

A “transatlantic” Overview of Historical and Current Livestock Narratives

DISCUSSANT'S
COMMENT

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WHEN OUR PERSONAL EXPERIENCE on livestock systems has been acquired in tropical Africa, what opinion can we have on the situation of livestock production systems in Latin America and on the evolution of the natural resources they have used and modified? While the respective tropical climates present similarities, important differences can be observed in the farming systems and the evolution dynamics between the two continents. We also note the specificity of cultural and social influences on livestock farming and the resulting differences in environmental impacts. Consequently, the ways of achieving sustainable farming methods should be different.

Comparison of animal production contexts

Despite some similarities in tropical Africa and tropical America between biomes such as rainforests, savannas, and steppes, the ecosystems used by livestock farmers roughly differ from one continent to the other. In tropical America, large pasture areas have been established in wet regions (Pantanal, Amazon, Pampa, Llanos). In Africa, most grazing lands lie in dry, sub-humid, or semi-arid climates (the savannas and steppe regions) up to the borders of deserts.

As explained by the authors of the paper on Latin America, the history of livestock farming there is only four centuries old and was brutally superim-

posed on traditional, Amerindian methods of exploiting natural resources that were adapted to the ecosystem (gathering, hunting, fishing, and traditional crops). Latin American pioneers introduced their domesticated animal species from Europe and reproduced the production systems practiced in their home countries, trying to adapt them to local specificities. The switch from the native Indian system to the colonial one initiated the emergence and expansion of rural areas and led to the regression of natural environments, deep changes in landscapes, and altered ecosystems. In particular, the conquest of land for over a century followed by the development of pasture land resulted in the large scale destruction of tropical forests, a phenomenon considered to be the main ecological threat on the continent.

In Africa, livestock rearing is several thousand years old and mainly is practiced by specialized pastoral societies whose practical knowledge has allowed them to survive through the centuries. African farmers can draw on a long tradition and experience of how to use their resources efficiently without spoiling them. The pastoral landscape is inherited from natural vegetation and looks similar to it, although evidence of the impact of livestock herding has been obvious everywhere for a long time. It is on agricultural borders and in cropping areas that the environment has been clearly altered. The main environmental threat generally associated with livestock farming is desertification due to overexploitation (overgrazing). As for tropical rainforests, they are essentially exploited for timber, or converted into agriculture areas for tree crop plantation for export (rubber tree, oil palm, cocoa). In this part of the world, cattle are threatened by several diseases, so livestock farming does not appear to be a cause of deforestation.

The African continent is the birthplace of many wild herbivore species that have exploited huge areas of grassland vegetation. Grasses themselves have evolved simultaneously in order to withstand animal predations, the number of species with fodder qualities consequently is important. At the same time, however, many diseases and parasites have developed to which domestic animals have proved very sensitive, especially in wet areas. This situation has compelled Africans to prefer more healthy dry areas for their livestock. On the South American continent, the large areas of savannas and grasslands have not been submitted to the same species evolution. Livestock have found much better health conditions, even in wetlands, although the fodder is not as good as in Africa. Livestock farming consequently is practiced in all of the major regions (often after the introduction of African grasses in pastures) in South America, whereas it mainly has developed in dry areas in Africa.

As for the relationship of the livestock keeper to the land, it seems that livestock farming in Latin America is mainly dependant on land ownership, the ideal situation being the breeding of sedentary herds on large farms. In Africa, such ranches also have existed in Eastern and Southern regions, but the most common system is grazing on common lands: rangelands can be used by all herdsmen, generally in return for the traditional acceptance of control from "land chiefs". In order to take into account the low productivity of pastures, ensure daily access to water, and cope with seasonal climatic variations, African livestock systems are mostly mobile: pastoralists practise transhumance, sometimes covering considerable distances. These different relationships to land on the two continents have produced distinct landscapes and management needs.

In Latin America, agriculture and livestock breeding often were linked closely to the history of rural development, even if some regions were dedicated in particular to livestock due to the type of vegetation or because they were located far from markets. In many African regions, pastoral farming and agriculture were separate activities for a very long time, although both social groups practised exchanges of goods. Nowadays, mixed farming systems (crop and livestock) rapidly are spreading: some pastoralists grow crops to secure land for their family use and to increase their income when their stock is not sufficient, while farmers purchase animals to invest their savings in livestock and to use animal draught. These changes remain on a family farm level, but modify the relationship to environment.

