

Global Changes and Decentralized Policies

Driving Forces of pastoralism Dynamics in the Sahel, Western and Central Africa

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1. Context

In Western and Central Africa, pastoralism remained little changed for over fifty centuries. During the second half of the 20th century, however, and in particular the last quarter, the practices of nomadic and transhumant pastoralists were forced to rapidly and radically evolve. Worried by their mobility, colonial era administrators subjected them to inadequate regulations that Governments continued or were slow to adapt following independence. Despite considerable investments meant to bring water to cattle through boreholes and wells programs, in addition to equally important investments on veterinary research and vaccination campaigns to reduce epizootics and the losses due to animal diseases, the bulk of rural development efforts have been focussed on crop production, which is more remunerative for the budgets of the Governments.

At the beginning of the 21st century, societal and environmental changes are occurring rapidly: on one hand, unprecedented population growth and urbanization, and increasing numbers of stockbreeders and livestock; on the other hand, an expansion of agricultural frontiers at the expense of the rangelands and a degradation of natural resources and ecosystems. These difficulties are worsened by political disturbances and the insecurity which they bring about (rebellions, hostages-taking, armed robberies), and they reduce pastoral populations' capacities to react and adapt to change. Contemporary constraints and opportunities facing pastoralism are enormous: on one side, areas where livestock are bred are degraded, and awareness of previously ignored risks of environmental impact has been growing since the first great droughts (at the beginning of the 1970s); on the other side, regional demand for animal products has never been as high as it is at present and future demand is likely to be even greater (Tacher et al. 1997, Boutonnet et al. 2000). At present, pastoralism thus is placed between two apparently contradictory influences. On the one hand, there are changes which support its development: better animal health and an increase in the population in general, not only of pastoral populations, but also of potential consumers. On the other hand, there are growing constraints: the degradation of the natural resources potentially worsened by climatic change, and the reduction of traditional pastoral lands caused by the expansion of agricultural and of forest and biodiversity protected areas.

Given the obstacles that pastoralism has met in recent history and is facing now, how can we explain its resilience? Influenced by global political, climatic, economic, and social changes which disturb all agricultural systems, how do pastoral systems adapt to various contexts and contemporary challenges? In the light of the pressure on natural resources, which remains the most controversial topic in the domain of pastoral science, do pastoral systems sufficiently preserve renewable natural resources to allow production in the future?

Through a short review of successive policies regarding rural development and more precisely pastoralism, and taking into account changes of perception of natural resources, the present note describes current evolution strategies of African pastoralism and how it has adapted to outside influences. We then examine a number of prospects for the future. We intend to show the parallel evolution of opinions and concepts and the reality practised in the field. From the situations described, we will perceive how pastoralism implicitly refers to survive to the concept of functional integrity and how this concept reflects the efforts towards a sustainable development.

2. Successive political options in recent years and their effects on pastoralism

2.1. Sahelian pastoralism, still a current reality due to geography

In the most arid areas, the low level and irregularity of rainfall renders it impossible to develop crops, or only risky ones, without irrigation, which is practiced on small areas (oasis, irrigated zones). Under such conditions, the best adapted production system and sustainable source of income is pastoralism, as practiced in Africa for several millennia. Pastoralism is naturally well-suited to the Sahelian zones of Western and Central Africa, and to most arid and semi-arid areas, offering excellent seasonal opportunities to transhumant pastoralists (Behnke & Scoones 1992). This form of livestock production efficiently benefits from the low opportunity cost of natural fodder provided by the arid and semi-arid rangelands, which are unsuitable to agriculture and other productive rural activities (Bille 1977; Daget & Godron 1995).

