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Stream: Theory

## **Farmers' Organizations and the Building of a New Common pool Resource: the Role of Social Heterogeneity in the Socio-Political Search of Compromises**

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### **Introduction**

In this communication it will be shown that social inequalities within a given society do not constitute an insuperable obstacle to the establishment of new forms of management of renewable resources. It will indeed be demonstrated that these inequalities, which form dividing lines that, although unstable, are sufficiently clear-cut between individuals and strategic groups, do not in fact hinder changes in the way in which renewable resources are appropriated. They do not prevent the creation of public property, or of a new common property resource, or the emergence of the relevant management systems.

Collective action is made possible by the formation of a farmer organisation which becomes the scene for confrontation of individual strategies. These can be contrasted (migrants returning home, elders, women, social juniors etc) and the power balance within the society is at once a central issue and one of the conditions attendant upon the emergence of the new forms of management of renewable resources. The organisation enables the creation of new areas of negotiation that are open to subordinate social categories. These new bodies do not take the place of traditional institutions, which still stand guarantee for the final decisions, but they give a voice to claims and projects that had not previously been considered by these institutions.

This communication is based on a case study of a social group in *Basse Casamance*, Senegal, which had to confront profound alterations in the way in which renewable resources were managed within farming systems that were undergoing major change, both climatic and social. This case study is a result of research work conducted on the basis of several periods in the field between 1992 and 1997, and which led to the production of a thesis (Bosc 1998).

## 1. Social inequalities and changes in the local context

### 1.1. The basis of social inequalities

Although often presented as being egalitarian, (Pelissier 1966) societies in Basse Casamance in fact comprise many inequalities of varying origin, whether they be historical, social or economic. Some authors present Islam, which has appeared in recent times, via exchanges more than on account of the conquering *marabouts* at the end of the nineteenth century, as one of the motors in the development of some of these inequalities (Linares, 1992). In fact, it would appear that inequalities between individuals in the field of appropriation of renewable resources are related to a more complex construction, which implicates many different factors, the most structurally binding being connected with pre-established right of access to land tenure. The consequences show up in the area of renewable resources through inequalities with regard to the organisation of shared decision-making processes connected with resource management.

If we consider history and the specific forms of social structuring in this part of Basse Casamance, several types of power can be identified in reference to their origins:

- power linked to appropriation of land tenure and renewable resources that is based on prior occupancy by families and the type of relationship that has been established with the first occupant (marriage alliances, taking in a relative or an outsider, etc).
- power conferred by the practice of initiation rituals which can intermingle to a varying extent with the preceding type of power, although this cannot be considered to be a general rule.
- power linked to age, which is characteristic of a society based on lineage in which the elders possess decision-making powers on family, quarter, or village matters. Adult men are therefore either heads of households, *fank* chiefs (*fank*: production unit that can comprise one or several households), or heads of family (or *eluup*)
- power linked to gender. Women are excluded from decision-making processes that concern land use, renewable resources and exploitation capital, these being transferred in a patrilinear and patrilocal manner.
- power based on "notability". This notability can arise from several origins, interrelated or not with the forms of power mentioned above: a) administrative power - corresponding to a relay function with the State (village chiefs, *chefs de quartier*, or deputy village chief, formerly *chefs de canton*); b) political power - local representatives of national political parties, elected representatives in the rural councils put up by political parties, and so forth; c) religious power (non-animist); d) economic and political power - person in charge of the co-operative sector appointed to the rural council etc; e) power linked to responsibilities in associative farmer movements.

These inequalities produce distinct dividing lines between those who "have a say" within the society and those who, on the contrary, do not. The former have significant weight either in influencing decision-making, or in guaranteeing its conformity to norms and rules in force.

## 1.2. Social inequalities, access to resources, and decision-making processes

Societies in Basse Casamance, where the population has a dominant *Diola* component, are often described as acephalous in contrast with other more hierarchical societies where, in addition, some functions can be attached to specific castes. Their socio-political organisation is often presented as being limited in scope, and anarchy is often cited as the mode of "government". Thus Pelissier (1966) on the subject of the Diola population writes:

*'The Diolas constitute an egalitarian and individualistic society. The lack of political structure is accompanied by an absence of social hierarchy. Their society is composed of farming families side-by-side, sometimes in association, but not dependant upon each other.'*

If a characterization of this nature does indeed appear to tally with certain socio-political behaviours, it seems to us important to qualify this view by taking into account essential elements in the social structure as well as the strategies of the different categories of actors within the society. The egalitarian character of Diola societies shows its limits when the ways in which renewable resources are appropriated, this being at least in part the reflection of the intrinsic social organisation.

At village level, villages being federations of "*quartiers*" (quarters), the founding lineage of the original quarter occupies a pre-eminent position, since it appropriates the land as a whole and wields some authority over the management of land, even long after the establishment of other quarters. Thus each quarter enjoys some independence in the management of the land and renewable resources, but this relative independence does not dispense with the chronology of establishment, which in particular involves the supremacy of the "axe rights" (acquired by those who first cleared the land) and of direct parentage links over other forms of access to renewable resources.

