

HIGH-LEVEL FORUM ON PASTORALISM IN THE SAHEL

NOUAKCHOTT (MAURITANIA), 29 OCTOBER 2013

Outline Document

Executive Summary

Pastoralism is a unique production system that effectively exploits a very constrained agroclimatic region. Half the meat and more than two-thirds of the milk consumed in the coastal cities of West Africa come from the Sahel.

Pastoralism is also a way of life for a population that has hardly benefited from national development policies. Not only are the needs for agricultural services (veterinary, extension, inputs, credit, etc.) far from being met; access to basic services (health care, education, potable water) by the pastoral populations is far below regional averages. Decentralization policies have seldom taken into account the unique aspects of these populations, and they are far from being included in political matters.

Pastoralism has always been able to adapt to crises as well as to economic opportunities by responding in particular to the increasing demand for animals, meat and derivative products. The mobility of the herdsmen and their herds – the sine qua non of their resilience and hence of their endurance – enables them not only to produce more by optimizing access to forage resources but also to generate income by accessing markets. However, major changes, climatic as well as socioeconomic, agro-ecological and institutional, risk having a negative impact on these pastoral systems. Today the rugged resilience that pastoral societies have shown over the past 4,000 years is threatened.

The Sahel will undoubtedly be one of the world's regions most seriously affected by climate change, with major impacts on the availability of water and forage resources. The risks, frequency and severity of droughts will increase, impacting the evolution of transhumance routes and sources of conflict, while the prices of agricultural products will continue to be unstable.

Over the last thirty years, conflicts have multiplied in Africa: in frequency, intensity and impact. They originate most especially in competition for access to resources, and in the erosion of traditional management systems, heightened by political, ethnic and/or religious tensions. When conflicts break out, routes are less accessible, marketing corridors become dangerous, productivity falls, pastoralist's quick-sell animals, and the size of the herds may drop below viability thresholds.

The stakes involved in maintaining and developing Sahelian pastoralism (peace, security, antipoverty measures and economic development) are patently obvious. Action must be taken to strengthen the resilience of pastoral systems. The current political context is favorable to this. Many different approaches have been tried to develop pastoral systems and improve the living conditions of pastoral populations. Solutions exist; their efficiency has been demonstrated, but their scale needs to be changed. Despite progress, we still need more data and a greater understanding of pastoralism, as the institutional framework takes shape (increased role for regional economic communities, reinforcement of specialized institutions like the CILSS).

The N'Djamena Declaration adopted in May 2013 is a major step forward: it integrates the existing frameworks and sets the priorities for a regional policy in support of pastoralism. Building on the current dynamic and the existing programmatic frameworks (PNIAs [National Agricultural Investment Plans], PRIA and AGIR-PRPs), the Nouakchott Forum is an opportunity to move ahead toward a medium-term programmatic framework of action (encompassing institutional support, political reforms and investments) to benefit the six countries in the Sahelian strip, with a strong regional component.

Introduction

Worldwide, arid and semi-arid grazing land covers some 10 million km², collectively appropriated and managed by some 200 million herdsman raising 1 billion ruminants. In the Sahel, pastoralism is a unique, ancient system of activity that sustainably exploits a very restricted agroclimatic territory. Today, however, the adaptive power that pastoral societies have shown over the past 4,000 years is threatened. Major changes, climatic as well as socioeconomic, agro-ecological and institutional, are disrupting pastoral systems, even though they are among the main suppliers of cities in the coastal countries (up to 50 percent of meat production and 70 percent of milk production). It is crucial to strengthen the resilience of these systems by implementing appropriate public policies, which alone can prevent eventual crises and conflicts and lead to more productive systems.

In this regard, the N'Djamena Declaration adopted in May 2013 represents a major step forward. By integrating the existing frameworks, it collectively sets the priorities for a regional policy in support of pastoralism, intended to ensure that herdsman and their herds can retain their mobility, which is the *sine qua non* of their resilience and hence of their durability.

The stakes involved in maintaining and developing Sahelian pastoralism are patently obvious. The CAADP process and the AGIR initiative provide an operational and programmatic frame of reference. This outline is a preparatory document to the High-Level forum on Pastoralism being held in Nouakchott (Mauritania) on 29 October 2013. It summarizes the main issues and challenges associated with strengthening the resilience of pastoralism. It also lays out the primary courses of action to be discussed at the Forum and calls for a coordinated regional effort by the governments and their partners on behalf of the pastoral populations in the six countries of the Sahelian strip.

