

# THE VULNERABILITY OF PASTORAL SYSTEMS: WHAT ARE THE RELEVANT INDICATORS OF THE RISKS IN THE SAHEL?

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## 1. INTRODUCTION

The evaluation of the risks run by pastoral systems aims at attracting the attention of political decision-makers in the Sahelian countries. Three levels of information must combine to contribute towards this goal: the regional level, with remote-sensing detection tools; the national level, with administration's services and the local level, where the risks are first identified and acted upon by households.

From the measures to help the herders sell out stock during the 1984 drought in Niger to the announced distribution of food supplies after the bad weather in 2002 in Senegal, there have been several initiatives to help in specific areas, but insufficient to face the many scattered and varied needs. The experience of the past droughts has indeed been useful in recent years to the herders who were better able to prevent the risks at the level of their village and camp. Yet, on a political level, experience cannot replace complete information, decision making and plans of action, in order to anticipate difficulties.

This analysis is based on data and field work conducted in pastoral areas in Senegal (the Ferlo) since 2000 by a multidisciplinary team (Pôle Pastoral Zones Sèches).

## 2. INFORMATION SYSTEMS AND PASTORALISM IN THE SAHEL

Agro-technical information systems for farms are organized along an inputs>decisions>outputs pattern. Van Dijk (1997) has shown this logic is not meaningful in the Sahelian pastoral environment. The first reason is related to the ecological environment: the acute variations within and between years weigh much more on the environment than the pastoral practices. The social differences between the groups in their way of managing their natural and economic resources generate inequalities limiting the viability of generalizations. We would like to add another reason: culturally and technically speaking, the herders are used to facing uncertainty and risks in a manner clearly different from the statistical probability method. Thus, the available agro-technical systems do not adequately account for conditions in the Sahel nor provide the tools necessary for users' information and decision-making needs.

## 3. MANAGEMENT OF RISKS IN A PASTORAL ENVIRONMENT

Several typologies of pastoral strategies insist on the diversification, the mobility and the transfer and sharing-out of the risks onto other actors (Bollig & Göbel 1997, Bovin 2000). Our work in the Ferlo illustrate and complete this analysis.

### 3.1 Diversification

On a daily basis, the families vary their resources as much as possible. From one galle to another the range of activities require investments different in extent and unequally shared out socially speaking. *Galle* is the family unit which enables a homogenous standard of living and the management of mobility.

The head of the family sometimes manages occasional and important income from livestock, religious/counseling activities, gathering of gum arabic, etc. Some wives bring in more regular, limited, yet strategic income to face daily expenses for food and health needs (for example, from dairy products and door-to-door trade). The non-pastoral activities lead some people to travel periodically to town to convey animals, to practice traditional and magical medicine and counseling, or to trade.

Table 1. Additional activities for generating income recorded in the Ferlo

Conditions of access > Objectives	Free	Reserved	Financial capital	Regulated	Professional training
To better every day life	<u>Peddling</u>	<u>Milk trade</u> <u>Craftsmanship</u>		<u>Gum trade</u> <u>Charcoal</u>	Vet auxiliary
To invest in cattle	<u>Conveying</u>	<u>Marabout</u> <u>Dioula</u>	<u>Shop</u>		
To invest elsewhere			Transport		

Diao 2001

*Marabout* = religious instruction and/or medical or social counseling

*Dioula* = cattle trade

Very frequent    *less frequent*    scarce

The herders' families also mobilize other decisive resources for their future, namely their relationships to political and economic powers at different levels nationally. Such relationships are a permanent feature in the history of pastoral societies. Yet, in nations today, political backing is very fragile. The defense of herders does not adequately reflect the mobilization of actors organized to represent their own interests.

Generally speaking, the pastoral system of life and production resists stress and pressure thanks to a definite culture and particular skills, but also thanks to socio-economic resources sometimes far from the reductionist image we have of herders, their behavior and their motivations.

### 3.2 Mobility

Mobility is the first solution to the lack of rangeland. It is also, after vaccination, the best answer to health risks, which are the greatest fear in the Ferlo. The herders do not willingly give information about their transhumance. Holding back of information contributes to keeping herders outside of the social networks in the neighboring society. Yet, to adjust their movements, they use all available means to get informed about the rains and contemporary pasture: by telephone, through casual encounters and local meetings, cattle behaviour, and observation of the sky. Such information would be useful, not only to herders (who already have access to it), but also to the surrounding community henceforth able to anticipate movements and eventually fully integrate the herders' activities into their own decision-making.

### 3.3 The sharing-out of the risks

The lending of cattle is another method to share out risks, allowing the beneficiary to have milk for himself though not always to reconstitute a herd. Anyway, it is socially regulated and the practice diminishes progressively outside the family circle (Sutter 87) to the advantage of other options like loans from the local community. The herders' saying is "Hang your bag wherever you can reach for it" in Northern Ivory Coast ("*isu balaru ma te junngo hewtata*").

## 4. CLASSIFICATION OF THE RISKS

The way the risks are understood is as much linked to the abilities to mobilize resources as to the intrinsic acuteness of the risks, as showed by Amartya Sen (1981). Table 2 displays indicators showing the various possibilities available to the herdsmen: the endowments indicate the crucial resources available; the entitlements reveal how unequal and varied the access to the resources can be, depending on the users.

If the prevention of pastoral crises is partly solved by the ready and timely availability of good information, the requisite for its circulation is the will to communicate and cooperate. In other words the socio-political climate around pastoralism is fundamental. The issues are: under what conditions does the appropriate social climate build up at the regional or national levels? How should the defense of pastoralism at the political and policy making levels combine with technical propositions for improved information at the local and national levels?

Table 2. Resources endowments and entitlements in pastoral areas

<b>Resources&gt; responsibility /Access</b>	<b>Good quality pastures</b>	<b>Wells</b>	<b>Boring</b>	<b>Mutual Aid</b>	<b>Informal loans</b>	<b>Non-pastoral income</b>
<b>Endowments</b>	-Soil -Vegetation -Rainfall -Land	- Wells - Attendance/ Access	-Equipment -Maintenance	-Local and socio-economic situation: acuteness of the crisis	-Potential lenders (economic level and socio-economic diversity)	-Local socio-economical diversity (demand) -Procedures
<b>Entitlements</b>	-Competence -Size of the herd -Duration of the stay - Social bonds	-Size of the herd -Duration of the stay	-Contributions	-Social status -Reputation -Bonds with the close family	-Relationships -Guarantees	-Training -Start-up investment -Social bonds

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