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# Societies and nature in the Sahel: ecological diversity and social dynamics

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## Abstract

This paper, based on the results of a comprehensive interdisciplinary research programme focused on five countries of the Western Sahel, suggests a framework for analysing the complex and constantly changing dynamics of the relations that Sahelian societies maintain with their environment. Firstly, tools for understanding local variability are required. Demographic variables and the diversity of the modes of land use are combined to show that the type and intensity of exploitation of natural resources varies dramatically from one locality to another. There are significant differences between Sahelian social systems and cultures, and these influence their relations with the 'nature' they exploit and transform. Secondly, understanding social, economical and technical changes in the Sahel requires that we recognise that powerful and conflicting processes of transformation are taking place (in contrast to the image of "tradition" widely associated with Sahelian societies). These changes are found to be the result of an interaction between the state, rural producers, urban speculators, international development agencies, and other actors. Practical lessons emerge from the analysis. Access and negotiation over natural resources must be facilitated between many actors who compete for them, and local social and environmental problems must be seen in the context of broader patterns of influence and change. The State will retain its importance in the region. "Participation" in development must not only involve local "populations", but also the "developers" of all types, in contributing to and understanding the human dimensions of environmental change in the Sahel. © 2001 Elsevier Science Ltd. All rights reserved.

*Keywords:* Agriculture; Demography; Environment; Herding; Nature; Sahel; Social dynamics

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## 1. Introduction

The horrifying famine of 1974 and the accompanying death of several hundred thousand cattle confronted world public opinion, as well as specialists in development and natural scientists, with the first evidence of a huge ecological crisis in the Sahel; a crisis that has lasted until the present day. It precipitated an unprecedented mobilisation of resources, local and international goodwill, and a major scientific debate. From the beginning, this became not so much a confrontation of scientific hypotheses, as a sharp division between competing perspectives. Natural and social scientists each thought that they alone held the ultimate explanation.

As the drought continued in the mid-1970s, and even intensified, it became obvious that the crisis was long-lived, and that it was not confined to one part of the

Sahelian zone. Despite this, in-depth geographical and anthropological studies, as well as the knowledge accumulated through development interventions, highlighted the diversity of its impacts. There were wide variations in the driving forces of famine at the local scale; social, demographic and economic situations were extremely variable. This variability shows that it does not make sense to pretend that there is a general, unique or ready-made description and explanation of the Sahelian crisis. My aim in this short paper is to present some elements which can help to make a more concrete and detailed vision of Sahelian diversity, and of the nature of the dynamics that are at play behind it. My arguments are taken from a recent book, where they are substantiated and referenced in detail (Raynaut, 1997).

## 2. The heterogeneity of the demographic situation

Of the social phenomena invoked to explain the environmental problems occurring in Africa — and the Sahel

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in particular — population density and an extremely high demographic growth rate are the most often cited (Falloux, 1992; Pontié and Gaud, 1992). The relation between population density and environmental dynamics is still open to debate, but the relationship cannot be viewed as linear and mechanistic. At least two other factors determine the intensity of the stresses that a society exerts on its environment. First, are the technical conditions for the exploitation of natural resources. Second, is the proportion of production that is not destined to meet the direct or indirect basic needs of the population, but is a response to opportunities and constraints external to its social and physical reproductive needs: such as the introduction of new consumption goods, price fluctuations or the level of taxation. For example, in Niger in the late 1940s, the sale of 20 kg of millet could pay the tax obligation for one person but, by the beginning of the 1970s, that person would need to sell 90 kg to meet the same obligation (Raynaud, 1977b). Moreover, an increase in population not only translates into an increase in demand but also into the availability of additional labour — an expanded workforce that can be devoted to intensive forms of exploitation, protection and environmental management (see papers by Mortimore and Adams, 2001 and Cour, 2001).

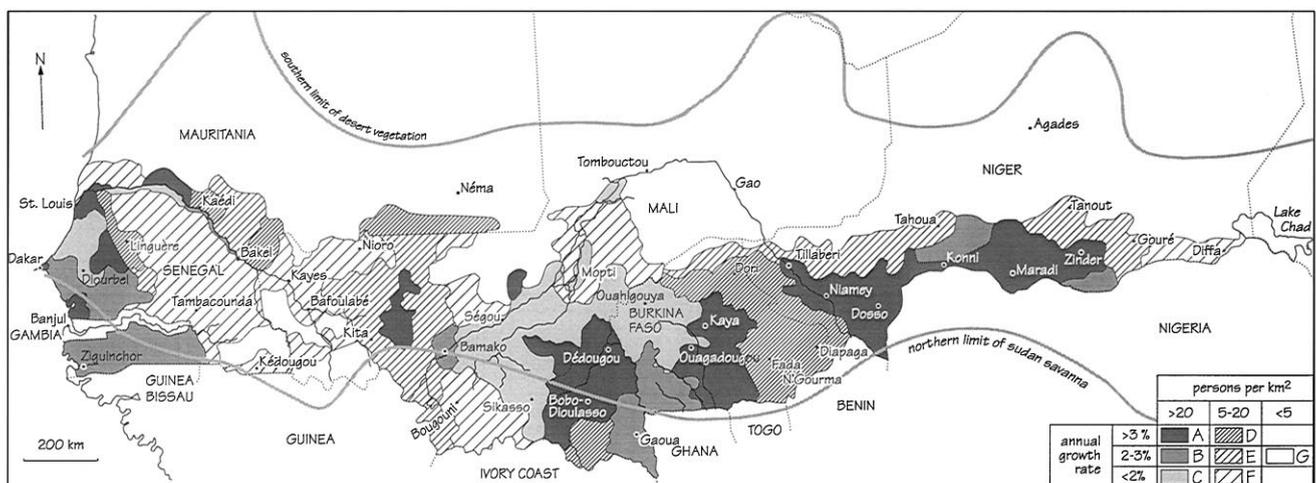
This said, I must insist that, behind a general demographic tendency towards high densities and rapid growth, the Sahelian zone presents enormous demographic variability. To illustrate and sustain this assertion, Fig. 1 shows the diversity of demographic situations in the western Sahel, that is, the many local combinations of population density and demographic growth. The data used to draw this map are drawn from the national censuses made between 1985 and 1988, to show the