1. Pastoralism in West Africa

1.1. Brief overview

Pastoralism is a production system based on the mobility of herdsman and their herds, enabling them to adapt to their environment and sustainably exploit its natural resources. This mobility takes various forms,¹ from daily movements to seasonal migrations, either joining together or competing with one another for access to resources.

The Sahel's pastoral populations are estimated to number 20 million individuals,² but precise figures are difficult to come by, partly because of their mobility and partly because these populations seldom constitute discrete statistical categories. The available information reveals a rate of access to basic services (education, health care, water, etc.) that is well below the national averages. In Chad, for example, where herdsman represent between 5 and 8 percent of the population, only 2 percent of the children in school attend nomadic schools, with a very pronounced inequality between the sexes (Swift, 2011). Nomads also have very little access to vaccination and are the main victims of diseases such as polio (Kessely, 2011).

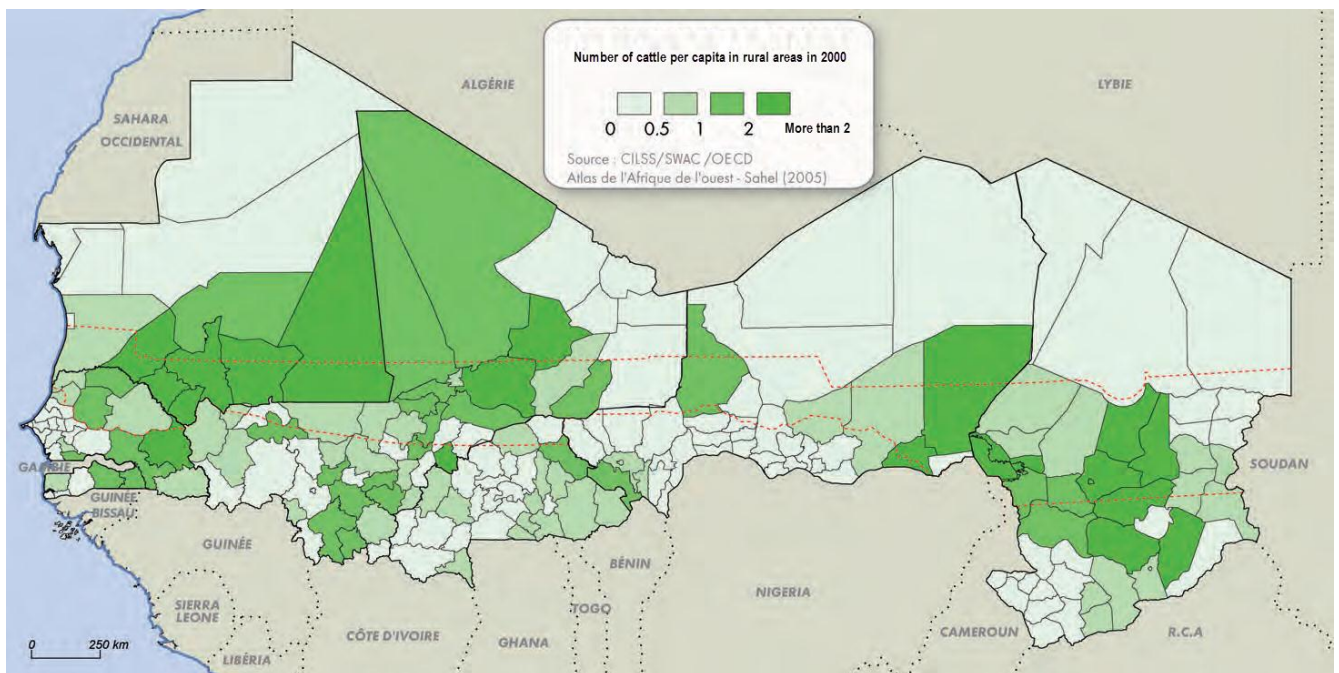
1 This document is devoted to pastoralists and agro-pastoralists, as defined by the FAO www.fao.org/ag/againfo/programmes/fr/lead/toolbox/Index.htm