Recently, pastoral activities have gradually extended to new rangelands in wetter neighbouring Sahelo-sudanian and Sudanian areas, both on the plains and in the highlands (Santoir 1999; Blanc-Pamard & Boutrais 1994; Boutrais 1996). There are various reasons: to escape the increasing constraints of the Sahel climate, to reduce pressure on traditional pastoral zones, to find healthy and rich pasture areas, to benefit from the epidemiologic and veterinary medical progress that has opened previously unhealthy zones. As they advanced into areas that initially were little populated during transhumance and migrations, pastoralists discovered new ecosystems which obliged them to adapt their breeding practices to these new resources (Audru et al. 1987; César 1992). The lands being arable, pastoralists started to cultivate small areas to secure incomes and food for their families, and they got good yields with the manures produced by their livestock (Boutrais 1988; Bonfiglioli 1990). These pastoral and agro-pastoral Sudanian livestock systems currently are growing in importance.

Many of these lands traditionally were held by sedentary populations of farmers and hunters. Cohabitation practices between pastoralists and farmers based on traditional African customs of hospitality developed over time. As long as resources were largely available, this gradual penetration into new lands was accepted. However, the farming populations also were increasing

quickly and their agricultural production systems evolved, developing in particular commercial crops and specific sedentary livestock breeding. Competition over resources arose and led to conflict situations, often between pastoralists and farmers. Yet despite these difficulties, pastoralism continues to progress and to spread.

Some forests and wild zones were classified as protected areas during the last century. As a rule, protection does not admit simultaneous pastoral grazing, even if illicit uses are frequent. The increasing attention brought to forests, game, and biodiversity by foresters, hunting companies, ecologists, and national authorities explains the increase of conflicting situations between people in charge of protecting the forests and pastoralists attracted by the abundance of pastures when outside pastures are overgrazed. Such situations, often difficult to understand by the people involved, necessarily lead to new compromises (Kagoné et al. 2006; Kiéma 2007; Fournier & Toutain 2008).

Table 1. National livestock number and mean stocking rate of 7 countries with Sahelian and/or Sudanian pastoral areas. These data include pastoral and non pastoral livestock.

	Bovines Millions of heads	Sheep & Goats Millions of heads	Camels Millions of heads	Tropical Livestock Units x million	Total TLU per ha of grazing lands
Burkina F.	7.6	1.7	0.01	8.2	1.4
Chad	6.4	8.3	0.7	6.9	0.15
Mali	7.5	20.4	0.5	8.9	0.3
Mauritania	1.6	14.5	1.6	4.5	0.11
Niger	2.2	11.4	0.4	3.4	0.15
Senegal	3.1	8.8	0.004	3.5	0.6
Cameroon	5.6	8.2	0	5.6	2.8

Cattle = 0.85 TLU, sheep and goats = 0.10 TLU, camels = 1 TLU
Source: FAOSTAT 2004

Table 2. Economical importance of livestock production.

	Share of livestock production in agricultural GDP	Permanent prairies and grazing lands Million ha	Share of grazing lands in the country	Meat production in 1,000 t
Burkina F.	25 %	6	1/5	212
Chad	10 %	45	1/3	125
Mali	40 %	30	1/4	247
Mauritania	70 %	39	1/3	89
Niger	30 %	23	1/5	133
Senegal	35 %	5,6	1/4	167
Cameroon		2	1/6	219

Sources: FAOSTAT 2004

This context, and ancestral pastoral tradition, explains the importance of livestock production in the economies of Sahelian countries and its substantial contribution to their Gross Domestic Product (Wane 2006) (Tables 1 & 2). We should emphasize that livestock can not be reduced only to its economic contribution; it also constitutes the foundation of a culture and a pastoral social construction, a relation to the environment, and a way of life. The practices underlying pastoralism structure a network of relations for production and exchange, property systems, relationships within clans, and most social connections among pastoral communities and even beyond them.

