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REINVENTING THE COMMONS

## West-African Coastal Societies and fishery spaces

M.C. Cormier-Salem,  
researcher in geography, Orstom,  
Centre de Montpellier-Laboratoire d'Études Agraires

PRELIMINARY VERSION

### Introduction

West-African small-scale fishing is characterised by a very remarkable dynamic. It is designed as the blue gold of a lot of West-African countries. This sector is very important, economically (high increase of catches, market integration) and socially (increase of fishermen population). This sector is also characterised by its diversity. A long range of the studies have underlined the complexity of West-African fishing systems, each of them based on specific ecosystems, resources exploitation, techniques, commercial network and social organisations. Fisheries intensification, fishing systems diversification and migration patterns extension are for sure the major phenomena of the last 40 years. These changes lead to question the forms of resource regulation.

From a certain point of view, open property resource and predator behaviour of migratory fishermen are considered as the conditions of this dynamic. Fishery resources over-exploitation and/or conflicts between fishermen communities (outsiders vs indigenous, migratory vs sedentary, inland vs maritime fishermen etc.) could be seen as the lonely issues.

However, without denying these risks, most of the studies about West-African small-scale fishing emphasize the efficiency of community-based management and control of resources.

The aim of this communication is to show the complexity of resources regulation and spaces appropriation among West-African societies. Through the case study of the Southern Rivers (the West-African coast from Senegal to Sierra Leone), the attention will be first focused on methodological approach. Then a new definition of the notion of fishing territory will be suggested and discussed.

## 1-GEOGRAPHICAL APPROACH OF FISHING SPACES

### 11. Frame of the research

Researcher of Geography in ORSTOM; 10 years in Senegal; Ph D about geographic study of aquatic spaces in Casamance (South region of Senegal). multidisciplinary research programme about Casamance fishing with 3 sub-programmes : 1-environmental factors 2-biological studies 3- socio-economical aspects. For this last aspect, place of fishing in farming systems was the major question. Studies were focused on : environmental changes processes, strategies of rural communities to face agricultural crisis, relations between fishing and agriculture, resources management and appropriation, process of territorialisation and aquatic products commercial network (from fishing, oysters gathering to consumption).

The major place of mangrove swamps and uses in Casamance leads to enlarge the research programme from fishing system to coastal system. Mangrove perception, uses and appropriation are the major themes. Through the Casamance field studies, the new concept of "amphibious communal territory" is defined.

Since 1993, as head of a research programme about "Mangrove Dynamic and Uses in the Southern Rivers", a multidisciplinary and comparative approach has been developed. The main scientific aims were first to demonstrate the spatial and temporal diversity in the uses and values of mangrove ; second to examine the "state of the art" in our understanding of the "Southern Rivers" mangrove ; third to question our pre-conception of coastal wetlands (healthy or unhealthy, rich or poor, fragile, virgin or overcrowded milieu).

### 12. Geographical approach

Geography, as a social science, is commonly defined as the study of societies and environment relationships. The most important word in this definition is perhaps the word "relations". What does it mean for a geographer concerned by coastal societies and environment relations ? The study of land and sea interfaces, fishing and agriculture interactions, sedentary peasant-fishermen and migratory fishermen interrelations implies to adopt a holistic and integrated approach of facts and phenomena.

The main object of study is less a specific ecosystem (swamps, wetlands, sea, estuary etc.) or a specific sector of activity (fishing, agriculture, gathering)

than space management that means : interpretation of coastal and maritime spaces by rural communities (uses, appropriation, perception).

The coastal societies and environment relations structure space. The concept of space (geographical space) is central : it means in the same time a physical support, a social product and the stake of social relations. Then, it is a historical product.

### **121. Complexity of societies and coastal wetlands relations**

The complexity of societies and coastal wetlands relations is expressed at a double level :

1-Aquatic resources are difficult to analyse because they are multiple, liquid, mobile and ... in common property.

2-Coastal wetlands are complex, composed of various ecosystems between land and sea. From our point of view, to catch for instance mangrove's functioning, uses and values, we have to adopt a very large definition (in contrast with restricted definition of "pure" ecologist") : mangrove concerns not only mangles but all the areas colonised by mangles, all the areas, before colonised by mangroves, and now converted (urbanisation, ricecultivation, aquaculture etc) ; in fact all the areas under the influence of mangrove and its component ; that means aquatic and amphibuous areas from continental shelf to lowlands.