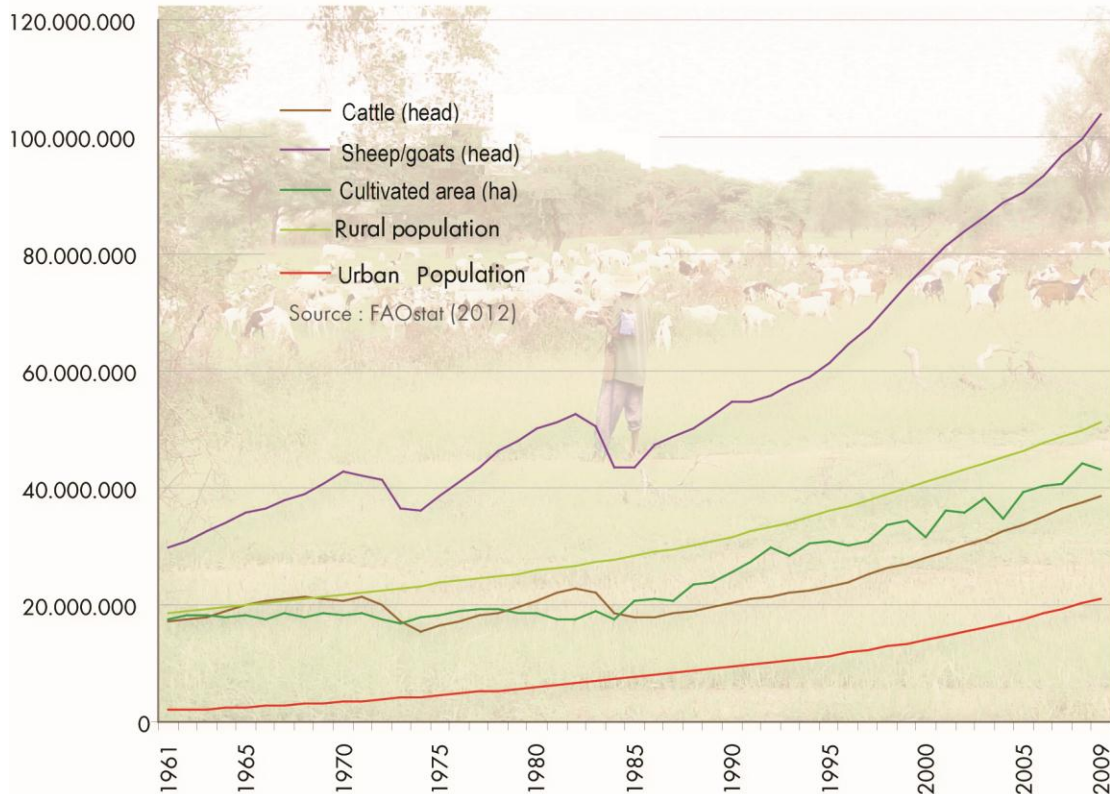
² Burkina Faso, Mali, Mauritania, Niger, Senegal and Chad

The livestock population is estimated at 60 million cattle and 160 million small ruminants. For both herds and people, access to health services remains extremely limited. In Niger, the proportion of nomadic herdsman vaccinating their animals is 11 percent, compared with 48 percent among transhumant herdsman. These low rates are due to poor distribution of vaccination pens and gates, their insufficient number or nonexistence (SIPSA, 2011). This situation heightens the herds' vulnerability when a crisis erupts.

1.2 A significant contribution to the agricultural sector.

Analysis of livestock populations since 1960 (SIPSA) shows little overall change in the number of cattle, never above demographic growth. In contrast, the sheep and goat population has grown sharply, which would indicate a global strategy of herd diversification for purposes of more consistent marketing. These animals (and the associated products) are self-consumed, sold in national markets or dispatched to the growing coastal cities. In all, they account for up to 65 percent of the beef supply in West Africa.





The direct economic value takes into account measurable and quantifiable production, such as live animals, meat, milk, hides and skins. The economic weight of animal-drawn transport and jobs in the livestock sector should also be included in this. In the Sahelian countries, the livestock sector makes a very significant contribution to national wealth. Pastoralism proper represents an important part of the entire stock-raising sector in West Africa, where it covers between 70 and 90 percent of cattle raising and 30 to 40 percent of small ruminants. For example, pastoralism's contribution to the agricultural sector ranges from 24 percent in Burkina Faso to 84 percent in Niger. Finally, in terms of employment, pastoralism is a source of income for 80 million people in West Africa (SIPSA estimate); it is in fact a major source of revenue for local governments.