2.2. After Independence, agricultural policies predominantly focus on crop production

After achieving independence in the 1960s, most Sahelian countries altered their land tenure systems with the aim of promoting agriculture. This option was adopted to develop commercial crops capable to generate financial resources needed by the governments. One of the essential aspects of the land tenure systems was based on the principle of “*mise en valeur*” (development), a prerequisite to obtain rights on land and the requirement for strengthening land rights granted by the state. Extensive livestock breeding was not, however, seen as a mode of “*mise en valeur*”. On the contrary, this activity was disparaged and seen as a backward, confined to the poorest areas. Land reform undertaken everywhere mainly served agricultural policies based on increasing production that promoted technical innovation and extension in particular (Ouédraogo et al. 2004). The purpose was not only food self-sufficiency but also an increase in export capacity.

The surpluses generated by the agricultural sector were drained off by the authorities, leaving farmers unable to invest in modernizing their farms. Their only solution to increase production was to extend their acreage. This continuous expansion of crop lands was detrimental for natural areas hitherto accessible to livestock, often by dividing the rangelands into parcels. The lands likely to be “*mise en valeur*” by crop production gradually were cleared and occupied by farms without consideration for the ancestral uses which privileged the shared use of lands and natural resources, nor of protecting certain areas kept in reserve to be used in case of necessity, within the framework of a complex agro-pastoral system.

2.3. The weight of preconceived notions

The progressive marginalisation of pastoral activities has been worsened by the persistence of anti-pastoral prejudices found within livestock policies. In addition to the constraints linked to land reforms, pastoralists were, and still are, the victims of stereotypes in public opinion. These tough prejudices refer in particular to the size of herds (considered as excessive), the wrong image of a “*contemplative pastoralism*”, and the idea that cattle accumulation strategies are the principal cause of the accelerated degradation of ecosystems. In short, the ideas which have been a source of inspiration to elaborate livestock policies contain some major preconceptions: (I) pastoralism is a predatory activity; (II) pastoral livestock does not contribute substantially to the national economy. This perception hardly modifies — or badly replaces — the colonial representation in which pastoralists used irrational and unproductive practices, utilizing resources inefficiently and under-exploiting their production. These commonplace views constitute heavy threats for the future of pastoralists and result in discrediting their activity in an economic context marked by tight competition for access to land and natural resources.

Over several decades, the actions of the authorities in Sahelian countries and their foreign partners fell under an overall logic that aimed, on the one hand, to correct the supposed negative ecological impacts of pastoralism (by the sedentarization of pastoralists or by ranching), and, on the other hand, to integrate pastoralism into the market economy (by the increase and regional specialization of animal production). The actions of the governments and their development partners, despite some variations from country to country, for a long time favoured pastoralist sedentarization. Interventions were inspired by neither a clear understanding of the complex reality of pastoralism, nor a coherent political vision of integrated and lasting development of pastoral zones.

2.4. Decades of development based on supposedly still plentiful resources

Due to their weak organisational capacity in the face of governments, their geographical dispersion, and the subdivided configuration of social groups, Sahelian pastoralists involuntarily were engaged in policies of modernization instigated by political (control on mobile populations), economic (integration of animal production systems in the national economies), and ecological options (control of stocking levels). The authorities in Sahelian countries

tended to behave as if natural resources were unlimited or could regenerate easily. This attitude resulted in extensive options oriented towards the intensification of production and agricultural strategies of expansion sustained by land reforms and the promotion of commercial crops like cotton.

Policies regarding livestock systems aimed to increase production. They supported the creation of water points in pastoral areas, making it possible to extend range management into dry zones, and animal health, resulting in a fast increase in livestock (Toutain & Lhoste 1999). Apart from this, the actions of the authorities tended to limit the movements of pastoralists and cattle, particularly by setting up reserved pastoral areas. It furthermore is obvious that economic development programmes did not pay the necessary attention to natural resources management.

The choices implemented in farming systems have modified relations between agriculture and pastoral activities, in particular by increasing competition between communities over land and natural resources, which became a source of conflict for their control and access. Sedentarization also changed the geographical distribution of communities, land use, the organization of tasks within the family groups, and raised the possibility of salaried shepherds.