average population growth rate over a ten-year period preceding the year of the census.

Among such great diversity, we can identify five particular contrasting cases:

- A few “*poles of attraction*” where high density (more than 20 persons per km<sup>2</sup>) combines with an annual growth rate of more than 3%.
- Some areas of “*demographic saturation*”, where high densities are associated with a low growth rate, which is the consequence of strong migratory movements over long time periods.
- “*Pioneer zones*”, at present sparsely populated, but where a high growth rate suggests that they receive immigrant populations at an accelerated pace.
- “*Peripheral sectors*” which not only remain sparsely occupied, but in which populations continue to increase only slowly.
- One last type of situation deserves attention. With less than five inhabitants per square kilometer, these zones are sparsely populated and, in most cases, have a growth rate of only 0.5% per annum.

It is clear that each of these scenarios is specific to certain localities and situations and that each raises distinct problems in terms of the relation between local communities and their environment. These patterns of population distribution and evolution cannot be explained by mere reference to the innate capacity of the environment to sustain human life (an ‘environmental determinist’ argument, as has been frequently applied to the Sahel). It is not the areas with the least arid climate and the best soils that are the most populated. Settlement patterns have much more to do with history — both long term, and recent (Raynaud, 1997; pp. 63–69). During this



original artwork: Charles Cheung  
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source: Raynaud, 1997. Stockholm Environment Institute

Fig. 1. The combination of population density and demographic growth in the Western Sahel. Source: Raynaud (1997).

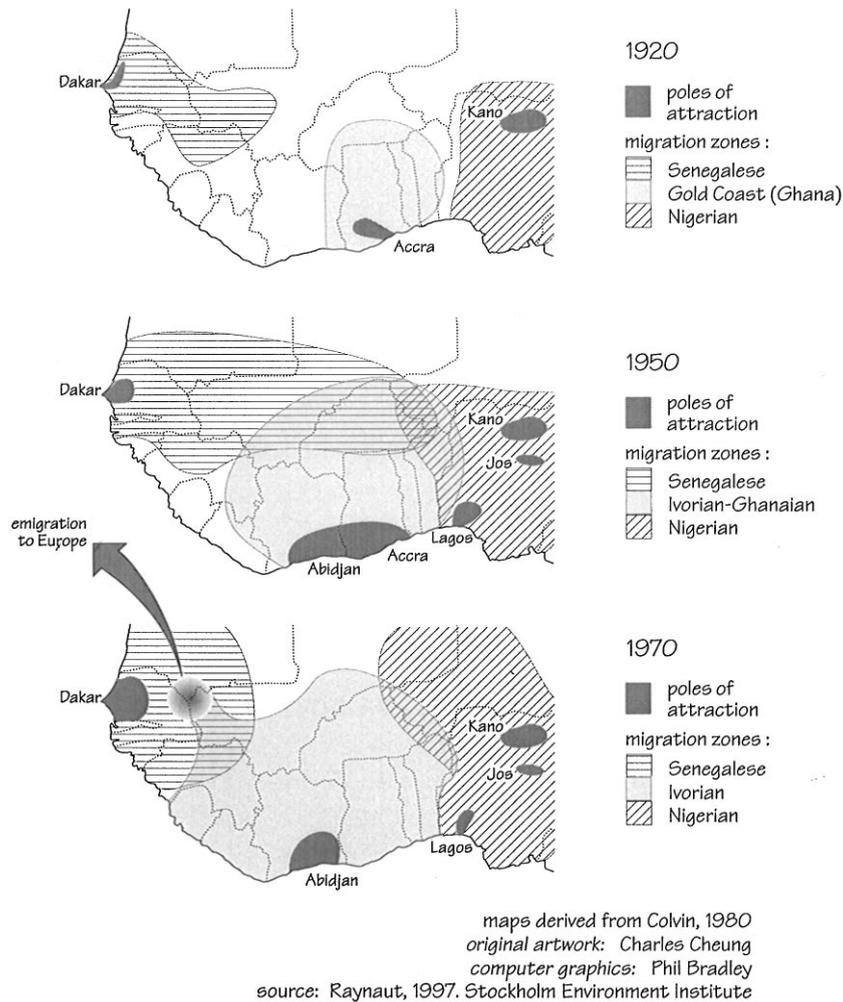


Fig. 2. Source regions or migrant labour and poles of attraction in West Africa. Source: Raynaut (1997).

century, building on a situation inherited from the past (especially the location of ancient kingdoms), three major factors have contributed to the shaping of settlement and territorial relationships in Sahelian space, and have also contributed to the differences in demographic growth rates and migratory movements.