The difficult-to-quantify indirect economic values should also be taken into account, with grazing as a means of ecological regeneration of the routes as part of the collective management of natural resources. These various "eco-systemic" services, like management of biodiversity or carbon storage, are beginning to be valued, and herdsmen are sometimes paid for them in certain areas of the world. Added to this: (i) related products, like artisanal products and gathered substances (gum arabic, honey, medicinal substances, bicarbonate); (ii) the social capital represented by the herdsmen's technical and organizational know-how; (iii) cultural wealth and social bonds; and (iv) livestock-based savings, readily accessible and quickly realizable.

Finally, the importance of pastoralism needs to be appreciated beyond just the producer countries. Analysis of transhumance and marketing routes in fact reveals the broadly regional nature of the pastoral economy and the interdependence between countries, especially between pastoral countries and coastal cities with booming populations. Under

the combined effect of rapid urban development,³ growth in incomes and new consumer habits, there is a growing demand for animal products, concentrated mainly in the cities with new demands among buyers primarily in terms of wholesomeness and flavor.

1.3 A factor for security when conflicts arise

Pastoral stock-raising is also a major factor in political security: to date it is the only system that simultaneously allows ecological management, control and economic development of the Sahel's arid and semi-arid areas. The changes under way naturally intensify issues of competition for access to resources between pastoralism and agriculture (agro-industrial especially), as well as wildlife (through protected areas).

The rise of armed conflict in the northern Sahel underscores the importance of a strong pastoral system that is lucrative and socially organized, as the only possible bulwark against insecurity and criminality.

1.4 A system challenged by change

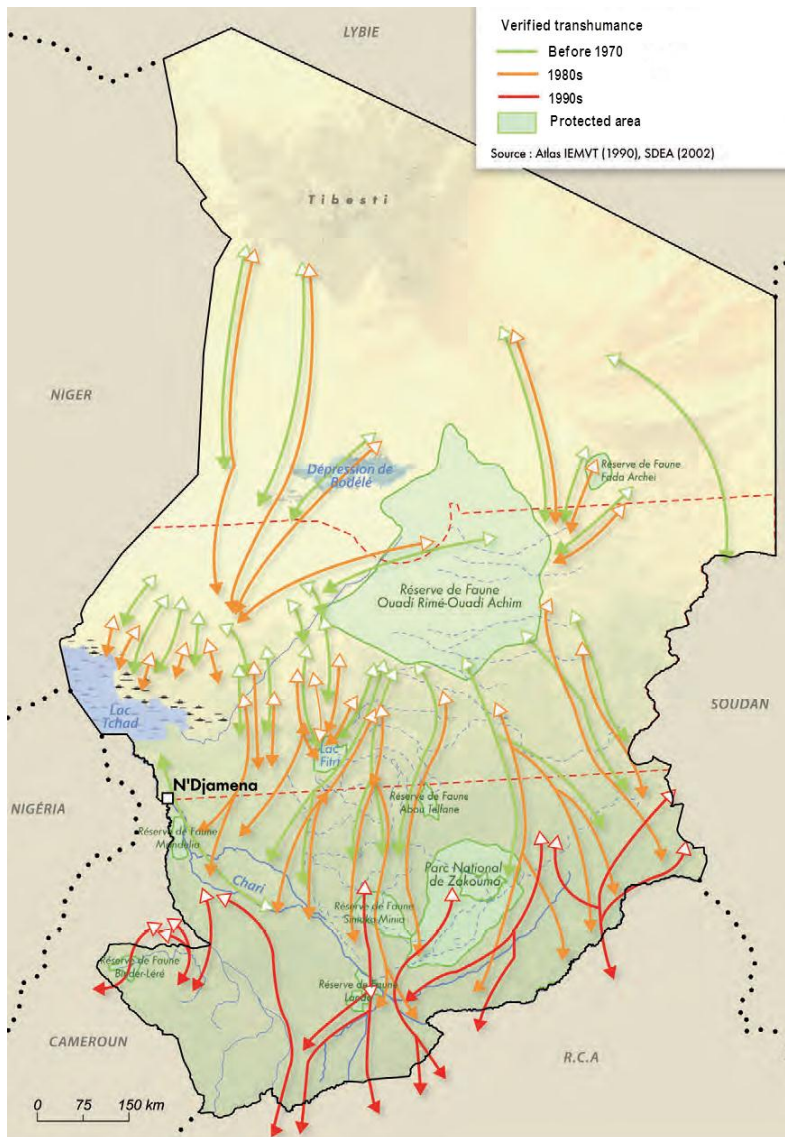
Globalization and regional development dynamics closely affect the sub-Saharan pastoral world through: price fluctuations in the international agricultural markets, changes in urban demand, conversion of pastoral routes for use by agriculture, competition for access to resources, insecurity and conflicts. In the face of these challenges, the rapid spread of mobile telecommunications, radio and television have improved the population's access to information, and hence their strategic and organizational capacity.