Social organisation is consubstantial with inequalities in the area of access to productive resources (renewable resources and production tools), with power to manage these resources and also with the right to speak. The elders hold the power, managed by the council of elders at quarter and village level, and access to the right to speak in village assemblies for men is won via initiation and marriage. There are therefore for the junior members two types of status, the status of the junior initiated unmarried male who can attend quarter or village assemblies but cannot speak there, and that of the junior initiated married male who takes part in discussions at *kellumak*<sup>2</sup> meetings. Initiation and marriage are stages in the graduation to adulthood which confers the right to speak in assemblies.

Those excluded from consultation and decision-making processes are therefore non-initiated juniors (hence also unmarried) who have no political or economic rights, and women, whether married or not, who have even less rights than non-initiated junior males, although they do have some economic power via the management of the grain stores. Recent developments, however, show that their economic power is tending to increase, while their social status is not progressing at the same rate (Dardé, 1995).

Further to this, it is no doubt appropriate to consider that "absence of political authority" is in fact weakness of "vertical" political structure, i.e. with increasing hierarchical levels, expressed by Pelissier as follows:

*'The political fractioning of the Diola society is seen in the absence of inside administrative control. No doubt some villages were periodically under the authority of a chief who in some instances held this responsibility concomitantly with religious functions. But in such instances it was a state of affairs relating to the particular qualities of the individual, and not a general institution. The actual authority governing a community could indeed only be based on the assembly of elders.'*

For if it is indeed true that there is no institution at a "higher geographic level" than the village, defined as a federation of quarters linked by parentage and/or marriage, a clear hierarchy can indeed be observed between lineages at regional level, and within lineages between families. This hierarchy resides in the pre-eminence with regard to land tenure of some lineages, and in the singling out of individuals or fractions of lineages by different channels (political, traditional, intellectual, etc) which confers notability at local level on the individual or the group.

Moreover, since the emergence of partisan politics in Senegalese public life, Basse Casamance has not stayed outside the ideas and social movements that have shaped modern Senegal, quite the contrary. The Fogny region in particular shows political cleavages that are sometimes long-standing but still very alive, and which can give rise to recompositions according to events. The movement that formed around farmer organisations, and in particular the CADEF (Comité d'Action pour le Développement du Fogny), is no exception to these splits which affect organisation dynamics at micro-local level.

### **1.3. A society in the throes of a many-faced crisis**

The populations in Basse Casamance are faced with a complex, multi-facet crisis that arose in the aftermath of the droughts in the seventies and eighties, and also because of the persistence of economic stagnation which has been strongly felt over the last twenty years. The drastic drop in rainfall was to lead to massive salt encroachment in the rice fields situated in the valleys and low-lying land, more or less directly connecting with the Casamance river (and hence with salt).

From the eighties onwards, structural adjustment plans and the New Agricultural Policy (1985) led to profound changes in the support strategies for agriculture, in particular by the fact that they opened up a socio-political field for farmer organisations. It is also in this context that violent claims for independence were voiced in Casamance from the end of 1982, and it can be said that they were clearly related to the economic stagnation in the area.

These behaviours occurred massively as individual, mainly defensive, strategies aiming above all at the survival of family production units (Yung, Zaslavsky, 1992). The size of the phenomenon at this time was quite exceptional, favouring the extensification of agricultural production systems. This extensification movement led to the development of land use that altered the usual patterns of fertility restoration, in particular on the plateaus where rapid deforestation occurred, causing erosion processes than resulted in the transport of sand to the valley bottoms.

Following the rural exodus movements historically characteristic of Basse Casamance (Brooks, 1975), and also typical of more recent years (Thomas, 1959; Snyder, 1978; Cormier,

1985) a reverse movement began from the start of the eighties, and was amplified by structural adjustment policies. Indeed, at this time, there is also a massive development of new collective forms of action which, in terms of organisation, take the shape of vigorous structuring of the farming community at *département* level.

## **2. Collective action and new common-property resources**

### **2.1. Farmer organisations, social groups and renewable resources**

The farmers organisations are a massive social phenomenon in Senegal overall (Berthomé, Mercoiret, 1992) but no doubt more so in the *département* of Bignona where the economic and institutional fields were progressively occupied by a farmer movement that federated organisations with varying past histories (Bosc et al., 1995).

Women and social juniors are the two main social categories mobilised through the action of these farmer organisations. Women, who formed a majority in the grass-roots groups, were relatively marginalised at decisional level in all organisations (though this varied from one organisation to another and tended to develop in favour of women over time), as well as in federative bodies (Dardé, 1995). Women and social juniors in the society share marginal status in relation to customary institutions and decision-making processes connected to appropriation of renewable resources.