The first factor is large-scale geographical specialisation, established in the colonial era and carried on after independence (Fig. 2). There is specialisation between (a) *poles* built upon commercial agriculture (like the Senegalese and Nigerian groundnut basins, and the coffee and cocoa plantations of the Ivory Coast and Ghana) which were located where the constraints of production and the costs of commercialisation could be minimised; and (b) *labour reserves* where natural conditions and the distance from commercial outlets made exportation of labour towards the centres of production more profitable than its local use (Colvin, 1981). The demographic void which covers the far east of Senegal and the far West Mali, as well as the long lasting tradition of labour

migration from the Central (Mossi) Plateau in Burkina Faso are, at least partly, consequences of this division of roles.

The second factor that has contributed to the shaping of Sahelian demographics is the structure of the transport network, which has been progressively developed throughout the whole region during the twentieth century (Fig. 3). There is much to say about Fig. 3, but I would simply point to the void between two roads/subnetworks: that of the extreme west (Senegal and Mauritania) and that of the centre and east (eastern Mali, Burkina Faso and Niger). This leaves a huge void between Tambacounda and Bamako; an area which is also sparsely populated. In contrast, the areas which show greater dynamism at present are those where the road network has experienced rapid development since the 1960s.

The third factor is massive acceleration in urban growth during the last half of this century — with a dominant role played by metropolitan capitals and

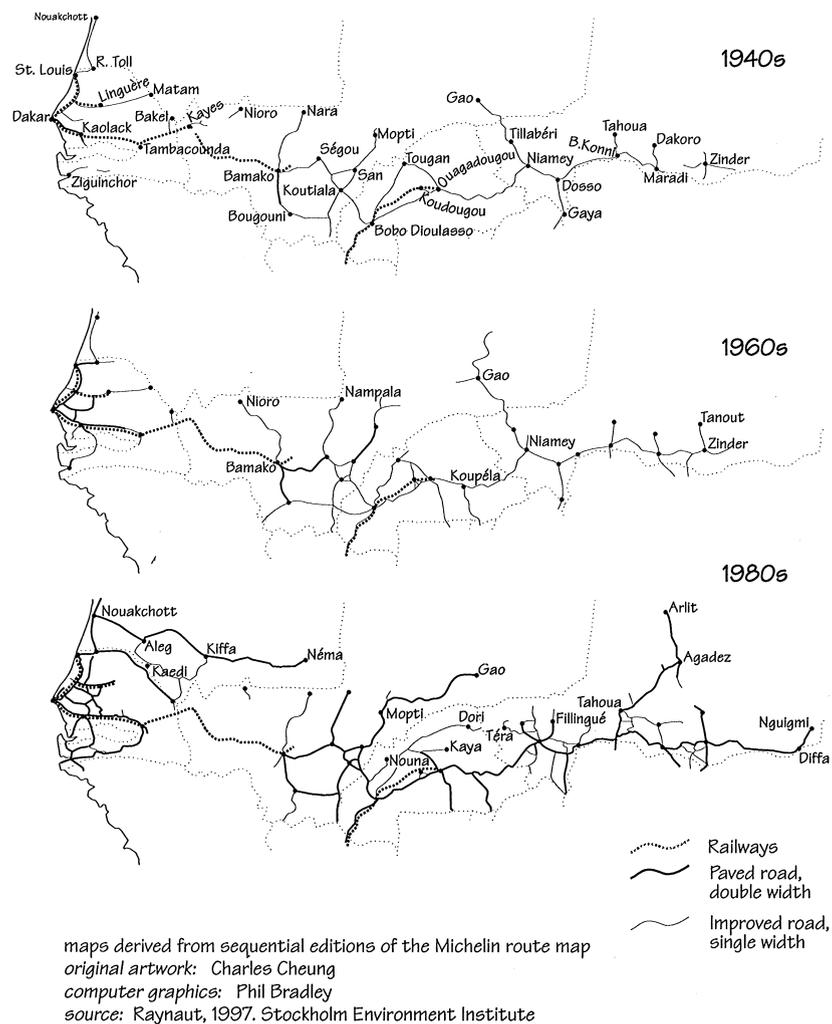


Fig. 3. Growth of the transport network in the Western Sahel. Source: Raynaut (1997).

a limited number of other large cities (Fig. 4). The map shows dramatic urban growth in Senegal, focused around Dakar, but it can also be observed in Bamako, Bobo Dioulasso, Niamey and several other minor cities. It seems that some of these urban poles have had a driving effect on the demographic growth of the surrounding rural areas (Club du Sahel, 1995).