Regardless of the scenario considered, the western Sahel will be one of the regions most affected by climate change (OECD 2010 and BM "*Turn Down the Heat 2*").

The Sahelian strip often experiences a pronounced forage shortfall. The following map, prepared for Chad, shows a net southward displacement of transhumance routes beginning in the 1990s. Herdsmen move towards the agricultural zones in the South when droughts occur so as to find water sources and grazing lands. At the same time, with strong population pressures in the South, farmers are expanding the cultivated land area northward (up to the 250 mm isohyet). This dual movement heightens the risks of tension over resources and conflicts among those using the space. Today this situation is aggravated by the conflict in northern Mali, which is disturbing the traditional transhumance routes.

Politically, decentralization and the transfer of natural-resource management to the rural townships are creating an opportunity for herdsmen, while also posing certain risks. In principle, the management of resources by the local communities ensures greater security of access to pastoral resources. However, there is a heightened risk that the herdsmen will be marginalized because they are poorly represented in local government. Added to this is the risk that various taxes may be levied, which may, depending on their scope, impede access to pastoral resources.

³ Greater Lagos: + 6 percent annually; Abidjan : +5 percent; Dakar : +4 percent



1.5 Changes demanding strengthened resilience among pastoral societies

Droughts are one of the main triggers of crises in pastoral regions, but the resilience of pastoral systems can be improved by strengthening the political inclusion of herdsmen, and through investments. At the same time, the consequences of droughts are well known, and it is possible to prepare for them in order to limit their severity and their impact on populations.

Over the last thirty years, conflicts have multiplied in Africa: in frequency, intensity and impact. They originate most especially in competition for access to resources, and in the erosion of traditional management systems, heightened by political, ethnic and/or religious tensions. When conflicts break out, routes are less accessible, marketing corridors become dangerous, productivity falls, pastoralists quick sell animals, and the size of the herds may drop below viability thresholds, leading to the destruction of herds and even ecological degradation of pastures (undergrazing). Furthermore, concentrating herds into a reduced number of routes may lead to degradation of these areas in the absence of an appropriate management system (overgrazing).

It is essential to strengthen the resilience of the pastoral populations in order to deal with crises whose frequency and intensity may, unfortunately, increase. To manage these crises, information and early-warning systems have proved effective and must be strengthened. In the longer term, only concerted, collective management of natural resources with appropriate practices can alleviate crises and their consequences. Strengthening resilience means working on a continuum of actions that combine preventive interventions (early-warning system) and humanitarian measures (social safety nets) with development efforts.

2. Past experiences

2.1 Approaches from the 1960s to 1980s

In the postcolonial period, pastoralism was perceived as an archaic production system lacking both a future and potential in the face of sedentary stock-raising, which was at the time the focus of most accompanying measures. At the same time, policies and programs for the development of low-lying wetland areas deprived the pastoral populations of forage areas that were very useful when drought struck. Finally, the decentralization policies undertaken scarcely took into account the unique aspects of pastoral societies (mobility across multiple territories, traditional structures). Nonetheless, in some cases improvements were made through programs to develop water sources and routes, or to develop national veterinary services.

2.2 Recent and current approaches

Since the early 1990s, investments in the area of pastoralism have remained moderate, even though efforts have been made to better secure access to resources for herdsmen in most of the countries of the Sahel. For example, Mauritania, Mali, Burkina Faso and Niger have all adopted specific legislation in favor of pastoralism, and a pastoral code is currently being approved in Senegal. These laws were motivated by the desire to resolve the growing problem of conflicts between herdsmen and farmers. Current laws include positive aspects such as (i) recognition and protection of mobility, (ii) recognition of priority rights to use resources, and (iii) recognition of the “productive use” of pastoral lands.