Beside the fact that they had undoubted impetus, the analysis of activities undertaken by the farmer organisations highlights a marked imbalance in favour of relatively stereotyped activities, mainly concentrating on 'the fringes of production systems' rather than on the crops that form the economic basis of the region's production systems (rice, groundnut, and rain-fed cereals). Very few organisations faced directly up to the main issues for the production systems in the region: how can the production systems be stabilized and made secure in a severely damaged environment, with producers who do not have monetary resources to invest in production techniques or environmental protection?

This technical question is accompanied by another question and an apparent paradox: how, and on what conditions, can farmer organisations, which mobilize individuals on the sidelines of customary decision-making institutions, play a part in changing the ways in which renewable resources are appropriated, in the creation of a new shared resource, and in the establishment of new terms of management for this resource?

### **2.2. An original instance: the CADEF (Comité d'Action pour le Développement du Fogny)**

The question of the rehabilitation of valleys that have suffered salt encroachment seems simple at the outset. Technical solutions have been available for a long time: these are the anti-salt dams that have been built in Basse Casamance for more than 30 years (Montoroi, 1995; Bosc, 1998).

Alongside public or parapublic operations, several farmer organisations attempted to rehabilitate salted valleys, and to do this constructed dams in response to strong mobilisation

on the part of their members. However, the results were far from convincing (Bosc, 1998) despite technical results obtained in research contexts (Brunet, 1988; Biovin, Loyer, 2989). Nevertheless, one farmer organisation, the CADEF, obtained generally better results over a period of more than 10 years, even if these results vary from one situation to another (Bosc, 1998).

The creation of anti-salt dams and reservoirs by CADEF, provides an example that enables comparison of different situations where CADEF came into action in contrasted socio-political contexts, in particular with regard to the position of this farmer organisation in relation to the interplay of local political forces.

CADEF is a farmer organisation established in 1983 by a group of people originally from Fogny, a district of Basse Casamance, who decided to leave Dakar where they had emigrated and return to their original home area. This returning-home process of a group was to be based on several networks of complex alliances. The first is a network of militants opposing the dominant party which was to serve as the basis for negotiation with customary authorities. The women and young people grouped together around vegetable production units were the basis of organisation at quarter and village level. The elders and important customary figures were integrated into the organisation in the form of a council of sages with the task of approving the main decisions and orientations of the organisation.

CADEF also contracted alliances outside the local society that were to be used in initial stages to reinforce credibility inside the local society: long, close collaboration with a NGO (Ciepac), and shorter and more circumstantial collaboration with other NGOs or funders, and, within a research-development project, with agricultural research, Ciepac, and a Senegalese training institute (Enea). It is within this operation that several valleys that could no longer be cultivated on account of salt encroachment were rehabilitated: in 10 years, nearly 800 hectares of rice fields were rehabilitated by means of some ten dams that were overall appropriated by the populations, even if some local situations require qualification. It was therefore interesting to try to understand how a farmer organisation could play a specific role (and indeed a positive role) in the area of renewable resources in a society characterised by marked social inequalities that only emerge after deepened analysis of social interaction. Could not these inequalities constitute an obstacle to changes in the manner in which renewable resources are appropriated, and new public amenities and shared resources are constructed?

## **2.3. Empirical material and concepts**

### **2.3.1. Field material**

This research was conducted in several stages which corresponded to periods in the field of short duration during which studies of the farmer organisations, their history and their activities were implemented (November 1992). We were also involved in a research-development project with CADEF - several missions in 1993 and 1994 on agronomical aspects and the establishment of a follow-up system for agricultural production units. Two further periods in 1994 and 1997 then made it possible to complete the data set obtained from the periods with a directly operational purpose. In 1994 an in-depth survey was conducted on a sample of valley or mangrove developments implemented in the Bignona département by

different operators, and also on techniques put forward for improvement of rice cultivation. This opportunity was used to carry out interviews on the history of the implantation of certain villages so as to confront this information with the literature available. In 1997 the last period was devoted more particularly to CADEF development situations on which it was chosen to focus research so as to complete information obtained from the research-development project. On this occasion the history of CADEF was completed via specific interviews with elders and notabilities in the local society and those directly involved in the establishment and development of CADEF.

### 2.3.2. Conceptual references

References and concepts developed by economists working on commonly-owned resources were used in this work. Thus reference was made to concepts set out by Schlager and Ostrom (1992) and Ciriacy-Wantrup (1971) that make it possible to distinguish between rights coming into play at operational level and rights at a collective-choice level, given that this is "the difference between exercise of a right and participation in the definition of those rights". Schlager and Ostrom state that "the authority to devise future operational-level rights is what makes rights at collective-choice level so powerful".

In the field of shared-property resources, Schlager and Ostrom (1992) also define two types of operational rights and three types of collective-choice rights.

*Operational rights* are defined as follows:

- access rights which determine who can physically enter the physical domain of the commonly-owned resource;
- harvesting rights relating to the product of the commonly-owned resource.