2.5. After the droughts

The episodes of drought during the 1970s and 1980s, leading to massive deaths of cattle and distress of some pastoral groups, opened the public's eyes to the fact that natural resources are limited and can be degraded by misuse. Faced with the severe loss of pastoral livestock, authorities began to understand the complexity of the livestock sector and the issues for its development, as well as how sedentarization policies destabilized pastoralism. They also observed the important degradation of pastoral vegetation and understood the threats of desertification (Boudet 1977). Since that time, the opinion has developed that an increasing number of animals constitutes one of the principal factors of rangeland overstocking and leads to an excessive use of natural resources. In a context of scarce natural resources, the strategy of livestock accumulation is perceived as an irrational and out-of-date feature of pastoralism. Noting that a process of land saturation had started, the authorities concluded that the changes underway would generate sooner or later a serious, perhaps irreversible, degradation of natural resources, and they began to question the foundations of the pastoral economy and its social system. They inferred from that extensive pastoral systems had reached their

logical conclusion and would be forced to accept radical changes involving a reduction in stock numbers and an intensification of production systems.

This point of view brought about the origin of the concept of “*stratification de l'élevage*” (stratification of livestock systems), which focuses on the valorisation of complementarities between various agro-ecological zones to which complementary activities are allocated (calving and early rearing in arid areas, growing in wetter and agricultural areas, and fattening close to urban centres). The “stratification” projects, based on a vertical integration of the main stages of livestock production, encountered early constraints perceptible at various levels. For example, the economic profitability of fattening programmes on a large scale was never reached, in particular because of weak local demand for high quality meat, the difficulties in exporting production by air cargo, and competition from meat imported at low prices from Europe and South America.

Parallel to the stratification of livestock production programs, the authorities initiated ranching experiments in several countries of the Sahel, in particular Niger and Senegal. These experiments, largely inspired from the theory of *Range Management*, showed their limits insofar as they did not take into account land tenure issues or local institutional and social problems. All objective evaluations have shown that attempts to balance the number of animals with the natural resources available have not led to an improvement in rangeland management. Quite to the contrary, they have resulted in a destabilization of land management, an increase of social differences, and an increased marginalisation of livestock smallholders (Thébaud et al. 1995).

3. The current situation and emerging trends

3.1. A certain return in favour of pastoralism

The relevance of pastoralism is now recognized, especially in arid and semi-arid areas, in the valorisation of the natural resources, the maintenance and the structuring of rangelands (Behnke et al. 1993), the maintenance of social networks, certain positive impacts on biodiversity — or a certain compatibility between livestock and ecosystems — and fire fighting (Diouf et al. 2005; Toutain et al. 2010). Moreover, in sub-humid zones, the valorisation of crop residues, the transfer of fertility towards cultivated areas, and synergies

between livestock and crop production by strengthening production systems can also be noted (Landais et al. 1991; Manlay et al. 2004). The joint efforts of pastoral organizations, livestock sector professionals, researchers, policy makers and international institutions, have contributed to improving the perception of pastoralism and its relations with natural resources and markets.

Pastoral activity is trying to find a compromise between acceptable living conditions for people, a tolerable control of risks, and a sustainable use of resources (Wiese et al. 2008). In particular, it is now understood that the viability of pastoral systems depends on mobility, which is in various forms the basis of their functioning, and their capacity to adapt to variable bioclimatic conditions. This mobility can be daily, seasonal, and/or exceptional, with rhythms and distances constantly adjusted to the constraints of the moment (Niamir-Fuller 1999). We observe that transhumance is oriented more often than before towards wetter zones, thus turning towards the south. This probably is linked with climate change and the progressive shift of isohyets towards the south. During transhumance, some of these herds cover 800 kilometres from their "*terroir d'attache*" (home ground) (Barraud et al. 2001).