2.3 The main types of approaches applied

Support for pastoralism has been marked by various approaches:

- *Technical approaches targeting basic services to herdsmen* intended to reinforce access to veterinary services, improved genetic material and more effective stock-raising practices. This approach has often been combined with efforts to develop pastoral water projects. A set of good practices came out of these experiences (mobile veterinary services, for example) with two challenges still to be taken up: change in scale and perpetuation of services.
- *Value Chain approaches* focused on the commercial and very often the export dimension of pastoralism in order to strengthen the herdsmen's ability to benefit from market opportunities: market access and product quality.
- *Approaches centering on management of natural resources* have dealt with pastoralism in its capacity to manage, preserve or degrade Sudano-Sahelian spaces. These efforts have sought to expand sustainable land management (SLM) practices, facilities, reasonable management of routes and, at times, improved access to water.

- *Community Driven Development (CDD) approaches have strengthened the capacity of herdsman to influence decisions concerning them, particularly by the establishment of local development funds.* These approaches have taken into account a broader set of needs: access to education and health care as well as crisis management and prevention.
- *Approaches based on strengthened resilience* (especially in East Africa) combine the creation of monitoring and early-warning systems, conflict prevention, diversification of herdsman's sources of income, emergency action plans and the creation of quickly accessible reserves.

2.4 Main lessons

Many lessons have been learned. Some of these have been translated into political terms. The many frameworks developed recently in the area of pastoralism (African Union, N'Djamena Declaration in particular) illustrate, through their overlaps, a broad consensus concerning the legitimate expectations of pastoral populations, namely: (i) recognition and protection of their status as producers and their production system (land-related, economic, social and political); (ii) guaranteed access to basic services (education, health care, loans, etc.) ; and (iii) their participation and effective involvement in developing and implementing agricultural policies.

3. Opportunities and challenges

3.1 Many new opportunities

In a context of strengthened political will, pastoralism can seize many opportunities in Africa:

- sustained regional growth accompanied by an increase in household income and rapid urban development of the coastal countries, leading to a rise in demand for animal products (estimated at +60 percent for meat and +52 percent for milk in Africa by 2020);
- a substantial increase in prices for meat, despite unstable market prices and strong competition from imports;
- a strategic framework for the development of pastoralism, broadly developed in countries and in the regional plan and initiatives such as Alive⁴ and AGIR;⁵
- proven methods and technologies for improving and protecting the productivity of pastoral systems: veterinary services (through Performance, Vision and Strategy analysis tool supported by the OIE⁶), pastoral water projects, mobile telecommunications;
- the growing effectiveness of risk-management mechanisms (warnings, early destocking, financial revenues);
- the potential for intensifying pastoral systems through appropriate management methods (especially integration of agriculture and livestock), the distribution of improved genetic material and a drastic improvement in veterinary services (regional and national levels);

⁴ Partnership for Livestock Development, Poverty Alleviation & Sustainable Growth [in Africa] (2004)

⁵ Global Alliance for Resilience Initiative (2012)

⁶ World Animal Health Organization

- the possibility of better connecting pastoral systems to the markets through improved infrastructure (roads, etc.), especially trans-border, and an improvement in the means of processing and exploiting animal products and by-products.

3.2 But also huge challenges

The main challenges facing pastoralism in the region include:

- defragmenting and achieving coordination of development programs (especially the lack of coordination between emergency actions and development actions) given the dispersal of the beneficiary populations;
- scaling up successful innovative experiences;
- accelerating the effective implementation of the existing political frameworks and taking into account women and young people in accompanying measures;
- anticipating risks of agriculture/stock-raising conflicts in the wake of changes in routes caused by climate change and the degradation of natural resources;
- containment of armed conflicts threatening the security of herdsmen and their herds.

4. Vision – Call to Action

4.1 Vision

In this part of the world, the concepts of “risk” and “volatility” form a sort of “new normal”; because of this, strengthening resilience is the cornerstone of sustainable growth for agrarian systems in the Sahel.

Pastoralism is a system with a future, that is viable and sustainable, and a unique and ecologically effective form of economic development of vast expanses of arid land. However, several factors, especially conflicts and drought, are nonetheless having growing impacts here, with heavy human costs (persistent poverty, famines, displacements). The resilience and adaptability of pastoral systems can be reinforced to benefit millions of people if they are backed by effective institutions and supported by adequate policies (including at the regional level), as well as judicious investments.