*Collective rights* defining the terms of exercise of operational rights concern:

- management rights: the right to regulate use and to alter the resource via adjustment or development processes.

*"Individuals who hold rights of management have the authority to determine how, when and where harvesting from a resource may occur, and whether or how a resource may be changed".(Schlager and Ostrom, 1992)*

- exclusion rights: the right to decide who has access to the resource, and on what terms this right is transferable.
- alienation rights: the right to sell or lease one or both collective rights of management and exclusion.

The possession of the different types of rights enables Schlager and Ostrom (1992) to define differentiated status for individuals concerned by commonly-owned resources. Thus they distinguish between individuals according to the types of right that they have and/or that they contribute to defining. These notions should be seen alongside the concept of the manner of appropriation (Weber 1991, Weber, Reveret, 1993) defined in very succinct manner by the five following levels:

*"i) **representations** of nature constitute the first level of appropriation of the ecosystem, and revert to what E.Ostrom terms 'constitutional choices'; ii) possible **uses** of the resource are*

*the second level of appropriation, and these are not determined solely by the existence of a market. It is around use that interaction between natural and social dynamics occurs, and that natural sciences enter into the analysis of appropriation mechanisms. It is here that management of risk is enacted, or that uncertainty linked to natural variability is taken into account; iii) **terms of access to resources and control of this access** form the third level of appropriation. Rights of access to resources are transferable, within a generation or from one generation to the next, according to a very varied range of possibilities (among which ....) Sale on a market constitutes merely one possibility among others; iv) **transferability of access rights** constitutes the fourth level of appropriation; v) finally, the way in which the resources, or the fruit derived from them, are **distributed or shared** within the group defines the fifth level of appropriation."*

### **3. Social inequalities, resource appropriation mechanisms and co-ordination**

#### **3.1. The dam and new forms of co-ordination**

Though on the face of it a simple matter, the construction of a dam entails the mobilisation of renewable resources managed by the lineage chiefs within the scope of customary institutions, in a context where the founding lineage of the quarter can lay claim to an eminent right over land tenure and the related renewable resources. The construction of a dam also entails the mobilisation of material resources and technical know-how from outside the organisation<sup>3</sup>.

The dam contains rain and run-off water thus creating a new collectively-owned resource which will need to be collectively managed for use that is at once collective and individual, in a partially compatible manner, and this all occurs on areas that can be the object of competition for different uses.

The uses made of the new resource require co-ordination and arbitration between the opening of the system to provide the water essential for the desalinisation of land, and the closing of the dam to keep as much water as possible for rice irrigation. With the need for co-ordination of opening and closing of the dam in order to satisfy contrasting needs above and below, it also entails strong tensions aggravated by climatic uncertainty.

Further to this, it involves fine-tuned co-ordination in terms technical itineraries for rice fields: the zones closest to the dam should be sown early with long-straw varieties, and the more distant zones sown progressively as the water level rises. The sowing dates, which are determined individually, require co-ordination with flooding levels that are determined in collective manner. There is also another level of co-ordination that needs collective management, which is that the valleys are areas disputed at the start of the rainy season for rice cultivation on the one hand and grazing on the other.

#### **3.2. Inequalities, organisation and levels of decision-making**

##### **3.2.1. A technical approach centred on water control, but with direct social consequences**

In the first phase, the organisation made it possible to obtain a compromise within the local society on technical questions, in particular that of water control. Action initially concerned



control of water in the dry season, then consideration was given to the production system overall.

The CADEF in the first stages developed a militant strategy, based on the mobilisation of women and young men via the reactivation of certain alliance networks between quarters and/or villages, at the same time giving some attention, but to a varying degree, to support from relevant custom-based personalities. This militant action resulted in the establishment of groups which formed around vegetable and fruit-grower units or "blocks", which arose from their being seen by the population as a response to the need for a solution to recurring climatic crises<sup>4</sup>. In this zone the groups set up mainly on the basis of quarters, which are the basic social entity in this population, and hence also in the appropriation of renewable resources.

These groups possessed a strong social and symbolic value, since they entailed attribution by the elders of land resources to women and young people, and involved collective action on the part of all the families in the quarter. The vegetable grower blocks were places of encounter and exchange where women and young men were able express themselves; they enabled CADEF officials to constitute a social base, to share their diagnosis of the crisis and their project for the future of Fogny agriculture, and to initiate their first operations in the area of vegetable and fruit production. The action initially undertaken thus contributed to providing specific technical responses to development problems in the vegetable grower blocks, while at the same time promoting the integration of young people (juniors, young women) at group level, via functions of responsibility (*animateurs*).

CADEF was built on young people (male and female) between 25 and 30 who had returned to the area to take part in the establishment of the organisation in the first eight villages, and then these groups gradually selected some hundred other young people who were to be trained to become group organisers or *animateurs* (training and literacy in Diola). This training for organisational functions contributed to the rehabilitation and social promotion of women and social juniors.