According to the principle that resources must be maintained by adjusting their use to their availability, two complementary management strategies of pastoral areas were adopted: (I) geographic dispersion of encampments, an approach optimizing rangeland management; and (II) long distances between encampments and the main water points, making it easier for pastoralists to reach other water points and boreholes as well as the surrounding pastures. These strategies, based on livestock mobility and the collective use of lands and pastoral resources, constitute crucial factors for the security of the production system. The sustainability of pastoralism does not, furthermore, simply depend on the persistence of resource cycles (water, biomass, carbon, etc.): to ensure their viability today, pastoral systems are based more than in the past on technical infrastructure (access to water, transport, information and communication tools), market networks and flows of commercial products, manpower and financial means, and social networks. The mobilization of these new resources can be strengthened by technical, organisational, and social changes with more or less significant effects. With these evolutions and new adaptations, pastoralists themselves demonstrate that the persistence of the ecosystems and the societies are linked together, and can fruitfully incorporate new opportunities and technologies, fundamental idea of the functional integrity.

Changes in policies are perceptible, following innovative research which made it possible to rehabilitate pastoralism in public opinion and highlight

the need to take into account common resources during land tenure reform processes. But the actual attention paid to the specificity of pastoralism, and announced in rural policies on national and local levels, remains too hesitant to produce a perceptible positive impact on pastoral systems. The first policy changes in some Sahelian countries resulted in interesting attempts to elaborate pastoral legislation (Guinea, Burkina Faso, Mali, Mauritania, and Niger). Nevertheless, most pastoral legislation still has a limited impact on access rights to land and natural resource for pastoralists, insofar as little has been implemented.

3.2. Decentralization and its effects on pastoralism

Decentralization offers another opportunity for change. Resulting from the principles of structural adjustment prescribed by the World Bank in the 1990s, the recent policies of governmental disengagement and devolution of decision capacity to local communities, in particular for the management of natural resources and the organization of rural areas, modify management modes which used to link governments and traditional leaders. Pastoralists are deeply concerned by these changes, having to mobilize their authority, on the one hand, to preserve their social control on land in the zones with pastoral vocation, and, on the other, to negotiate their local insertion in zones mostly dedicated to crops. Initiatives have been taken, both to experiment with policies and tools to secure pastoral lands, such as the "*plans fonciers ruraux*" (rural land use plans) and the "*commissions foncières*" (land tenure commissions), and to implement innovative approaches for management of the natural resources: local conventions, legislation specific to pastoralism, etc.

After a time of activity, however, decentralization policies rarely appear profitable to pastoral systems. Paradoxically, they can weaken the pastoralists' access rights to natural resources when they provoke reactions of identity from native sedentary tribes. In the way that they were implemented, these decentralizing policies seem poorly adapted to the constraints of pastoralism insofar as they often do not adequately take into account the characteristics of pastoral lands which are naturally heterogeneous, discontinuous, and seasonal (requiring practices based on know-how which cannot be organized by bureaucratic authorities). They can even induce predatory practices of pastoral resources by some herders when these individuals consider them as worthless goods, available for their own use without any consideration of sustainability.

In some regions, in particular in Sudanian areas, decentralization encourages the marginalisation of pastoral communities, considered to be foreigners. Facing new difficulties, pastoralism thus finds it hard to preserve its capacities of flexibility and adaptability, its qualities of production and profits from the capital, its roles in building up wealth and of preserving food safety, social advantages, and prestige. The obvious difficulties are numerous and quoting them gives an idea of the extent of the subject: the decrease in quantity and quality of available fodder resources, the parcelling out of pastoral lands, obstacles to transhumance, increasing uncertainty on tenure of common lands considered by pastoralists as community goods, the encroachment of rain fed and irrigated crops in the wetlands which are key pastures during the dry season, the expansion of hunting zones and natural reserves, and recently the purchase of land rights by foreign agricultural investors on large areas in order to promote commercial productions, and among them bio fuel.