Each of the local situations identified in Fig. 1 cannot be analysed on the basis of a simple relation between a certain demographic pressure and the “carrying capacity” of the environment. It is the result of complex interactions in which individual and collective strategies seeking to build appropriate responses to a specific set of necessities and incentives play an essential role. Particular technical, economic and social conditions of the exploitation and management of natural resources emerge in each of these specific contexts. These are therefore the differentiated situations that structure and orientate the concrete local relations between population and environment.

For example, despite very similar levels of population density in the Central (Mossi) Plateau of Burkina and the groundnut basin of central Niger, it is not possible to analyse the relations between the society and nature in both areas in the same terms. In the Mossi Plateau there is a long-term history of migration towards the Ivory Coast — to the extent that local production is, in some communities, now a mere supplement to agricultural profit-making activities conducted at a distance (Cordell et al., 1996). Within this context, village-level efforts to improve techniques and protect the local environment are not always considered a major priority (Marchal, 1983). In contrast, in central Niger, most of the farmers’ labour force, their technical innovation, and their social and economical interests have always been concentrated on farming (Raynaut, 1980). For a farmer in this region, it is vital to protect the environment and to preserve its production capacity, in the face of the constraints of occasional drought and of a growing demographic pressure on resources. That is why more and more farmers

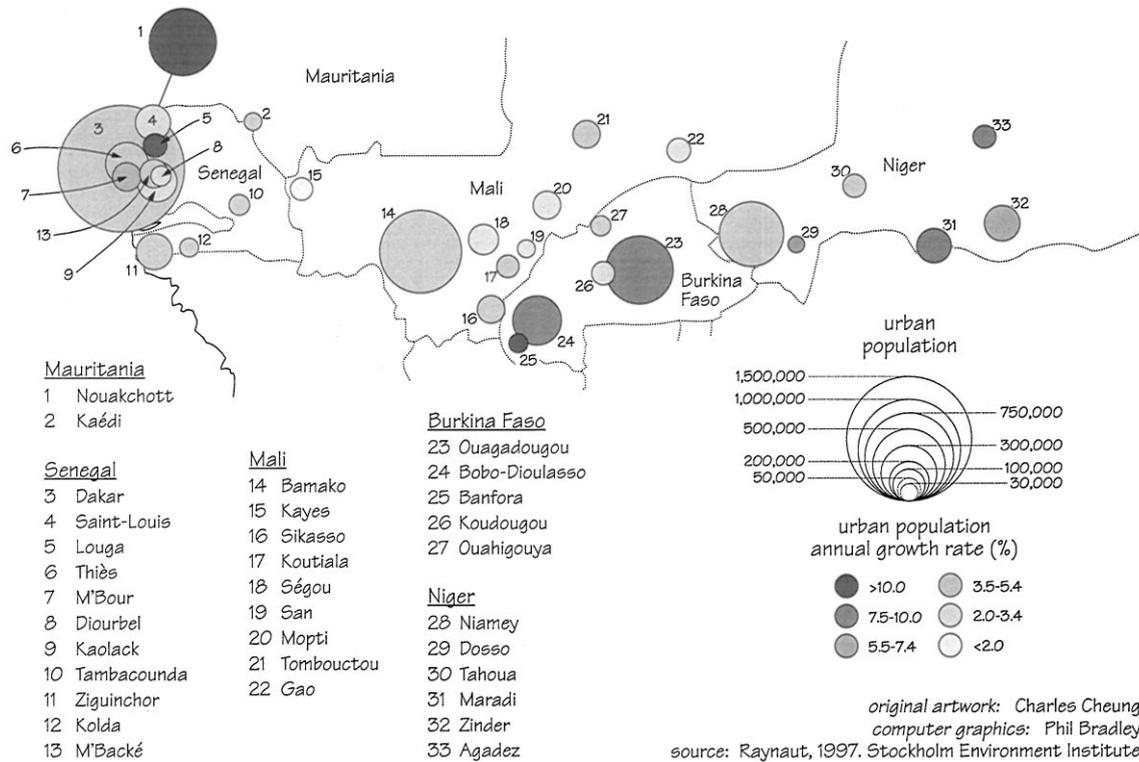


Fig. 4. Urban population growth in centres of more than 30,000 inhabitants. Source: reworked from Raynaud (1997).

try to reinvest their surplus labour force in more labour-consuming techniques of production and the management of the environment. In other words, they seek to turn the increase in the number of people into increased labour resources, in the same way as in the highly populated Kano area of northern Nigeria (Mortimore, 1989; Mortimore and Adams, this issue). Two different socio-historical situations can, thus, lead to two different social and environmental situations.

### 3. The diversity of land use conditions

The demographic issue — even reinterpreted in the light of the socio-historical dynamics which underlie it — is clearly just one aspect of the diversity of the local situations in the Sahel and of the complexity of current transformations in the relations between the local communities and the environment they exploit. The multiplicity of modes of land use in rural areas — herding, various forms of agriculture and other ways of exploiting natural resources — is a major factor of variability (Fig. 5).