However, the work on the vegetable production blocks very soon reached its limits, since they did not affect the economic foundations of the production systems. Pursuing the collective reflection at group level, and then at overall organisation level, CADEF then turned to the crucial problems of water control during the rainy season by giving priority to development of the valleys and rehabilitation of rice cultivation, which is a dominantly female occupation in the area. The status of women's work was enhanced by the fact that the collective effort mobilised all social categories to build the first dykes, thus restoring the capacity the women had to fill the family grain store.

In the second phase, the organisation established specific structures to meet technical challenges involved in the establishment of new forms of co-ordination at valley level to manage the new common resource.

The management committees were decentralised structures intended to provide long-term social and technical management for each dam. The first management committees were set up experimentally in one of the CADEF action zones, Bougoutoub, capitalising in empirical manner from the start-up of the first dam. The functions of the management committee were all-embracing and were intended in the short term to make full use of the development in the course of the growing season so that as great a part of the valley as possible could be

cultivated: water management in concertation with the beneficiaries, surveillance and upkeep of the dams and other facilities, extension work on individual techniques, contribution to the containment of wandering livestock at the start of the growing cycle.

In this valley, several dams were progressively built making it possible to ensure water supply for rice production for all the quarters in the village, all CADEF members, and the riparian inhabitants of other villages also derived advantage from it. The way in which management was structured involves two levels: the **management committees**, which operated on each dam - there are three in the Bougoutoub valley, one per dam - and the Bougoutoub valley dam **co-ordination committee**. The distribution of functions between these two bodies shows significantly different compositions in terms of power. Further to this, in other development situations in valleys under study, the relationships between group leaders and members of the management committees on the one hand, and authorities from customary structures on the other, partly explain contrasted results obtained by CADEF.

### **3.2.2. Social inequalities, technical co-ordination and institutional legitimacy in the case of Bougoutoub valley**

The new structures, which had been established to respond to technical issues, emerged as venues for expression and statement of direct interests on the part of non-dominant categories.

The co-ordination committee comprised a majority of individuals more or less directly connected with the founding lineage: those directly connected belonged to the quarter that founded the village (Katadié) and more specifically to founding families; those indirectly connected belonged to peripheral quarters established by breaking away from the founding lineage. This observation should be seen in line with the homogeneity that characterises the structure and the history of the peopling of the village of Bougoutoub. Individuals closely allied to the founding lineage had a part in the co-ordination committee, where they were represented by the head of the family (that arrived under the direct tutelage of the founders of Katadié), and he also occupied the politico-administrative functions of quarter chief. More than half the men in the co-ordination committee (six out of eleven) directly or indirectly assumed responsibilities in initiation rites for men, and two of them directly occupied important functions in the conduct of the ritual, which conferred extra authority upon them. Nearly half the members of the co-ordination committee were elders; only a minority (three out of eleven) were heads of family or fank chiefs, hence exerting direct control over production tools and individuals belonging to the family; the others, i.e. the majority, were heads of households.

Politico-administrative responsibilities were significantly represented in the co-ordination committee which included the village chief, two quarter chiefs, two rural councillors and three political figures, a total of 8 "notables" occupying political and administrative functions, out of 11 men on the committee.

The comparison of the composition of the management committees with that of the co-ordination committee highlights points in common, but also significant differences.

The families directly connected with the founding lineage were represented by a majority in the three dam management committees just as they were in the co-ordination committee. The difference between the three management committees lies in the varying degree of implication

on the part of people directly in charge of initiation ceremonies. They were significantly represented in the Banny dam committee (three individuals playing a direct part), they were also present in the Sounaye dam committee (two people), but not in the Margouine dam committee. Hence it would appear that this sort of representation is not essential to this type of structure.

Political and administrative responsibilities were present in the three committees, but less significantly than in the co-ordination committee: no administrative agent among the members of Sounaye and Margouine dam committees, and only one peripheral quarter chief among the Banny dam committee members, but this person also wielded authority above all on account of his functions in the areas of custom (initiation) and family (fank chief).

Differences with the co-ordination committee also appear in the distribution of functions and age groups between the two types of committee. The management committees comprised a larger proportion of individuals considered in the local society to be intermediaries between the young and the elders, and who play a significant part in village dynamics with the "youth", the youth centre, or as intermediaries in concertation requiring the implication of the elders and "sages". The composition of the dam management committees was also influenced by operational parameters connected with their functions: juniors considered to be dynamic and who had proved their commitment to the general interest of the village had priority for selection to the management committees; proximity of place of residence to the dam was also an important technical criterion since it conditions speed of intervention in case of heavy rainfall. Generally speaking, the management committees included representation of the different age groups or generations: the "elderly" generation (but not elders or sages), the intermediate generation, and the young, the latter being necessarily initiated and married. In the co-ordination committee, even if the junior generation was represented, the proportion of young people was smaller than in the management committees.