3.3. Emergence of producers' organizations

For two decades, pastoralists themselves have created associations of producers allowing them to take part in debates on livestock policies and to express their points of view. Initially only active locally and then federated at a national level, some of these pastoral organizations are now organizing regional coordination on the issues of territorial development, cattle transboundary mobility, and trade of livestock products. Confronted with new processes of land allocation, these professional organizations make an effort to sit down with local authorities and defend the integrity of pastoral lands. This is not without consequences on the use of land, water, and management of natural resources (Touré 2004).

However, thus far, pastoral communities rarely have benefitted perceptibly from decentralization. Most of the organizations were created with temporal support of development structures and projects not extended by the government until their real internal consolidation (Castaneda 2005). Moreover, they have not yet realized the opportunity offered by decentralization to strengthen their land rights and ensure their access to pastoral resources. They do not have sufficient awareness of- and need training on-how to obtain and understand the necessary information. Pastoralists, like most rural actors, generally ignore the texts adopted within the framework of decentralization which transfer competences to community bases. These communities have neither sufficient means nor the necessary political

authority to assume their prerogatives allowed by decentralization. In the specific case of pastoralists, we note that they are not sufficiently represented on local organization councils because of their mobility and the weakness of pastoral associations. Moreover, they have to consider that some sedentary groups standing up for the rights of native people refuse pastoralists the right to take part in local decision-making processes. In short, the insufficient level of the actors' ability to defend their interests, as well as the current weakness of regulation processes and means of action, often threaten fairness when access to land and resources is concerned (Touré 2002).

In such a context, increasing human pressure on resources and the spread of agriculture into traditional pastoral zones generate tensions between groups of producers. These sometimes result in dramatic conflicts, the emotional impact being all the stronger as these tensions almost always involve different and antagonistic ethnic communities.

3.4. Pastoral resources management

Experience acquired during pasture management projects has revealed the difficulties in regulating natural resources in a context of decentralization. The implementation of management plans faces an important challenge connected with the legitimacy and political authorities and the people in charge of them. This challenge has a crucial importance in the context of Sahelian pastoral zones where individual strategies progressively prevail over collective efforts in terms of the management of natural resources.

Experiments undertaken in pastoral units of the Senegalese Sahelian zone have shown that pastoralists and livestock farmers can enter into negotiations on procedures of access to resources, and achieve compromises acceptable to all pasture and water point users. However, probably due to insufficient confidence of pastoralists in the enforcement of these rules by all and a lack of responsibility, problems appear when these consensual rules are supposed to be enforced. Indeed, pastoralists often individually seek to circumvent the rules or to avoid the constraints that arise when they abide by them.

This situation shows the need for an institution which has sufficient legitimacy and authority to enforce rules and arbitrate between collective and individual interests. In other words, compliance with rules adopted in a consensual way will depend on the legitimacy of the authority and relations between established institutions and local decision makers. Clarifying the fields of competence and responsibility is crucial if new pastoral laws regulating the use of rangelands are to be implemented effectively. As a matter of

fact, sharing the resources takes into account the diversity of ecosystems and their unequal value in the eyes of pastoralists, the plurality of their uses, and the variability of the rights which control their availability. We see that practitioners implicitly intend to preserve a certain functional integrity of their environment in spite of the decisions of diverse institutions.

3.5. Diversification of activities or professional change

The rural laws on land protecting farmers (principle of “*mise en valeur*”) do not apply to pastoralists, which have for this reason no security on the resources. Many pastoralists have chosen to strategically occupy arable land and plant food crops that ensure additional food production and revenue for their families.