Driving forces in livestock development

Several underlying motivations drive livestock development in Latin America: in addition to farmers' aims to ensure their incomes, and objectives to cover national needs for food, international market demand for meat is an incentive for export production. Originally managed as a means of subsistence, agriculture and animal husbandry have evolved into a way of making money in order to switch to more prestigious activities leading to better social status. On a collective level, individual targets are translated into the increasing exploitation of natural resources, which contributes to the overall economic growth of the countries. In Africa, the pastoralists' culture partly supports the respect of nature and vegetation because these represent their main primary

resources. If correctly implemented, pastoral exploitation approximately will balance available renewable resources with their consumption; in addition, dry ecosystems show a reasonably good resilience. Recent changes due to rapid human and animal population increases seem to be the main underlying cause of locally excessive use of vegetation and, in turn, its degradation.

On both continents, before the ecological risks involved were perceived, governments focused on increasing production and growth to promote development. In rural areas, that resulted in: a) the expansion of agricultural frontiers allowing landless people to settle and thrive; and b) the production of agricultural products for export to pay for the importation of manufactured products and energy. In the case of Latin America, the considerable expansion of agricultural land and pastures is progressing on thinly populated spaces and primary ecosystems. The agricultural market is largely open to international trade. Today, there are not only large properties exporting meat, but also huge areas cultivated for animal feed crop production such as soya and maize, which also is exported. In the case of Africa, agricultural frontiers are expanding on a smaller scale by encroaching on natural savannas and pastoral areas. Livestock systems are still mainly extensive and meat production does not meet the increasing demand of the African population, despite their low consumption levels. Markets are mainly limited to local, urban and regional trades. The export of animal products to international markets is difficult because of sanitary barriers.

In Latin America, livestock production is supported by public authorities and private investments. The current evolution of livestock production includes the establishment of small family farms, and then a process of land market leading to a concentration in large estates supporting large herds. Investments from other economic sectors support the intensification of processes like maintenance and fertilization of pastures, mechanization, fertilizers, genetic improvement, and product processing and marketing. In Africa, investment in herds is primarily covered by the pastoralists and farmers themselves. However, national administrations support the livestock sector through animal health infrastructure and research, programmes of wells and borehole drilling for livestock in pastoral areas, and some other forms of assistance. Policies promoting intensification produce few results among livestock producers because the economic context remains unfavourable. Livestock ownership and the purchase of land for livestock farming by non-residents living in towns and cities is a growing and recent phenomenon, changing livestock practices and farmers' links to resources and the environment.

Ecological considerations

Progress in general knowledge of ecology, and specialists' reports on local environmental threats (such as soil fertility decline, air and soil pollution, land degradation, damage to vegetation), and global threats (such as climate change and global warming, the erosion of biodiversity), have given rise to social movements opposing this accelerated exploitation of natural resources. After having once considered that these resources were inexhaustible, public opinion now is leaning to protecting ecosystems and their diversity, particularly against deforestation in Latin America and desertification in Africa. The dilemma now consists of finding a way to advance rural development through the sustainable use of natural resources. To achieve this balance, it is necessary to improve knowledge of how ecosystems function, their dynamics after having been disturbed, and the kind of management required to maintain functional integrity.

Conclusion

In the light of the optimistic conclusions reached by the authors of the presentation on Latin America, several comments can be made:

- Due to social pressures and the demand for economic growth, developing countries in America and Africa would never accept reducing their chances of development for purely environmental considerations. One reason is that while ecological changes are only perceptible over the long term, political deadlines are short term. In order to change practices and trends on the scale of large regions and continents, societies need new arguments, new widely shared motivations, or new constraints.
- Research must propose clear and relevant technical messages which simultaneously will ensure an increase in incomes or a progress of welfare and the functional integrity of ecosystems. Economic theories and their implementation in marketing also must take into account the ecological "cost of inaction", with its consequences for future generations.

The transition from degrading production systems to practices respecting ecological functionalities cannot be hasty. Technical procedures must be found to ensure ecosystem sustainability and acceptable economic advantages. Public opinions also should be prepared for these changes by widely disseminating

available research knowledge and good practices. In addition, regulations must be enacted and respected. We understand here the advantage of broad information on the level of resources and the state of their evolution, as well as on consequent ecological risks. This includes the cost of inaction that would be borne by future generations.

The evolution of livestock production systems on the two sides of the Atlantic appears to be quite different. The reasons are not only historical but also social, cultural, and political. In Latin America, it will take a long time for deeply disturbed environments to evolve into complex ecosystems able to support human activities such as livestock production. We can reasonably assume that such progress partly will depend on the evolution of international markets and the way of life adopted by future populations.