Legal and institutional incentives for local environmental management

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Introduction

"Legal incentives for environmental management? Nonsense!" My colleagues' statement was categorical. "Look" he said and pointed at the dry Sahelian scenery around us, where women were tilling the fields with a hoe:" The soil is poor, the rains are poor, the people are poor and they have poor tools. What they need to better manage their land and natural resources is technical innovations and economic incentives." With my legal background I felt challenged and started to defend arguments that laws, rules and institutions actually are important incentives for local management of natural resources. The question is whether the present literature provides evidence for such an argument. Contrary to the rather provocative statement cited above, the answer is not categorically positive but much more variegated.[1]

This article intends to explore the possibilities and limits of law and institutions as instruments for generating changes in environmental behaviour. In the following I will first give an overview of the different schools regarding law and natural resources. Then experiences from different developing countries with emphasis on Africa will be analyzed. Finally, in the conclusion, the relative effectiveness of legal and institutional incentives for local environmental management will be discussed.

[1] I am indebted to Trond Vedeld and Paul Mathieu for their comments on the draft version of this article.

But let me start with a good scientific habit and briefly identify some key concepts employed in this article.

Concepts and Definitions

It is difficult to find a generally accepted definition of incentive. Instead, different types of incentives are distinguished along with proper definitions. Van Campen (1992 : 85) distinguishes *incentives in a wider sense* and incentives in the more restrictive sense. For the first type he quotes the two following definitions :
"Something that incites, or has a tendency to incite to determination or action : something (as fear or hope for rewards) that constitutes a motive or spur" (Webster 1976).
"Any stimulus positively influencing the willingness and/or potential of an individual or organization to undertake a 'desired' action, or to abandon an 'undesired' action" (PLAE, 1991).
According to Van Campen, *incentives in the more restricted sense* are generally distinguished in:

- *economic incentives* which influence peoples' behaviour through market prices;
- *non-economic incentives* which influence peoples behaviour mainly by administrative and juridical regulation.

A third subdivision of incentives is in external and internal. Smith (1994: 2) defines *external incentives* as:
"Inducements derived from a source outside the community, which have a direct or indirect financial value, and are intended to bring about a change of behaviour in the recipients."

For him an incentive implies a transitional measure which is withdrawn once a desired change is established. Smith states that the incentive should be a 'catalyst' for the desired change of behaviour and not the cause of the change. This suggests that the ingredients for change are there but need an external starter agent (catalyst) in the form of an incentive. The ingredients for change refer to motivations that are normally present and, through incentives within the community, generate change in behaviour. However, such *internal incentives* can be weak e.g. due to a lack of cooperation or consensus among community members. Under these circumstances outside support would primarily focus on he capacity of a community to generate

incentives when change in behaviour is needed. Sargent e.a. (1994: 155) make a distinction between *positive and negative incentives* :
"Incentives may best be thought of as signals. They may be negative - disincentives - providing an alert or deterrent, or they may be positive, motivating and indicating action".

We now may define legal and institutional incentives as juridical and administrative regulations which influence peoples' behaviour. They may emanate from the State (in the case of national legislation), from the local community (indigenous laws) or from a project ("project law"). But even though the State is often considered by local communities as an external and distant agent, we may not define state law as an external incentive, because legislation is an integral part of processes of conservation and change in society, it is not an autonomous force acting on those processes. When Smith states that an incentive is withdrawn once a desired change is established, this does not always apply to legal and institutional incentives, which are in principle intended to last.