These areas are managed, perceived, controled by populations. In our analysis, actors are central.

### **122. Methodological approach**

First step consists in an analythic approach based on field studies to determine who do what? Where? How? When? etc. Means are census and inventories as complete as possible at the largest spatial scale. Data are both qualitative and quantitative about natural resources, uses, actors

Actors concerned with coastal wetlands are very diverse : there are local actors from ricecultivators to herders and fishermen, and also private entrepreneurs, public managers, and also .... scientific researchers. All of them have their uses, techniques, practicals and strategies and manage their environment with their specific perception and representation.

Second step of this approach has to be synthetic to catch combinations of resources-techniques-actors and dynamic of these combinations : whare are the actors strategies ? Selection of relevant observation units according to the specific questions is one of the most difficult problems. It leads to diversify observation units and to articulate spatial scales and level analyses.

Geographers have to adopt a global and integrated approach through various indicators at different scales of time and space. One of the main aims is to define the socio-spatial constructs gendered by actors groups and to question competition or complementarity between activities ? exchanges or conflicts between actors ?

### **13. Presentation of the case study : the "Southern Rivers"**

#### **131. Specificity of the Southern Rivers or Upper Guinea Coast**

The Southern Rivers unity is based of these major features (See Map 1):

- estuarine coast (ria) colonised by mangrove
- major place of ricecultivation and especially of mangrove ricecultivation with sophisticated technics of tidal control, water and soil management
- first place of rice ("rice civilisation") but besides, other secondary activities. See profile about multiple uses of coastal wetland resources from upland to lowland, mangrove and river. Diversity of resources (mineral, vegetal and animal) from timber, charcoal, salt, rice to fish, crabs, oysters etc. gives opportunities to elaborate multiple use system : fishing, gathering and herding are most often secondary activities. These renewable resources uses could be seen as complementary or competitive activites to ricecultivation, fishculture, or also national reserves. Diversity of actors - from cultivators, herders to peasant-fishermen, occasional fishermen, full-time migratory marine fishermen - could also be seen as a source of conflicts... or reciprocal relationships.

Coastal and marine spaces are diversified, structured by multiple combinations between resources, techniques and actors. These combinations are multiple according to local, regional and global context and varie also in time. It implies to take into account in our analysis the modifications process and the innovations strategies adopting to cope with environmental changes.

#### **132. Dynamic of coastal wetlands uses and actors strategies**

Most of the studies emphasize two factors of changes in West-Africa in the last 40 years :

- Urbanisation and migration toward cities (as soon as 1950s) ;
- "Sahelian" drought (since the end of the 60's).

These demographical and ecological changes are examplified by the political and economical crisis that overwhelmes all the West-African countries.

Besides, most of the studies underline the remarkable adaptability of farming systems. This flexibility is largely due to resources diversity. Here, the "resources" are not only ecological but also institutional. It means, actors adopt innovations strategies to catch new opportunities and/or to face environmental changes.

Also, the study of "Southern Rivers" dynamic shows 3 main trends of changes : first the decrease or retreat of traditional resources exploitation as swamp ricecultivation ; second, the development of usual resources gathering as oysters, salt, wood, now considered as market products ; third, the emergence of new activities as fishing linked to technical innovations - as large nets and motor for dug-out canoes - and organisational innovation as extended marine migrations.

In fact, actors strategies are extremely diverse. One of the best indicators is the place of marine fishing. At the "Southern Rivers" scale, the retreat of ricecultivation and the development of fishing are the two major phenomena. But, the study of farming systems dynamic shows contrasts from the north to the south. These contrasts are for sure connected with different ecological conditions (precipitation in Saloum areas less than 600 mm ; in Guinea more than 4 000 mm). But, from our point of view, the main factors of contrast are historical and social.

Schematically, in the Saloum islands, specialisation in marine activities occurs very early. In the Casamance region and in the North of Bissau Guinea, the major tendencies are retreat of swamp ricecultivation, development of inland and marine fishing, development of upland cultivations. In the South of Bissau-Guinea, Guinea and Sierra Leone, conversions of wetlands into ricefields are always (and may be more and more) in process.