Thus, the composition and the functions of the two types of committees can be interpreted in the following manner. The management committees appear to constitute an operational entity enabling concrete application of collective rulings which require the adaptation of cultivation practices in the fields: it is the committees that determine water depths in concertation with the women who manage the cultivation of the rice fields, that circulate the technical information, along with CADEF staff, required to adapt the technical itinerary (varieties according to flood levels, sowing dates, containment of wandering livestock). The authorities, whatever the nature and legitimacy of their power, are represented in these committees, but they do not have a drive function as they do in the co-ordination committee.

The co-ordination committee has a function that could be termed institutional and regulatory, upstream from the day-to-day management of the dams. The authorities and those to whom authority has been granted are represented in a significant manner (segments of the founding lineage, elders, initiation figures, politico-administrative agents and women with recognised social position) and hence enjoy undisputed authority. They intervene as a body for resolving disputes, have the responsibility for determining the most suitable modes of negotiation in case of conflict or discussion with the other riparian villages.

The two types of structure do not intervene at the same level: the management committees are responsible for the running of the dams and the technical regulations intended to make optimum use of the common resource, while the co-ordination committee intervenes to

guarantee the social legitimacy of the management committees and their interventions with respect to villagers and inhabitants of other riparian villages. These observations, in a singularly different context, are in line with the hierarchies between different levels of decision developed by Ciriacy-Wantrup (1971 and 1967), where three levels are distinguished : the constitutional level, the institutional level and the operational level.

### **3.3. Inequalities and legitimacy of the structures of the organisation: comparison of the several situations**

In Bougoutoub there is marked coherence between CADEF structures and customary power structures, while in Diagong there is a noticeable hiatus between those wielding customary power (those who have the say) and the people implicated in CADEF structures at local level. CADEF action is carried out with their agreement, but the choice they have made of positioning themselves outside responsibilities in these structures has eventually undermined them with regard to the outside.

In the case of Diagong dam, despite a sometimes very long-standing presence on the land and hence several generations of living alongside founding lineages, allochthonous families are still considered to be 'foreigners' in relation to village founders, and this status is also generally extended to allied families. If the families considered as 'foreign' are in a situation of dependency with respect to founding lineages in questions of land tenure, and under their authority for initiation matters, they do however hold positions of responsibility in the political and administrative fields (village notables, political figures) and in the associative field. Elected representatives on the CADEF board were not from families connected with the founding lineage, which indeed has no particular private or public function. Allied families and 'foreign' families therefore found themselves in a dominant position in posts of responsibility in the CADEF group as well as in the dam management committee. It is as if the founding families delegated this type of function and power to the families taken in later, in that they were also members of CADEF, but did not take a prominent part in it. Certain turns of phrase seem to illustrate this dichotomy in the distribution of power in the Koussoubaly quarter particularly well:

"The people in the dam management committee stayed on in Diagong, they were given power for the dam, but they cannot be given power for initiation"

"The people in the management committee have no 'political' function in traditional society."

"People sometimes give posts with responsibility to people who are available but who have no word in society".

This hiatus between 'customary power' and 'modern power' seems to have played a significant part in the difficulties encountered for the implementation of the dam development and ensuring its survival over time. If this dichotomy in the distribution of power would seem to be an essential explanatory factor, it is however not sufficient to fully explain the failure of the operation as it can be observed today. Other factors need to be identified in the conditions and terms of CADEF intervention in this valley.

The case of Suelle is different again in that the implication of CADEF in this very large Fogny village was achieved indirectly via agreement between associations (CADEF and a farmer organisation) and on the basis of weaker links between the founders of the Dakar group and the population. The social situation is complex and shows fractionation of power linked to population history and more recent political and social cleavages. Hence, the legitimacy both of the groups and the management committee can be questioned.

### **3.4. The farmer organisation contributes to altering modes of appropriation of renewable resources**

Farmer organisations play a definite part in the evolution of the manner in which renewable resources are appropriated. This part can be explained by the mobilisation of subordinate social categories - women and juniors - and depends directly on the compromises that the organisation is able to make with those who wield customary power.

The groups constituted around the vegetable producer blocks represent the first level where triggering of change in the mechanisms of resource appropriation materialises. This change relates to the terms of access to renewable natural resources and their use. Vegetable production income escapes the control of those with power over land because it is exclusively controlled by women. Thus the change in natural resource appropriation processes on the plateaus was only partial. Even if a change of this sort is significant with respect to the status of women in the society, it remains precarious, since it depends on the pursuit of vegetable garden activity. This activity can indeed be threatened for economic reasons, and in particular by the deterioration of economic circumstances which could render the activity less attractive. It can also be questioned by those who hold power over land tenure and can at any time withdraw the land that has been made available.

On the land used for rice, action undertaken by CADEF did not alter representations and usage relating to these resources mobilised for agricultural production. The concertation framework formed by the groups, and especially the management committees, when they functioned, was used by the women to increase their influence over the terms of resource use. Controlling the way in which resources are used conditions the return from the work provided by the women in the rice fields.