Before saying something about the adjectives "legal and institutional", it is important to remember that in some more recent publications the concept of natural resource management has simply been enlarged to environmental management, often without explanation. I will mainly focus on the management of natural resources, such as land, forests, pastures, watersheds and so on. In this respect tenure, that is the terms and conditions on which land and other natural resources are held, is a key concept. (IFAD 1993: 3)

Following the well known definition of Uphoff (1986: 8-9), the terms institutions and rules are closely linked : "An institution is a complex of norms and behaviours that persist over time by serving collectively values purposes. An organization is a structure of recognized and accepted roles." In the definition of land tenure systems by Reyna and Downs (1988: 9) this interrelationship is even more apparent: "Land tenure systems may be thought of as sets of rules – at some times customs, at others laws – concerning peoples rights to land, together with the institutions that administer these rights and the resultant ways in which people hold the land." Thomson (1992) analyzes institutions as sets of rules, but according to him : "The concept of

institutions includes both organizations and rules regarding behaviour in an area."

Thus, the two aspects, "law and institutions" and "organizations" are distinctive features in local management. In this article the main focus will be on the first aspect. Organizational aspects, however, form an integral part of the question and more particularly so because, as we will see in the next section, the recent trend in environmental policies is decentralization, the devolution of power to local communities.

Theories and Trends in Local Environmental Management

The interrelationship between legal systems and local environmental management is generally accepted. Incentives and disincentives for sustained management or degradation of resources are generated by the economic characteristics of the resources and by the rules – or institutions – that structure how resources are governed, managed and used[2]. Talking more specifically about national legal systems, Michael Cernea (1994: 189) states: "Such macrosocietal tools as the state, its policies, the centrally instituted legal system, and fiscal levers are to guarantee, reinforce, and stiffen the backbone of even the lowest local resource management system." This, however, does not mean that there exist specific theories dealing with legal and institutional *incentives* for local management of natural resources. Thus, for a discussion of this topic, we have to scrounge from two bodies of social-scientific theory.

The theory of the "social working of law" has been elaborated in recent years in the sociology and anthropology of law. [3] It looks at legal regulation from the point of view of the local actor whose behaviour is to be regulated and poses as its central question: under which circumstances can legal regulation be expected to have an effect on this actor's behaviour, considering all the other features of the local situation of which the actor must take account in making behavioural choices?

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[2] Thomson 1992: 1.
[3] See e.g. Griffiths 1992, 1995.

The second body of socio-legal theory concerns property or tenure.In this respect the characteristics inherent of the various types of natural resources play a decisive role. With regard to land tenure in a more broader sense, it is possible to distinguish two schools advocating a slightly different approach but resulting in a rather comparable outcome. For the first one, more anglo-american orientated, the Land Tenure Center in Madison (USA) may be considered as representative, whereas the francophone mainstream is represented by a network of researchers assembled in the *Association pour la Promotion de Recherches et Etudes Foncières en Afrique* (APREFA). The theory of "the management of communal natural resources" has mainly been developed by institutional economists. It addresses "the various ways in which communities can regulate the use of their natural resources, the circumstances in which different forms of regulation can succeed, and the consequences for a community of the different forms of regulation and of failure effectively to manage its natural resources".[4]

The theory of the social working of law will help us to better understand why a particular legal incentive intended to improve the management of local resources not always has the expected results and sometimes even produces undesired and undesirable side-effects. It focuses on the shop-floor of social life, the place where the activities which the legislator would regulate are taking place. The central question then, is not the intention of the lawmaker, but what the man or woman on the shop floor actually will do. The answer to this question is not an easy one. Several factors have to be taken in account [5]. First, the attitude of farmers, cattle breeders or woodcutters with respect to land, pastures or forests are also determined by social relationships : gender, power relations, status and so on. Second, before the legal message included in the law reaches the (wo)man in the field, it is subjected to various transformations by interpretation or misinterpretation. And third, management and exploitation of natural resources are not subject to just one single, coherent body of legal concepts and rules, but to plural normative systems (state law, indigenous law, religious laws and sometimes also project law) : societies are characterized by legal pluralism [6]. To make

[4] Taale & Griffiths 1995 : 7.
[5] Griffiths 1992.
[6] Von Benda Beckmann, 1991 :78.

it even more complex, Von Benda Beckmann continues: "Over time, both state laws and traditional laws have changed considerably, and hybrid forms of local regulation, made up of elements of various systems, have developed in many Third World regions."