More generally, pastoralists’ families have diversified their incomes as much as possible and continue diversifying, by working in agriculture, trade, and various forms of wage-earning employment. This trend reveals increasing uncertainty regarding natural resources and constraints on access to pasture land; it also results from market competition of more productive and populated areas, from the low productivity of livestock and the weakness of the economic and social investments in pastoral zones (Pratt et al. 1997; Ancy et al. 2007). Due to this diversification, collective principles of accessibility to resources and management are changing, other illustration of functional integrity, but often they become weaker. Herders also try to explore new pastoral areas by extending transhumance towards zones with a wetter climate, which offers better pastures and water, despite the risk of disease (tsetse fly, for example). These longer movements have the advantage of offering opportunities to sell their products (animals, milk) to local markets (Vall et al. 2003; Duteurtre et al. 2003).

Although still little educated, some younger pastoralists wish to quit livestock for other activities in villages or towns or even to migrate. They then share part of their income and send to their family left at home, money which indirectly contributes to the family’s survival and welfare. Meanwhile, traditional farmers are also diversifying their activities by raising livestock. Animals allow them not only to increase incomes, but also to improve productivity thanks to animal traction that helps to extend cultivated areas, to reduce the hardship of work, and to facilitate transport. The treatment of skins and hides contributes to the development of craft industries (Njoya et al. 1997). Wage-earning herding for local or remote animal owners either in

villages or within pastoral companies is growing (Wane et al. 2008). Given the lack of the banking system in rural areas, livestock represents a productive capital and a common way of saving; for families it is also an easy source of money adapted to both daily and unusual needs (Njoya et al. 1997). For urban people, livestock also is a form of saving: they invest in animals and pay herders or shepherds to keep them. But it is often observed that this speculative form of breeding does not encourage herders to adopt practices that are respectful of the environment. In this case, the livestock production concept is changing towards activities more oriented to market.

4. The Future

Pastoral livestock activities in Western and Central Africa are more than ever involved in situations in which resources represent more varied services than in the past for more diverse groups of people, and they stimulate more competition. Pastoralism will secure its position only through its integration into the whole social and economic systems by improving the exchanges of services and products. This evolution depends both on political arbitrations and the cleverness of the pastoralists themselves, by means of organizations within the livestock sector capable of lobbying at the level of decision-makers.

The simultaneous sustainability of rangelands and the people living on them depends on the implementation of regulations that are not only collectively enacted, but also actually applied. The major domains needing attention are specific legislation applying to pastoral resources in order to secure rights on communal grazing lands and access to water, the protection of the principle of transhumance and the development of adapted infrastructures, including the development of a pastoral information systems such as the early warning systems, and the improvement of market networks.

Sustainable pastoralism obviously is based on the long term permanence of functional ecological systems, considering the pastoral activity as a component of these systems, with human beings, livestock, and the decisions of herders. These systems can evolve as long as their biological reproductive capacity and their resilience persist. When it is not subjected to constraints changing its nature, pastoralism remains dependent on ecosystem functionalities and acts upon them (Toutain et al., 2010). This highlights the importance of policies and organizations with regards to the social, economic, and ecological evolution of pastoral areas.

A political vision of pastoralism and its development remains to be built. Its construction must be considered within the framework of a dialogue between governments (in particular through technical livestock services, agriculture services, natural resources management, national plans, and decentralization) and their social partners (socio-professional organizations, local communities, research, training and extension institutions) (Steinfeld et al. 2006). Such a vision is essential to promote in the same time the productivity and the durability of this livestock system, to ensure social peace and cohesion, and to strengthen the development of regions with a pastoral history.

Finally, given the difficult path to the necessary changes in livestock policies, a more active commitment is required on the part of pastoral organizations at local, national, and regional levels, and political decision-makers need to give the issue close attention. As contained in the concept of functional integrity, comprehensive knowledge of ecosystems and of their functioning, changes, and dynamics also is necessary. The future of Sahelian pastoralism will depend on the actual influence of pastoral civil society in national and regional debates, in particular regarding land tenure policies, on the quality of arbitrations made at a political level, and on technical tools, including training.

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