Our purpose is now to focus on spatial strategies and pressures under common property resources. There are diversified spaces elaborated and controlled by rural communities of coastal wetlands. Farming system diversification is one of the main strategy of these communities to face environmental changes. The second main spatial strategy of actors is mobility : migration toward cities, toward foreign lands ... and (always) rural migrations. See cases of migratory fishermen communities from Senegal (Lebu, Wolof, Niominka), Sierra Leone, Liberia (Kru) and Ghana (Fanti, Ga).

## 2- FISHING TERRITORY CONCEPT IN QUESTION

Two main spatial strategies -mobility and migration patterns extension ; diversification and multiple use system development- lead to question fishing spaces reorganisation and process of territorialisation among coastal communities. In other words :

- Do migrations of fishermen outside their native places imply conflicts between migratory and local fishermen?

- Does diversification of coastal (fishing-farming-herding) systems imply over-exploitation and pressure on resources ?

These risks are real. See for instance the Casamance conflicts between "northern" and "southern" fishermen. See also the expulsion of Ghanaian fishermen from Guinea. However, most of the studies emphasize the efficiency of TURF (Territorial Use Rights in Fisheries) among coastal communities and their ability to prevent or resolve conflicts.

### 21. Distinction of two main socio-spatial constructs or territories

To prevent competition for resources (and also ecological disaster), coastal communities are used to adopt strategies of avoidance or complementarity between them. In fact, census of literature on this topic and field studies in West-Africa lead to identify 2 major types of coastal communities, with their own exploitation systems, their specific socio-economical organisation and their proper type of fishing territory.

In one hand, peasant-fishermen communities are settled along estuarine or deltaic or semi-open aquatic ecosystems between land and sea. The various resources of such ecosystems are exploited with a large set of techniques. These communities, more or less sedentary, have elaborated multiple use systems, that structure "amphibious communal territories" (See Map 2). Ricecultivation, inland fishing, wild fruits gathering and animal husbandry are the major complementary activities. Communal resources access is regulated according to customary rights. Intensification and diversification are the main strategies to face environmental changes (and especially population increase). Communities members respect these customary rights inherited from their forefathers, connected to ancestral religions.

In the other hand, marine fishermen communities are specialised in fishing and sea activities (navigation, trade). Their strategies are based on mobility : they are always in quest of new fishing grounds, new fish stocks and tend to extend their fishing migration patterns. Marine resources are officially open to access for sea-canoe fishermen. However, migratory fishermen, as

nomadic herders, controle specific fishing roads or "paths" structured by biotopes but also fishing markets, camps and harbours, fishing equipment (fuel and motor) center. Their fishing territories are composed of discontinuous and more and more extended areas, organised as migration paths and based on social and spatial networks.

Contrasted spatial strategies (intensification versus extensification; diversification of activities versus migration and diversification of fishing systems) and territorialisation processes (communal territory of peasant-fishermen versus migration paths of marine fishermen) can be summarised in the following table.

Characteristics	Communal territory	migration pattern
form	continuous, contiguous	discontinuous, net form
size	limited	more and more extended
frontiers	fixed	mobile, moving, open
limits	not permeable	permeable
resources	concentrated	diffused
	sedentary	mobile
	predictible	uncertain or unpredictable
	high value per surface unit	low value per surface unit
property	precisely controled access by community	communal, equal property
	diversified from private to communal	equal access with regulation
	property ; inequality among members	Territorial Use Rights
uses strategies	intensive	extensive
	conservation	efficiency, "predator", pioneer
cultural sens	strong linkages between society and land	mobility, as a life style
	territory belongs to God	
societies	peasants (peasants-fishermen)	hunters -gatherers
		nomadic herders
		migratory fishermen
relevant areas	closed or semi-open areas as lagoon, swamps, esturary, coral reef, mangrove	open areas as savana, bush, tropical forest, sea

Compared characteristics of communal territory and migration pattern

## 22. Validity and limits of this distinction

This contrasting spatial strategies and fishing territories are in fact ideal typus. This opposition is formal and should be seen as a model. It has to be applied to compare man-environment relations in different context.

Reality for sure is more complex

Also, along West-African coast, communal territories are more diverse. See Toffinu territory (Benin) structured by fishing activities ; See Diola territory ( Senegal) structured by multiple use system ; See islanders territory structured by maritime activities in coral reefs of Pacific .