A new approach to policies and investments is needed over the long term, with improved resilience to future shocks (especially climatic, health and economic ones) as the first objective. This is a major regional political priority. This new approach has to be based on prevention and must pull together a continuum of efforts that may include emergency aid, reconstruction, innovation, and long-term development actions. Only if this happens will pastoral systems be able to seize the opportunities that arise for their economic development, greatly increase the resources of pastoral households, and thereby contribute to growth and to reducing poverty.

In this regard, the existing strategies for strengthening resilience involve (i) improvements in the way pasturing areas are managed, (ii) support for livelihood diversification, (iii) improvement in social protection and the social safety nets, (iv) political inclusion of pastoral populations, (v) improved access by pastoral communities to social services, (vi) management of conflicts and trans-border issues, (vii) support for displaced people and refugees, (viii) reinforced early-warning structures and systems, (ix) implementation of procedures for managing drought and reducing the risks of disasters.

A solid coalition should be built to bring together energies and redouble efforts, while

taking care to fund a broad regional action plan that will create an environment favorable to the development of pastoralism in the Sahel and catalyze partnerships with the private sector. The objective is to secure the way of life of at least half the existing pastoral communities and double their income within the next 10 years.

4.2 A call to action

Inaction and failure to resolve the structural (especially isolation, as well as the lack of secure rights) and economic causes of underdevelopment in pastoral areas make further actions necessary, but their costs are very high and the results uncertain (emergency aid, post-conflict intervention).

However, support needs to be provided to the Sahel's pastoral populations over the next fifteen years by launching, now, new structural programs that bring together the concerned communities and coordinate them with all of the institutions and partners (especially technical and financial). These programs, focusing on strengthening resilience and combining emergency, preventive and development actions, must promote a change in scale and speed up structural evolution. Action programs need to be prepared without delay, taking advantage of the renewed political interest in the Sahel, and relying on the recently endorsed strategic frameworks as well as on existing institutional dynamics and coalitions.

4.3 Enhancing the political framework, strategic considerations and institutions in place

The existence of recent frames of reference adopted at a high level creates an extremely solid opportunity for quickly planning interventions that are both politically legitimate and technically effective.

Approaches aimed at promoting resilience refer to (i) the Hyogo Framework for Action for Building the Resilience of Nations and Communities to Disasters (HFA) (2005-2015), (ii) the African Regional Strategy for Disaster Risk Reduction and its Program of Action (2006-2015) and (iii) the Integrated Regional Programs for Security and Development in the Sahel and in West Africa. At the same time, multiple institutions and/or donors have recently become involved in efforts to reformulate their Sahel intervention strategies.

The most recent initiatives in support of pastoralism, have led to adoption by the African Union of a policy framework for pastoralism in Africa (2011) aimed at securing, protecting and improving the lives, means of subsistence and rights of pastoral communities. This comes in the wake of the Framework and Guidelines on Land-Policy in Africa (2009), which includes efforts aimed at improving indigenous land-ownership systems. The CILSS is developing a regional strategy for the promotion of pastoralism in the Sahel and West Africa (SRP /SOA). Adoption of the second regional economic program of the UEMOA (2012-2016), strategic action plan for the development of livestock farming in the ECOWAS space as part of the PDDAA/ECOWAP⁷ (2011-2020) process, and the N'Djamena Declaration (2013) on the contribution of pastoral stock-raising to the development of Saharo-Sahelian spaces form a mature and consensual political foundation.

In addition there are the commitments made concerning the increase in public expenditures for the agricultural sector (10 percent, AU), as well as the objective of providing the livestock sub-sector with public support at least proportional to its economic importance.

⁷ Detailed Program for the Development of Agriculture in Africa / Regional agricultural policy of the CEDEAO

The Global Alliance for Resilience Initiative (AGIR) is building on the regional dynamic it created by establishing synergies between emergency actions and long-term development strategies. It is creating a partnership that has already brought together representatives from more than 30 countries, several humanitarian organizations, the agencies of the United Nations, as well as other institutions like the World Bank, the African Development Bank, the Islamic Cooperation Organization and the two regional economic-integration organizations (ECOWAS and WAEMU). Because it has coordinating mechanisms that draw on those of the PRIA⁸ and the PNIA⁹, it is undertaking an effort to align, harmonize and coordinate the technical and financial partners in the spirit of the Paris Declaration. Its roadmap aims not just to establish seasonal safety nets in order to strengthen the resilience of the most vulnerable but also to encourage countries to define their “CRP – Country Resilience Priorities” by the end of the first quarter of 2014.