The figure combines two categories of heterogeneity: the demographic zonation we have just briefly analysed; and the spatial distribution of the main types of land use (for a more detailed description of the criteria used to build this typology, see Raynaud, 1997; Chapter 5). The

first axis of spatial discrimination is determined by the crucial question of the relations between agriculture and pastoralism. Three main zones can be defined

1. A large region where pastoralism dominates. Agriculture can exist, but only in very localised situations, where surface or underground water is available.
2. A long and narrow belt, crossing the Sahel from east to west, marking the zone where agriculture and pastoralism meet. This area was formerly the exclusive domain of pastoralism because the climatic risks were too great for agricultural production, unless absolutely necessary. But, since the early 1950s, this zone has experienced a progressive increase in cultivation as the demand for agricultural land has risen. The confrontation of these two modes of resources use often generates strong conflicts, reinforced by the effects of the drought.
3. The entire southern and less arid zone is the privileged domain of agriculture, but this specialisation is far from exclusive. The area has, for a long time, received transhuman pastoralists from the north and has sheltered more or less sedentary agro-pastoralists whose lands interpenetrate with those of peasant villages. There is a long tradition of cohabitation, although this has become more and more conflict-ridden over time, as farmers have increased their demands for land, and have increased their interest in herding, and as

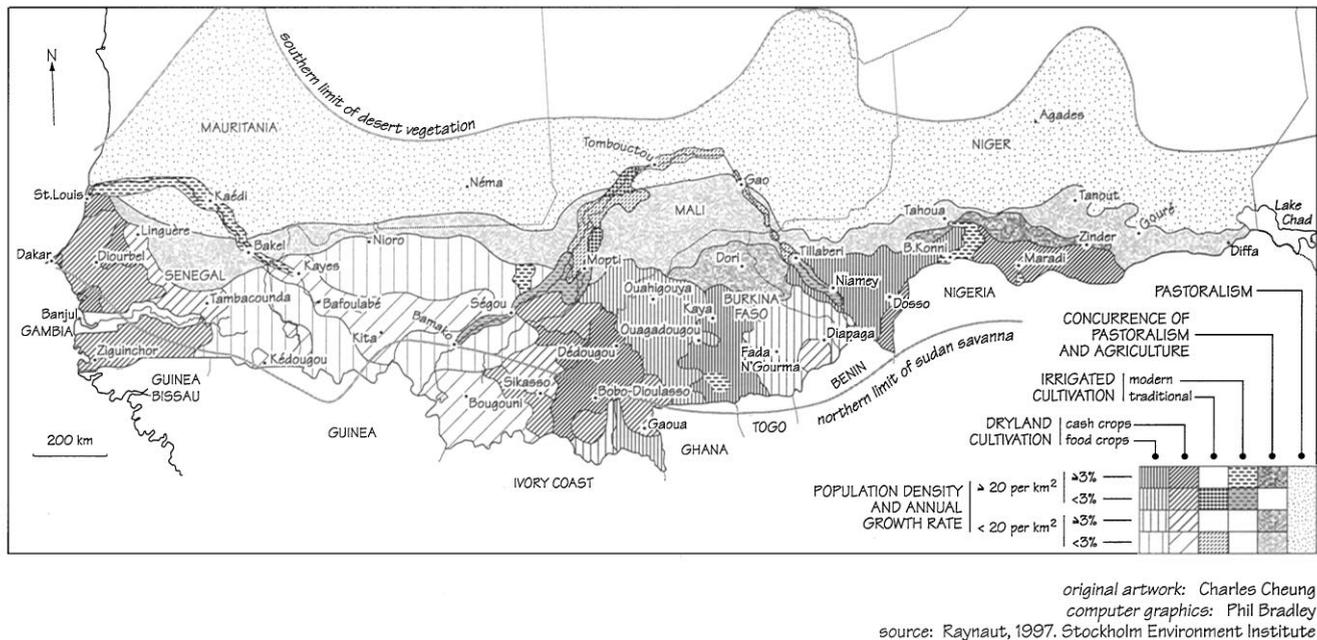


Fig. 5. Land use and demographic zones in the Western Sahel. Source: Raynaud (1997).

pastoralists have withdrawn to this zone from the ever more severe environmental conditions in the north.

If we concentrate on this last zone, further distinctions can be made. The first one contrasts areas devoted to rain-fed agriculture with those where irrigated agriculture is practiced. At a still more detailed level, the area of rain-fed agriculture can be subdivided into two major types of production systems: those mainly oriented towards subsistence and those mainly oriented towards commercial production. The area of irrigation can also be divided into regions of traditional irrigated agriculture (essentially flood recession agriculture) and those characterised mainly by modern hydro-agricultural schemes. Of course, this categorisation is simplistic, with regard to all the nuances and specificity of actual farming and herding systems. But, even so, when combined with the Sahel's demographic heterogeneity, it vividly illustrates how differentiated and contrasting are the local combinations of natural, social, technical and economic characteristics observed throughout the Sahel. Clearly, we cannot identify one Sahel but much more realistically, many Sahels — whether we do so as scientists, observers, or agents of change and development. Of course, Fig. 5, which is assembled from a combination of descriptive criteria, results in a static mosaic-type situations which do not give account of the dynamics of interdependence and complementarity that exists between distinct localities. It is possible, at a higher level of generalization, to identify larger spatial units that are built upon such complex systems of natural, social, demographic and economic relations that have shared characteristics. But, even so,

the heterogeneity of the Sahel is marked. No less than 14 regions can be thus identified across the western Sahel. These include the “the high-density zone of Mali–Burkina”, “the southern zones of expansion” and the “Nigerien groundnut basin” (Raynaud, 1997, pp. 189–207).