The theory of the social working of law warns us that lawmaking as such cannot always play the role of "catalyst" for the desired change of environmental behaviour in local communities. It allows us to better understand the presented experiences with juridical and administrative regulations for natural resources management.

Let me now give a brief description of theoretical trends with regard to land tenure and the evolution of thinking about the role of law and institutions in their relation to land degradation. In the recent volume edited by Bassett and Crummey (1993), land degradation is linked to insecurity of tenure. In his contribution to this volume John Bruce describes the ideologically based assumption that indigenous tenure systems lead to tenure insecurity and thus constrain farmer innovation and investment. The consequences of this assumption in the African context has lead to two types of land reform: "Reformers in the capitalist mode seek tenure individualization and full private ownership of land (through elimination of community or kin group land management), while socialist reformers seek state ownership and control over allocation of land and, in their more thoroughgoing reforms, collective production in communal villages or on state farms." [7] The most powerful supporter of the private property school is the World Bank currently funding a new series of land titling and cadastral projects. [8]

In both scenarios, the ideology of (either State or private) property has its logical corollary that local land tenure practices are officially ignored, abolished or under-estimated : the State claims the right to control the management of all land, even if it does not have the capacity to do so effectively.

[7] Bruce 1993:36.
[8] Platteau 1991, Noronha 1985, Feder and Noronha 1987, World Bank 1989.

Secondly, the weight of centralism and bureaucratic hierarchy is crushing. [9]

In recent research on land tenure, particularly in Africa, these key features of modern land law systems – the denial of the potential of local land tenure practices and their centralistic character – have been identified as important explanatory factors for the fact that modern land laws often provide little incentive to investment as they provide few safeguards [10].

The numerous misconceptions of the indigenous land tenure systems have been extensively demonstrated (Le Bris e.a. 1982 on the notion of the "precolonial referent"; Moore 1986 on the notion of 'customary' law as a cultural construct with political implications; Bruce 1988, 1993 for a balanced analysis of local land rights; Berry 1989 on the relationship between social identity, political powers and local landrights, and many others). They all emphasize the adaptive flexibility of local tenure practices and their adjusting capacity to changing demands of the environment, pointing out at the same time not to overestimate this ability and not to forget that they sometimes involve social inequalities. The concentration on a free land market and the subsequent privatization of land rights, advocated by the World Bank is, in this view, rarely an adequate answer to the land degradation problem.

On the basis of his analysis, Bruce questions the viability and cost-effectiveness of radical law reforms and advocates the exploration of community-based solutions to tenure insecurity and a "state-facilitated" evolution of indigenous land tenure systems [11]. This means a more decentralized lawmaking process with more lawmaking authority for local communities. Le Roy, confronted with the extreme complexity of African landholding practices, identified 20 possible mechanism for regulating human relationships with land, depending on the degree of control over the resource and the way it was used [12]. He therefore concludes that the unitarian model of national land

[9] Hesseling & Ba, 1994.
[10] Thébaud 1995: 15.
[11] Bruce 1993 : 51.
[12] Le Roy 1992, cited by Thébaud 1995: 6.

laws is doomed to failure and in fact rejoins Bruce's recommendations.

In conclusion, according to the socio-legal theory of land tenure, a prerequisite for legal incentives in local land management is that they are flexible and adapted to fit the various local tenure practices. Conversely, the World Bank and its proponents argue that private property is a key incentive for farmers to invest in land improvements.

Finally, to which extend the theory of the common property resources may contribute to a better understanding of legal and institutional incentives in local environmental management? Common property resources refer to a variety of collectively-used natural resources including forests, pastures and water. The theory of the common property resources has its starting point in one of the most influential (and according to some people the most overestimated) papers on the subject: The Tragedy of the Commons, written in 1968 by a professor of biology, Garrett Hardin. In his view, the tragedy is that, as population grow, users of resources held in common will inevitably overexploit and degrade those resources. In his own words (p. 1244): "Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all." For Hardin the solution was tenure reform to something resembling private property.

