effective conservation of AnGR and ecosystem services, could provide many benefits to breeder's communities and also make efficient the use of scarce resources.*
- *AnGR, wildlife and ecosystems need to be properly recognised to enable sustainable and healthy environment and to deliver essential benefits to communities.*

INTRODUCTION

The Africa region is one of the world's most important biodiversity hotspots where human and wildlife have co-evolved for centuries. Locally adapted animal genetic resources (AnGR) breeds used by breeders allow people to live in some of the most inhospitable and marginal environments often seasonally infested with diseases. There is growing recognition of the ecological value of the services that smallholder breeders/farmers and pastoralists provide through their livestock management. Those have developed an array of strategies including grazing and herd movements. The identification and integration of traits relevant for ecosystem services within breeding programmes represent a particular challenge, especially in low-input systems. Breeders of livestock that offer ecosystem services are often marginalised and isolated from markets and excluded from decision making processes. It is important to recognize the existence and value of these ecosystem services to better understand the trade-offs and synergies associated with their maintenance, and to account for them in policy and legal frameworks at national, regional and international levels including providing appropriate incentives to the communities contributing to the generation of those services.

Loss of biodiversity and its potential impact on ecosystem services is recognised as one of the most serious challenges for humankind. The concept of ecosystem services has gained a strong political profile. However, there are no specific policies at national, regional and international levels, in Africa, devoted to governing ecosystem services. One major challenge countries face is that ecosystem services often go unrecognised in economic markets, government policies and land management practices. This is because most of these services are difficult to see and measure, and so their contribution to economic and social wellbeing is rarely considered when political and management decisions are made.

Applying ecosystems services approach for AnGR may refer to a strategy for the integrated development and management of animal genetic resources and their habitats that promote conservation and sustainable use in an equitable way. It also implies integrating the principles of an ecosystems service approach to promote improved decision-making. In the context of AnGR, it is also about making sure that recognition and sustainability of the benefits provided by AnGR whilst delivering other economic and social goals. Furthermore, adoption of an ecosystem services approach can help ensuring that any decision which has the potential to have multiple impacts on AnGR and natural habitats is taken with the knowledge of the indirect as well as the direct effects. In practical terms, the adoption of ecosystems services approach encourages taking steps embedded in three main principles, namely, a) considering natural systems for which AnGR are a part, b) taking into account of the services that AnGR-based ecosystems provide - recreation and tourism, transportation, scientific and educational opportunities, breeding and carbon sequestration, etc., and c) involving people - those who benefit from the ecosystem services and those managing them need to be involved in decisions that affect them. Other issues surrounding ecosystem services in relation to AnGR are presented in the paragraphs below.

POLICY RELATED ISSUES

Among issues concerning the Ecosystem Services approach for AnGR management in Africa are:

- The difficulty to accurately estimate the total number of breeds of farm animals as inventory and characterization efforts are far from complete in many countries of Africa. A major difficulty in completing the inventory of results from the fact that most of the populations are not made of pure breeds with identifiable and stable characteristics but are the result of multiple crosses of diverse origin. As there has been at least one attempt at cross-breeding in most countries, many existing breeds are crosses, to various degrees, of the original local breeds with the exotic breeds used for these programmes. In many countries, there are circumstances that make inventories challenging and expensive to undertake, such as having to collect data and information in remote areas. There are also challenges in conducting breed surveys in countries that have pastoral, nomadic and transhumant systems. The lack of inventory and weak characterization underestimate the numbers of AnGR and their positive attributes, and hence underestimate ecosystem services provided by AnGR.
- In many instances breeds are production system specific. Farmers select animals for particular characteristics, but must do so with understanding of the conditions under which the animals produce. Feed availability, disease and climatic conditions influence the performance and survival of animals. The characteristics of production systems affect profoundly the use, development, distribution and number of breeds of livestock.

Climate change is expected to have a direct impact on food production as changes to both temperature and rainfall patterns a□ect crop yields, water availability, pests and diseases, and livestock health, and smallholder farming systems in Africa. Countries are predicted to be worst a□ected due to already high temperatures, high dependency on rain-fed agriculture, and economic fragility. In these situations where AnGR are negatively affected, their ecosystem services roles get diminished.

- Widespread access to AnGR has a profound effect on the distribution and development of breeds and enables countries to significantly increase livestock production. Many countries emphasized on the need for arrangements for accessing AnGR in an equitable manner, and in accordance with international agreements. Appropriate conservation measures need to ensure that farmers will continue to have access to a vast gene pool of breed diversity for further breeding. This genetic diversity serves as an essential insurance policy against future changes such as climate change, new pest and disease outbreaks, and new and growing consumer demands. Greater access to AnGR and transparent exchange of them will only encourage more use of AnGR and hence more expected ecosystem services provided and received by the AnGR.
- For many pastoral communities, animals are essential in maintaining their traditional lifestyles. Many unique challenges that pastoralists face in securing governance of land tenure include the challenges that are determined by the ecological sustainability of pastoral rangelands, particularly their soil resources. Pastoral rangelands are under threat in many countries due to land degradation. Rangelands are subject to conversion to crop cultivation, over-exploitation of livestock, over-extraction of woody biomass and increased aridity due to both climate change and to extraction of water. These types of degradation are driven by population growth, growing demand for food and other products, changes in management and technologies, and by a range of policy and institutional factors. Degradation of the rangelands is a major concern, although land degradation processes in the rangelands are poorly understood. This lack of understanding has contributed to poorly-informed interventions and policies that have sometimes exacerbated degradation. Policy failures can, in turn, be attributed to a combination of weak resource rights and governance, weak influencing capacity of rangeland stakeholders, and insufficient or inaccurate data, information and knowledge. Policy failures can also be attributed to misunderstanding of pastoralism, or even to deliberate portrayal of pastoralism as backwards. Herd mobility is crucial for sustainable management of rangelands, yet mobility has frequently been condemned as archaic. The litany of problems encountered by pastoralists and their herds and flocks that ignore the principles of considering the entire natural systems and people involved with AnGR only curtail ecosystem services roles of pastoral systems.
- Livestock Keepers have the right to make breeding decisions and breed the breeds they maintain. As recognised in the Global Plan of Action for AnGR and the Interlaken Declaration on AnGR, livestock keeping communities are thus the creators and