Finally, large-scale thematic programs like Terrafrica, the Sahel and West Africa Program in support of the Great Green Wall (SAWAP) and the BRICKS (Building Resilience through Innovation, Communication, and Knowledge) project, have already mobilized substantial resources for the sustainable management of the lands that need to be developed.

In this context, it is useful for the regional economic-integration institutions to be able to fully meet the need for coordination and overall political monitoring as part of their functions and responsibilities. The technical and operational implementation of programs in the Sahel could be delegated to technical institutions like the Permanent Interstate Committee for the Control of Drought in the Sahel (CILSS), which already has experience in this area and whose mandate covers essential aspects of the actions to be carried out.

4.4 Learning lessons from the past and innovating

It should be recalled that:

- an adequate institutional environment is essential for driving change (functioning institutions, adapted policies, rules established and implemented);
- the structures and initiatives already in place need to be bolstered, while taking care not to duplicate what already exists;
- the regional dimension of these activities is essential and must be added to the actions carried out in the countries. Regional and national actions need to be completed, taking care to ensure compliance with the principle of subsidiarity;
- trans-border cooperation guided by specific policies and instruments is vital in controlling epidemics, sustainably managing common resources, and facilitating trade;
- interventions are more effective when they are part of a sector-based approach, which favors producer organization and access to markets. Public funding may encourage the participation of the private sector, which remains essential;
- national intervention plans must include preparations for crisis situations. An emergency may also require greater flexibility in financing mechanisms and the mobilization of resources.

⁸ Regional Agricultural Investment Program, from the CAADP

⁹ National Agricultural Development Programs, from the CAADP

4.5 A common action program

The forum could acknowledge that the work of strategic orientation towards more resilient pastoralism has been completed, and that this must now be translated into a program of action that includes the reinforcement of institutions, public policy and investments.

The forum could also ensure a strong political commitment in favor of long-term development-structuring actions while recognizing that this will not avoid occasional recourse to emergency interventions. Development requires the participation and coordination of the countries of the Sahel, the Regional Economic Communities and the technical and financial partners since not everyone has the same capacity for action and no one has the capacity to cover everything.

In this regard, in starting from a shared vision, the forum is an opportunity to catalyze a strong political commitment on the part of all the stakeholders and to converge towards a common program of action on behalf of pastoralism in the Sahel, which would cover (i) sustainable management of natural resources, (ii) management of herds, especially in terms of animal health, (iii) development of value chains and access to markets, and (iv) access to basic services. Enhanced governance, increased knowledge and the exploitation of know-how, adaptation to change and risk management, as well as taking into account new perspectives for young people and women are all cross-cutting topics.

In order to meet the challenges identified and take advantage of future opportunities, it is now essential to hasten the pace of evolution in sector policies aimed at (i) strengthening the regional economic-integration organizations (UEMOA/ECOWAS) in their role as facilitators and regulators of cross-border movements and trade, (ii) applying new land-ownership frameworks that secure access to resources, (iii) systematically including the problems of pastoral populations in decentralization legislation, (iv) bringing the coastal countries (market outlets) into discussions on pastoral policies, mobility, the trade in animals and their products (including imports) and on sector taxation.

Of the main structuring investments that directly benefit pastoral communities, current analyses point to (i) water projects and pastoral development plans, (ii) sustainable land management, (iii) risk prevention and management (early-warning systems, social safety nets), (iv) marketing infrastructure (roads, markets, slaughterhouses and laboratories), (v) access to production support services (veterinary, genetics, pastoral extension services and credit) in addition to basic services (human health and education), (vi) accelerated development of information and communication technologies and (vii) enhancement of the ability of pastoral communities to better define national and regional issues (management technical assistance, business plans) to achieve greater control over their different subsectors.

In addition to boosting their capacities, the institutions should also benefit from specific support promoting (i) the development of public policies oriented toward pastoralism, (ii) continued regional integration (including legal frameworks, trade rules and their effective implementation), (iii) technological R&D for the production and development of know-how, and (iv) updating/modernization of early-warning and crisis-prevention systems.