Over the last 20 years, a literature critical of Hardin's theory has developed [13], culminating in the volume edited by Daniel Bromley "Making the Commons Work" (1992). Contrary to Hardin's oversimplified pessimism, those critics argue that, and I quote Bromley (1992 :4) : "(T)he world is replete with reasonably successful common-property regimes. By 'successful' I mean that the natural resource has not been squandered, that some level of investment in the natural resource has occured, and that the coowners of the resource are not in a perpetual state of anarchy." A major contribution to a better understanding of the working of the commons is the difference between "open-access resources" over which *no property rights* have been recognized

[13] See for an example on Sahelian pastures Marty, 1985 and on common pool resources in Indian villages Wade, 1987 and 1988.

and "common property resources", a set of ordered institutional arrangements that define the conditions of access to, and control over, a stream of benefits arising from collectively-used natural resources.[14] Other resources are managed and controlled as state property or private property.

At the basis of a cost-benefit-analysis, the theory of the common property resources arrives to more or less similar conclusions with regard to legal questions as the socio-legal theorists : for most common-pool resources, there exist already local rules and customs, and if new rules have to be introduced, it is important that they do not vary dramatically from the existing repertoire of rules in use.[15]

At the organizational level, Ostrom gives an extended list of conditions conducive to the emergence of common property users organizations (called appropriator organizations), those necessary for the emergence of coordinated strategies to use a common property resource, and those that may be conducive to the survival of such an organization. For the purpose of this article, I underline the condition that local organizations have to be nested within a set of larger organizations and authorities for dealing with problems beyond the boundaries of the organization. Although it is recommended that authority over resources should be devolved to local authorities or user groups, it must be admitted that they are often unable to generate sufficient sanction locally to enforce rules. Therefore local and state "co-management" will improve collective resource management [16].

To conclude, the overall trend with regard to land and common property resources is orientated towards:
1. a bottom-up / sociological approach of the lawmaking process;
2. devolution of powers to local communities in a setting of co-management.

[14] Swallow and Bromley 1992 : 2.

[15] Ostrom 1992: 313-314; see also Matowanyika 1991 who states that indigenous systems should form the basis of sustainable development strategies.

[16] Lawry 1989.

Lessons from Practice

Over the last several years, a case study literature has developed which examines the different legal and institutional strategies to improve the management of natural resources in developing countries. In the literature available to me, general environmental case studies on Africa are obviously an overwhelming majority. This is without doubt due to my own geographical interest, but there may be another more objective explanation, expressed by Platteau (1991:3) : "Till the beginning of the seventies the attention of land reforms was almost exclusively focussed on Latin America and Asia, while Africa was commonly considered as 'a special case' thanks to her abundant land endowments and to the flexibility of her indigenous land tenure institutions." Another striking feature in the case study literature is the attention given to problems of forestry management in developing countries. Generally speaking this attention may be explained by the high value attributed to trees and forests with regard to a sound environment, whereas the market value of wood is also high. In Africa the expansion in agriculture and an increase in demand for fuelwood and charcoal contribute to the focus on forestry.

In this section I will examine the available case studies with a focus on two, partly overlapping issues derived from the foregoing discussion. The first issue is security of tenure, followed by the debate on decentralization with special attention to some recent experiences with special forms of co-management.

Security of tenure

The literature on land tenure in developing countries is replete with references to the relationship between land tenure and investment in land: "It is a sufficient incentive for a land user to know that he/she has total command of the available resources and their products." [17]. The question is which legal incentives have been experienced to increase tenure security, whose security has been improved and with what impact on the environment ?