#### 4. The role of social dynamics and social actors

The vision that this brief survey offers of Sahelian social and environmental dynamics is too simplistic to allow me to account fully for the level of diversification and complexity in the social and cultural domains. I wish to highlight a particular aspect which is essential to an understanding of the local realities and to the elaboration of appropriate development actions. This is the fact that, within the Sahel as well as in the rest of Africa, and despite the image of “tradition” often imposed from outside to the continent, we are not dealing with a static pattern but with an ongoing process of social and cultural change that exhibits powerful and conflicting dynamics. Change is occurring at two main levels: firstly, the structure and functioning of social systems and secondly, the confrontation between local actors and everyday strategies.

New debates are presently ongoing about the anthropological dimensions of environmental problems (Biersack, 1999; Brosius, 1999; Little, 1999). The Sahelian crisis is a perfect argument for adopting a multi-level and interdisciplinary framework of analysis. No more than any others, Sahelian societies are not simply passive or reactive toys in the face of the numerous constraints

imposed upon them by their natural, economic or political environment. They interact with that broader environment and, since not all societies are organised along the same lines or in the same ways, their points of resistance and their potential weaknesses to internal and external influences are varied. Therefore, they respond in different ways to the new challenges which confront them. “Adaptation” is a core notion that one current of ecological anthropology uses to analyse the interaction between local societies and their environment (Kottak, 1999). It is a useful concept to analyse local situations. Nonetheless, as the Sahelian example demonstrates, adaptation should not be construed as a passive reaction to external factors: it is a process of innovation and creation strongly related to the cultural and organisational characteristics of social systems. In other words, it relates to individuals’ position or ‘room for manoeuvre’ in larger social, political and economical spheres; and also to the confrontations they are involved in between social actors.

In the Sahelian region, the diversity of the relations between society and environment and the variability of the changes currently at play in this domain are thus strongly related to social and cultural diversity. Although ethnic classification may seem to be a useful template to account for social and cultural discontinuities, a more in-depth analysis of the concept of ethnicity, and of the validity of ethnical classifications, shows that ethnicity is not always a good indicator of cultural diversity (Amselle, 1990). Frequently, West African ethnic groups first identified by colonial administrators, geographers and anthropologists exhibit strong cultural and social internal heterogeneities (in terms of language, religion, family organization, etc.). Yet there are sometimes close relations and similarities between ethnic groups labelled as ‘different’. In many cases, the establishment of an official ethnic nomenclature has reified divisions that were nothing more than a transitory historical stage within a long-term political process of construction of socio-cultural entities, fuelled by complicated dynamics of assimilation, fusion and domination (Raynaut, 1997). The fact that broad ethnic generalisations are now often used for making collective identity claims, and in political struggles, must not mask the ambiguities of the ethnicity concept. Elsewhere in Africa, Taylor’s work on Rwanda analyses the historical dynamics of emergence and political use of ethnical classifications, and he finds these were responsible for the genocide that occurred in this country in 1994 (Taylor, 1999).

This is not to say that all Sahelian societies and cultures are identical. On the contrary, they present evident differences which must be integrated within the analysis of diverse localities and, more specifically, of the relations between local societies and their habitat. But, instead of basing our analytical tools on ethnic groups in order to isolate that by which each defines itself as against others,

one can use a synthetic model built upon a few axes of differentiation. By using this model, one can identify local communities with respect to some specific aspects of their internal organisation, and of their relationships with nature (this model is thoroughly developed in Raynaut, 1997).

In brief, it uses three main axes of social and cultural differentiation:

- (a) *The degree of centralisation of power*: According to which state societies, with a specialised central political apparatus, can be opposed to those where decisions are the product of a consensus between local, lineage segments.
- (b) *The importance of social distance*: Which opposes social systems with a strong hierarchy between inherited social strata (i.e. aristocrats, warriors, craftsmen, slaves, etc.) to societies structure which is based on the juxtaposition of social units of equal status (i.e., lineages, clans, villages etc.).
- (c) *The mode of circulation and distribution of goods and wealth*: We refer here to the distinction between systems where the individual accumulation of wealth is encouraged and those where circuits of exchange and reciprocity are mainly organised in order to prevent it.

By combining these axes of differentiation, one can identify various types of social systems, among which the emphasis can be put on three major patterns frequently encountered among Sahelian societies:

- (a) The major trading states (including the Hausa of Niger and Northern Nigeria) with a strong centralised and specialised political apparatus; some degree of individual mobility between hierarchical status; and open circulation and accumulation of wealth through trade.
- (b) Warrior aristocracies (including the Songhai-Djerma [Zarma] societies of Niger and Mali) where the marking of social distances is the strongest organising principle, and where the accumulation of wealth — mainly through warfare and raiding — was limited to those with higher status.
- (c) Lineage-based peasantries (like the Serer of Sénégal or the Senoufo of Mali) whose social organisation rests primarily on the coexistence of separate but equal lineage segments, where consensus is the dominant mechanism for decision making and where the accumulation of wealth is strictly controlled.