Spatial strategies of communities are dynamic. Innovation strategies are in process in so far members of peasant-fishermen communities convert themselves to migratory sea fishing. They go away from their communal territory to conquest new spaces, they extend their migration pattern and so, formulate new territorial uses right on wetlands and sea.

Ability of coastal communities to adopt innovations... even institutional innovations (for instance to modify TURF and adapt them to changes) is the best guarantee of communal regulations 'efficiency. In contrast, it appears unsuitable to enclose fishing territory, to fix limits, to define fishing zones, overall for mobile resources. See for instance the case of shrimp fishery in Casamance and the gap between official fishing zone and ecological and socio-economical conditions.

Besides, territory, as a socio-spatial construct, is less determined by resources (stricto sensu : fish) than relations between groups and inside groups. Fishing migration is less a response to resource scarcity than choice to go away from the native village to avoid elders control, social and familial pressure and to acquire financial autonomy. Very often migratory fishermen are the youngest of the community.

Do fishermen choice their migration patterns according to abundance of resource ? In fact, overall, the choice is determined according to the ability of migratory fishermen to integrate the social and commercial networks of their migration pattern, that means to have access to harbour, communal territory (to settle for instance their camp), market.

So, fishermen either migrate where local populations do not exploit fishing resources. See for instance Niominka migrations in the "Southern Rivers". See Temne migrations in Guinea. Here, relations between migrant and indigenous communities are based on exchange of products (fish versus rice) and services (transmission of knowledge) but also very often socio-cultural links (same origin, same religion, intermarriage etc.).

Either, migratory fishermen adopt fishing systems unknown or non adopted by local populations. So, they distinguished themselves from local fishermen by exploiting others aquatic ecosystems, fish stock, with different fishing nets or dug-out canoes, through different commercial network (strategy of avoidance). See for instance Sierra-Leonese, Krumen and Fanti in Guinea or Tukuler in Casamance.

Endly, communal territory as fishing migratory paths are *res communes*, in contrast with high sea perceived for most of coastal communities as a dangerous, unknown areas, as *res nullius*.

#### **Conclusion :**

Marine fishery development all along West-African coast is without any doubt a major phenomenon : it implies new fishery techniques such as motorized canoes and large nets, complex social relationships among the crew members, lastly a new management of the fishing spaces, based on interregional and long term migrations outside of the communal territory. The expansion of sea migrations shows the land people's ability to convert into marine people, this means that they change not only their technical and economic organization but also their cultural references.

Such modifications can be analysed as a wonderful adaptation or a risk of acculturation and competition between traditional activities and fishery. Moreover, the increased number of fishermen may lead to the aquatic resource overexploitation and be the sources of conflicts between the local and outsider fishermen communities.

The purpose of multidisciplinary research programme is to give a comprehensive analyse of society - nature relations . Specific contributions of geographer are :

- 1- to show the multiple uses, roles and values of coastal wetlands
- 2- to underline the diverse stakes concerned with coastal wetlands management
- 3- to reveal various spatial strategies of coastal communities and the innovation processes
- 4- to discuss the efficiency of coastal wetlands legislation and management policies.

Coastal wetlands uses, representations and appropriations are extremely diverse and very often contradictory. Schematically, we can oppose three levels :

1- At a local scale, wetlands are considered as a portion of territory, whose control is in the hands of rural communities. Resolution of conflicts are most often based on negotiation and discussions among members of the group. Most often, relations inside the group are based on kinship, interconnected to lineage territories and ancestral religions. A long range of studies have soon emphasized flexibility and efficiency of such regulations systems.

2- However, most often, at a national scale, wetlands are considered as a public property, as virgin areas, unhabited wastelands that should be converted and exploited to give money (through aquaculture for instance).

3- At the world scale, from the Ramsar Convention, wetlands are protected areas . Men are considered as ecological disrupters, that should be expelled from these zones to maintain biodiversity.

The main problem is to define wetlands status according to these multiple and contradictory stakes (see Rio declaration).

Implications for research are methodological - spatial representations of multiple actors have to be taken into account - and conceptual : New concepts have to be elaborated to catch and feed back fishing territories complexity.

Also, geographic study of societies and coastal wetlands relations leads to analyse uses, perceptions and appropriations of resources by coastal communities. In fact, these communities have different "eyes " (ways, means,) to read their environment and to manage it. The diverse spatial constructs ("amphibious communal territory" , marine fishermen migration patterns ) reveal different relations between societies and sea and coast.

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