custodians of the breeds that they maintain. They have therefore earned certain custodianship rights over these breeds, including the right to decide how others use the genetic resources embodied in their breeds. Ecosystem services roles of AnGR are diminished when those that manage these resources are neglected or hindered in their participation in decision making concerning AnGR.

SETTING THE POLICY AGENDA

The Agenda setting for policy discussions, formulation and the communication of the eventual policies should consider:

Institute payment for Ecosystem Services-like schemes as an incentive mechanism for AnGR conservation

The provision of services might require breeder's communities living in the ecosystems to undertake or not to undertake certain activities. To complete these tasks in the absence of regulatory provisions, the breeder's communities will need a financial incentive. Payment for Ecosystem Services-like schemes will help to tackle market failures associated with the public good characteristics of AnGR conservation services. Payments for conservation services would increase the private benefits from utilizing local AnGR on-farm through voluntary reward mechanisms, so as to sustain the on-farm conservation.

Recognize the value of AnGR and promote better understanding of their relation to ecosystem services

The value of AnGR has always been beyond doubt for pastoralists and they have developed refined techniques and institutions for breeding activities. AnGR breeds represent reservoirs of genetic diversity and retain many genetic traits, such as fertility, vitality, and resistance to diseases and drought, that no longer exist in animals kept in industrial systems. With regard to the role of AnGR as a provisioning ecosystem service, the greatest relevance lies in the protection of gene pools and in providing the basis for improvements to food production and agriculture. AnGR will be increasingly important for setting up improved breeding programs, with a wide range of objectives for increasing production, resistance to disease, optimization of processing quality and nutritional value, as well as adaptation to local environments and climate change. This value should be recognized by all the stakeholders including by the commercial livestock production industry.

Enhance the roles of AnGR in combating land degradation and in mitigating the effects of climate change

In many countries in Africa, there are long traditions of farmer–herder arrangements in which farmers allow pastoralists to drive their herds over harvested fields and pastures so that the animals can feed on crop residues and, in exchange, fertilize the fields with their manure. These arrangements are becoming monetarized. Good grazing management has

many positive effects, stimulating pasture growth and biodiversity, promoting ecosystem health and integrity, reducing invasive species, improving mulching, and promoting mineral and water cycling

Promote linkages between AnGR and wildlife conservation at the interface

Wildlife conservation and sustainable AnGR practices are becoming increasing recognised across Africa. Breeder's communities should benefit economically from efforts to save, manage and conserve local wildlife species. The approach should give breeders an opportunity to be paid for the ecosystem services they provide through more sustainable farming practices-including protecting wildlife, conserving water, preventing deforestation, and sequestering carbon in the soil. Community Based Natural Resources Management and planning should be developed and take into account the needs of wildlife, the environment, and breeders communities.

Undertake assessments and analyses of biodiversity policies and acts

Undertake assessments and analyses of biodiversity policies and acts, environmental policies, how far laws in general cover ecosystem services, the impact of human actions on ecosystems and human well-being should be done to highlight trends that will enable the development of ecosystem services policies and framework that will reveal ecosystems' benefits to society (provisioning, regulating, cultural and supporting services) and presents fundamental AnGR management approach.

Policy options and recommendations

Policy options to promote ecosystem services approaches to the management of AnGR and their habitats, and to place AnGR at the centre of many of services that bring benefits to pastoral and other livestock raising communities include:

- Relevant government Ministries and Agencies responsible for ensuring balanced ecosystem functioning in which AnGR are a part should create better understanding of the processes that influence ecosystem services. Advocating for policies, legislations and frameworks that enhance benefits streams for keepers and owners of AnGR should be part of their core activities. Awareness created on ecosystems services could offer opportunities to influence incentives and assists communities/breeders to identify economic opportunities and to engage in more sustainable practices and to conserve AnGR and ecosystems.
- In order to expand the range of ecosystem services provided by local AnGR, especially in the extensive production systems, governments should promote and support the development of national pure-breeding programmes to ensure the availability of/and access to improved AnGR by farmers.
- Governments and private sectors involved in the development of AnGR should provide a range of incentives to farmers to encourage their participation in AnGR

breeding conservation programmes, in particular to farmers in marginal areas, including: financial payments for farmers maintaining indigenous breeds, tax breaks, subsidized loans, providing access to land in exchange for conservation, and privatizing publicly funded AnGR conservation projects where they have the potential to be economically sustainable.

- Government Statistical Services and Breeding Services should collect and make available biodiversity data and information for decision-making and incorporate the sustainable conservation of AnGR diversity into key relevant policies and programmes, including incentive measures, protective arrangements and integrated ecosystem services approaches.
- Responsible Ministries and Agencies in charge of biodiversity preservation should ensure awareness creation, understanding and support for biodiversity conservation, engage breeders in wildlife issues so that they personally value it and know what they can do to help consider a wider range of ecosystem services.

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