These are reference patterns that can help order the diversity of concrete social formations observed on the ground. None of the Sahelian societies is thoroughly reducible to one of these models. Moreover, evolutions which occurred during the recent past have deeply eroded some of their social and cultural characteristics. Nevertheless it is impossible to understand the diversity

of current social situations and collective behaviours in the Sahel without taking into account the role of such differentiated socio-cultural patterns, since these still govern social, economical and technical practices. As we have shown in detail elsewhere (Raynaut, 1997, Chapters 10 and 11), landholding relations, modes of control of the workforce, the social value attributed to labour, the position of women in production activities, and even technical practices in agriculture or herding can vary according to the principles that govern social and economic organisation. For example, we cannot equate ‘agricultural’ societies in which aristocracies perceived farming as a degrading task to be performed only by slaves, with peasant societies whose systems of values, symbolic representations and ritual practices are very much organised around agricultural activities. Without any doubt, each one of them is responding in a different way to contemporary environmental challenges. For example, it is impossible to understand the rapid intensification of agricultural systems of production in Southern Mali during the past decades (which contrast with very different patterns in other regions of the country), without taking into account, among other factors, the special value placed on agricultural activities by local Senoufo and Minianka farmers.

The differences in collective models and social habitus between social systems in the Western Sahel can be a pertinent explanatory factor for local social and environmental situations. Nevertheless, there are also more contemporary dynamics at play: those driven by the interaction between the many institutions or individuals actors currently at work in the Sahel at various political levels. To simplify, I will highlight four categories of actors.

*The State.* The State — colonial and postcolonial — has played and still plays an essential role in the evolution of Sahelian societies and of their relations with nature. For example, through price fixing, taxation, and many other direct and indirect forms of levy, vast amounts of wealth have been withdrawn from the rural areas over several decades. This has contributed extensively to the destabilisation of the rural economy and of the social relations within rural communities and it is clearly one of the factors which has driven the Sahelian ‘crisis’ (Raynaut, 1977a).

But, the State is also the source of development policies, most visibly manifested in its concrete development operations. While there is hardly a Sahelian region without its own ‘development project’, not all development initiatives have worked in the same way. They have been concentrated particularly in large zones devoted to commercial agriculture (the Senegalese groundnut basin or the cotton area of southern Mali are good examples). Conversely, vast areas such as western Mali and eastern Niger have been virtually ignored by the State, receiving only scattered and intermittent attention. Moreover, different technical or economic choices have been made and

operationalised here and there, with distinct effects on production systems and their impact on the environment. Everybody is aware of, for example, the dramatic ecological consequences that have resulted from some of the well-digging campaigns within the pastoral zones (Dewispelaere, 1980). Elsewhere, agricultural development projects, based on the ‘modernisation’ of agriculture through the introduction of commercial cultivars (like cotton or groundnut) and of new technical inputs (like animal-drawn ploughs), may have had very negative local impact on soil quality or productivity (Rochette, 1989).

*Rural producers.* Farmers and herders are, of course, the most important actors in the play. They are much more than simple objects, passively submitting to the influence of external driving forces. They develop their own strategies of response to the set of constraints and incentives they meet in the locality where they live and produce.

Their search for solutions covers at least three areas:

1. *The technical domain.* The search for technical solutions can involve short-term attempts to maintain a minimum level of production in more and more inauspicious conditions: for example by increasing the cultivated area, or cutting down trees to feed cattle (which has, of course, negative ecological effects). But it can also involve more elaborate efforts to reorganise the management of resources, to look for new plant varieties, to invent new techniques of production (drawing on their own knowledge). Producers can also adopt modern tools and inputs proposed by development programmes and adapt them to their own strategies (see Raynaut, 1997; Chapter 7).

2. *The economic domain.* Even if producers have to adapt to specific local conditions, they are also integrated into a wider economic world and, through their participation in the market, are subject to certain constraints (price fluctuations in particular) and have access to different income-generating opportunities. The search for profit involves cost–benefit calculations as part of a general strategy of adaptation. This can take the form of a search for new market opportunities for produce, as well as an engagement with wider labour markets. Farmers export their labour force towards the nearby cities, or to foreign African countries, even to an other continent in exchange for income.

3. *The social domain.* To properly understand the social dynamics that are now at play in the Sahel, as well as the establishment of new relationships with nature, we must picture Sahelian social systems, with all their differences we have pointed out above, in the midst of profound change which give space to new institutional and individual strategies. These are reconstructing social relations themselves, as well as the relations between people and nature. With respect to the evolution of the social conditions for the exploitation of natural resources, two major factors are particularly affected by these transformations.

First, there are land relations. The major phenomenon here is the growth of the idea of appropriation, which brings with it notions of privatisation and individualisation. Control over land becomes a key issue, resulting in processes of redistribution and accumulation. There has been progressive integration of land into the market over time (Raynaut, 1997; p. 256; IIED, 1999).