On the plateau land farmed by the men in rain-fed cropping, the action of the farmer organisation did nothing to change the resource appropriation processes. Each year, as the rainy season approaches, part of the land is given over to rain-fed cropping, while the previous year's plots are returned to fallow, and are used by the livestock taken there in the rainy season. This itinerant cropping system, collectively determined by the elders, does not promote strategies for environmental improvement on account of the decisive part played by livestock in the system.

It would appear that livestock and their management are at the heart of the decision-making processes of the elders and family representatives in this type of setting, as well as in developed rice units. The livestock managed by the elders who are heads of families indeed constitutes a far more significant reference than crops, as is seen in the difficulties encountered by the women in keeping the animals out of the rice fields at the start of the rainy season, although this is essential for the proper use of the dams. In this area, the technical activities of

CADEF did not arouse as great a mobilisation as in the valleys, and success was very limited. If the lack of available technical references for slope and plateau developments is certainly an explanatory factor, it is still only part of the story, and takes second place to the increasing importance of grazing areas, that have doubled over 30 years, as well as to the social and economic weight of livestock in family strategies governed by elders and heads of families.

The importance of livestock appears repeatedly in literature on Diola societies in Basse Casamance, but the emphasis has been put by many studies on the rice cultivation, where the mangrove developments interested observers for their technical qualities. However, literature over time repeatedly refers to the rice/livestock equivalence, while at the same time no equivalent importance has been given to the study of the social and economic dynamics specific to livestock<sup>6</sup>. Further, it appears that the surface areas used for large-scale cultivation have decreased by half in the *département* since the sixties, which has made some 40 000 ha available for grazing. These herds are now at the heart of the production system and condition possibilities for initiative in the area of management of renewable resources. It seems to us that one condition for collectively improving the management of renewable resources in the area is to understand the social and economic logic linked to livestock and the rationale of use by livestock of the available space.

## Endnotes

<sup>1</sup>. In Basses Casamance societies, initiation is still the decisive moment in a man's life, since via this ceremony he attains adulthood, can then marry, and acquires the right to speak in customary assemblies where among other things issues relating to management of renewable resources are dealt with.

<sup>2</sup>. It should be recalled that the *kellumak* refers to the place where meetings of elders are held, and by extension this term can mean the assembly itself.

<sup>3</sup>. In all too many situations, technical issues appear not to have been the subject of sufficiently thorough study, despite the scope of data available on the region.

<sup>4</sup>. This type of solution (group around fruit and vegetable-growing "blocks") promoted by NGOs and most large multilateral aid agencies (UNICEF, para-public projects on international funding, international NGOs) following the great Sahelian droughts was to meet with very good reception on the part of the populations, for whom these actions served as a basis for strategies of diversification of activities and income during the dry season, thus making it possible to guard against drops in production and income that had occurred in large-scale agriculture.

<sup>5</sup>. Establishment of fencing, drilling of modern wells, improvement of water extraction systems (manual pumps), manufacture of gardening tools, training (production, storage and processing techniques), organisation of marketing.

<sup>6</sup>. The work by Sonko (1986 a and b) can however be mentioned, in which there is detailed study, on isolated cases, of the social relationships in force around livestock.

## References

Berthomé J., Mercoiret M.R., 1992. Situation et évolution des organisations paysannes et rurales. Le Sénégal, Paris, France, Réseau GAO, 87 pages.

Boivin P., Loyer J. Y., 1989 . Mise en valeur des mangroves au Sénégal, Rapport final ORSTOM. Commission des Communautés Européennes, Rapport TSD A 104 (MR), 64 pages.

Bosc P.M., Dardé C., Berthomé J., Mercoiret M.R., Goudiaby B., 1995. Organisations socio-professionnelles : innovations organisationnelles et institutionnelles et stratégies des acteurs. Le cas du département de Bignona au Sénégal. *In* Innovations et Sociétés. Quelles agricultures ? Quelles Innovations ? Vol. 2. Les diversités de l'innovation, Chauveau J. P. et Yung J. M. (Eds), Actes du Séminaire "Innovations et sociétés", Montpellier 13-16 Septembre 1993, Montpellier, France, Cirad-Inra-Orstom, p. 63-75.

Bosc P.-M., 1998. Organisations paysannes et ressources renouvelables en basse Casamance. Les modes de coordination entre acteurs. Thèse, Ecole nationale supérieure agronomique, Montpellier, France. 550 pages.

Brooks G. E., 1975. Peanuts and colonialism : consequences of the commercialization of peanuts in West Africa, 1830-1870. *Journal of African History*, 16 (1) : 29-54.

Brunet D., 1988. Un aménagement hydraulique simple pour la réhabilitation des sols salés : la riziculture en basse Casamance. *Sécheresse* 5 (1) : 37-44.

Ciriacy-Waintrup S.V., 1967. Water policy and economic optimizing : some conceptual problems in water research. *American economic review*, 57 : 179-189.