Second, there are labour relations. The major trend here has been the emancipation of individual labour and, at least partially, his liberation from the traditional institutional frameworks that guaranteed social control. Within the context of economic monetarisation, the emancipated portion of the workforce can enter the market, detaching itself even more from the fabric of traditional social relations.

The overall consequence of these changes is a profound reconstitution of the existing social systems. The means of production (including livestock and new technical inputs) are gradually becoming marketable commodities to which access depends, not on one's social position, but on monetary transactions that may be divorced from personal relationships. New hierarchies are thus springing up. The gap is slowly widening between a minority of producers, with some positive prospect for the future, and those who cannot overcome the obstacles confronting them. From this perspective, the continuing crisis in the Sahel have been overcome through a selection process whereby the most vulnerable go under, and the strongest take advantage of their loss. At the end of the day, the search for a new balance in the relationship between societies and nature is in process, and it involves a profound recomposition of social structures.

I would like to point out two other important actors in the development and environmental play in the Sahel. Firstly, there are the *urban speculators*, who play an increasing role in the control of livestock, in particular. Cattle owners with fixed revenues, often with quite strong links to the political arena, seek to invest in livestock and they are in a better position to speculate than the traditional pastoralist groups. These new livestock owners, who manage their herds through paid intermediary herders, are progressively capturing the best grazing areas. The movement of these herds, adhering strictly to commercial strategies, escapes the social and technical norms through which pastoral communities traditionally regulate the exploitation of their environment (Boutrais, 1992). The role of the urban speculators in the agricultural sector is perhaps less important, particularly because agriculture in the Sahel is such a risk-prone activity and not always very profitable. Buying and selling agricultural products rather than direct engagement in production can make greater profits. However, land accumulation processes can be observed in some specific sectors, for example around towns and on some hydro-agricultural schemes (Saul, 1988; IIED, 1999). The

responsibility for rural resource management thus no longer falls exclusively on farming and herding communities. It is shared by other kinds of partners, and increasingly by the urban speculators who maintain linkages with the political class (Amselle and Grégoire, 1987).

The last category of actors that influences the environmental situation in the Sahel are the *international development agencies*. Development policies — the type of strategies adopted, the technical options chosen — have, for a long time, been subject to the financial influence and expert input of donor agencies, both multilateral and bilateral. These bodies, therefore, also share responsibility for the emergence of the present situation, a situation which is, in part, the consequence of the massive development projects of the 1960s and 1970s, and from 1975 until the mid-1980s, the meagre results of the grand campaigns against desertification. These same donor agencies now lie at the heart of current development approaches focused at the community level, with priority given to NGOs and local associations. It is clear that these agencies cannot remain on the touchline of the playing field. They are fully part of the game (Raynaut, 1991; Olivier de Sardan, 1995). Any attempt to seek new solutions in the Sahel situation must rest on a clear understanding of their position and role.

## 5. Conclusions

It is not possible to provide a simple conclusion to this attempt to paint a broad canvas of the diversity and complexity of the relationship between societies and nature in the Sahel. But I would like to draw some practical lessons from the few facts and ideas I have presented here.

1. The first is the necessity to abandon the dominant conception of development as an intervention intended to introduce change into societies trapped in traditions that are responsible for their economic and material stagnation. The Sahelian crisis is both the manifestation and the cause of profound social changes. The main consequence is that all interventions must start from efforts made by local societies themselves to find answers to their own problems. The much called-for “participation” in development must not only involve the participation of the “populations” in the projects that have been proposed to them, but also, especially, the participation of the “developers” in the ongoing dynamics within which their actions will necessarily be inscribed.

2. The second lesson is that natural resource use occurs within a shared space, which is subject to diverse strategies of control and appropriation. Nothing can be grasped about the current crisis without consideration of the rivalries that confront (and the alliances that unite) the many competitors and partners on the environmental scene. The notion of negotiation is essential in the setting

up of “sustainable” relations between the different types of users and the environment.

3. A third lesson is that within each country, and even more so at the level of the Sahelian region, contrasts among local situations are extreme. One of the main challenges is to manage this diversity. But we are not confronted with a simple juxtaposition of irreducible and unique local realities. The mosaic reflects complementarities, inequalities and relations of dominance and dependence between zones. The challenge is to respond to specific local problems, whilst also reasoning in larger terms: that of territorial management, of the readjustment of basic infrastructures and economic contexts, of the setting up development frameworks that allow community and individual strategies to be carried out autonomously.

4. Finally, I would like to insist on the role of the state. Conflict management, arbitration between divergent interests and territorial development all require the action of a state that is exercising its prerogatives to the full. Sahelian states have undoubtedly been predatory, often repressive, and even violent. Yet, almost everywhere, year in, year out, they have fulfilled some of the basic functions of national government. More community participation in State decision-making is indeed essential; NGOs and different types of associations have an important role to play in the invention of a new, more open development path. Nevertheless, there are some core functions which correspond to a level of intervention that only the State can achieve, especially when confronted with such a changing, diversified and potentially conflictual set of local situations and competing partners. Negotiation is the key. No negotiation is possible in the Sahel, or indeed anywhere, without the arbitration of conflicting interests.

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