Ciriacy-Waintrup S.V., 1971. The economics of environmental policy. *Land economics*, (Feb.) : 36- 45

Ciriacy-Waintrup S.V., Bishop R.C., 1975. Common property as a concept in natural resource policy. *Natural Resource Journal*, (15) : 713-27.

Cormier M.C., 1985. Les jeunes diola face à l'exode rural. *Cahiers Orstom, séries Sciences Humaines*, 21 (2-3) : 267-273.

Dardé C., 1995. Les initiatives individuelles et collectives des femmes rurales. Approche socio-économique des activités des femmes dans le département de Bignona (Sénégal). Thèse de doctorat Agro-économie, nouveau régime. Montpellier, France, ENSA, 337 pages + annexes.

Linares O. F., 1992. Power, prayer and production. The jola of Casamance, Senegal. Cambridge, Royaume Uni, Cambridge University Press, 262 pages.

Mark P.A., 1985. A cultural, economic and religious history of the basse Casamance since 1500. *Studien zur Kulturkunde*, 78. Franz Steiner Verlag Wiesbaden, GMBH, Stuttgart, 136 pages.

- Montoroi J.P., 1995. La riziculture inondée en basse Casamance. Contribution des petits barrages anti-sel à la réhabilitation des bas-fonds chimiquement dégradés par la sécheresse. *In* : Les rizicultures de l'Afrique de l'Ouest, Cheneau-Loquay A., Leplaideur A. (Eds), Montpellier, France, Cirad, p. 379-392, (Version provisoire 1997).
- Ostrom E., 1990. Governing the commons. The evolution of institutions for collective action. New York, USA, Cambridge University Press, 280 pages.
- Ostrom E., 1992. Crafting institutions for self-governing irrigation systems. San Francisco, USA, Institute for contemporary studies press, 111 pages.
- Reboul C., 1989. Monsieur le capital et madame la terre. Fertilité agronomique et fertilité économique. Paris, France, Edition EDI-INRA, 256 pages.
- Roche C., 1985. Histoire de la Casamance. Conquête et résistance : 1850-1920. Paris, France, Khartala, 401 pages.
- Schlager E., Ostrom E., 1992. Property-rights regimes and natural resources : a conceptual analysis. *Land economics*, 68 (3) : 249-62.
- Snyder F.G., 1978. Legal innovation and social change in a peasant community. A senegalese village police. *Africa*, 48 (3) : 231-247.
- Wade R., 1988. Village republics : economic conditions for collective action in south India. Cambridge, USA, Cambridge University Press, 238 pages.
- Weber J., Reveret J.P., 1993. Biens communs : les leures de la privatisation. *Le monde diplomatique*, *Savoirs*, (2) : 71-73.
- Weber J., 1995. Gestion des ressources renouvelables : fondements théoriques d'un programme de recherche. Paris, France, Cirad-Green, *Multigr.*, 21 pages.
- Weber J., 1996. Aujourd'hui, demain, le développement durable. *Science et Citoyens*, *CNRS*, Poitiers, *Futuroscope*.
- Yung J.M., Zaslavsky J., 1992. Pour une prise en compte des stratégies des producteurs. Montpellier, France, Cirad-Sar, *Collection Documents systèmes agraires n°18*, 76 pages.



parison of the three CADEF valley development situations

	COHERENCE BETWEEN CADEF AND CUSTOM STRUCTURES OF LOCAL POWER	CADEF TECHNICAL ACTION	INTER & INTRA VILLAGE RELATIONS	ROLE OF LEADERS IN THE DYNAMICS	FUTURE
UB	Strong coherence with local customary power	Strong implication of CADEF in the technical field, backing up strong associative dynamics ; technical experimentation zone	Conflictual with other riparian villages but managed by negotiation	Important part played by <i>animateurs</i> ; associative dynamics enable significant social role in the village at an early stage	Solid dynamism to other riparian villages in the development
	Hiatus between customary authorities and local CADEF leaders	Action overall weak, especially in terms of impetus and training; chronic lack of leader	Conflictual intervillage relations connected with dam, not arbitrated by customary authorities; social cohesion moderate between village group connected with founders and the other quarters	First leader died and was never replaced; CADEF tried to compensate for this absence	The social pressure exerted by neighboring villages eventually better of the : gradually disappearing water, but also animals, all this because customary authorities re outside the domain granting only insufficient benefits
	CADEF dynamics intervened in a highly conflictual socio-political arena; the establishment of CADEF was the result of negotiation with an association considered at the time to be a competitor; links with the Dakar network also appear weak; marked internal cleavages	Relatively modest technical action in comparison with the size of the valley which should have involved numerous developments above the anti-salt dam, which was itself essential	Superposed antagonism of various origins, strong intervillage cleavages	Strong mobilisation of local leaders and particularly CADEF staff. A lot of time was spent on mobilising populations in a context of cleavages and armed conflict	The future of the valley depends on the role of CADEF and local associations to mobilise resources and mobilise the population required to develop the valley as a whole