National legislation

It is not surprising that national legislations are often considered as a major source of insecurity. The majority of environmental-

[17] Otkoth-Ogendo 1994: 27.

related laws are blamed for almost everything that may go wrong:

- they are outdated and enforcement is very weak [18]
- they are nonexistent or inadequate in some sectors, and very frag-mentary [19],
- they are centralistic, coercive and authoritarian,
- they lack clear rights over trees to individuals and communities, and neglect the complex tenure situation of pastoralists [20],
- they reflect a conflict between conservation and production [21], and last but not least,
- they are not enough market-oriented [22].

As a result of such and other serious criticism, many studies recommend more or less radical law reforms.

Privatization

The land tenure reform in Kenya is possibly the example of law reform towards private property that has been most examined [23]. The following citation may be illustrative for the largely negative impact on tenure security of privatization programs in Africa: "Not only has the governments program proved difficult to carry out, leaving control of the land substantially in the hands of local elders, but it has led to numerous conflicts whose resolutions tend to favour the wealthy and influential, stimulated the growth of a largely unregulated market in land,

18 Sudan: cf. Johnson and Ofosu-Amaah 1982.

19 Ghana and Malaysia: cf. Gruppe and Ofosu-Amaah 1981a,b; Sahel: CILSS 1988.

20 Hesseling and Ba 1994, and several reports on Forest Codes : Du Saussay 1986; Elbow and Rochegude 1990; McLain 1992, 1993.

21 Bell and Hotchkiss 1989.

22 World Bank and, in a different way, related to rural wood markets, Bertrand and Madon, 1993.

23 Shipton 1988, Fleuret 1988, Haugerud 1989, Scherr 1989, Carter, Wiebe & Blarel 1991.

weakened the security of tenure for smallholders, and led to a degree of concentration of ownership or control, both according to wealth and gender – all without facilitating the granting of credit or leading to the increases in production that had been envisioned."[24] In a case study on Rwanda, Catherine André (1994 : 199-214) shows that even if customary tenure systems are evolving towards individualization, the imposition of formal land titles by law has rather ambiguous consequences for the rural population. Other experiences led to more or less similar conclusions [25].

Vulnerable social categories

But national legislations with a less capitalist character, have neither unambiguously a positive impact on tenure security, especially with regard to vulnerable social categories, such as smallholders, women, pastoralists or immigrants.

Examples in this respect are plethoric, but let me just name one view. In Senegal, the *Loi sur le Domaine National* (Law on the National Domain), enacted in 1964, was an attempt to place the best aspects of customary tenure systems on a modern egalitarian and democratic foundation. Bloch (1993) studied the changes in access to land in small irrigated perimeters, related to caste structure and gender. He sometimes found improvement for dispossessed groups, but the most striking development worked in the other direction, which is that a new land controlling elite appropriated substantial amounts of irrigable land for itself. In the same line, Famoriyo (1987) and Omotola (1986) conclude that the Nigerian Land Use Act of 1978 has worked largely in favour of traditional rulers and against the interests of smallholders.

Laws governing land tenure and natural resources are generally 'gender-neutral', making no explicit distinction between men and women. But apparently neutral laws can establish or encourage *de facto* discrimination against women, especially as they

24 Reyna and Downs 1988: 4.

25 See for ex. Fisyi 1992 on Cameroon; Crousse and Hesseling 1994 on Mauritania.

rarely contain provisions designed to counter discrimination and to improve tenure security for women.[26].

National laws mainly focus on crop farming and forestry and, to some extent, on fishery and water management. Pastoralists in Africa in particular, have been negatively impacted by the imposition of national tenure systems which in many cases have served to marginalize nomadic population. In Somalia, the relationship between indigenous pastoralist tenure and state-imposed tenure has, in many locations, decreased the ability of pastoralism to reproduce itself, thereby compromising the rational utilization of very large areas of rangeland interior, which have very few alternative uses. [27] Venema (1995) describes an example in Morocco, where government interventions in collaboration with a World Bank project, disfavour the less influential, notably the immigrant herdsmen.

Forestry

Tenure security to land and security of tree tenure are closely related. In agroforestry, clear tenure rules, assuring the farmer that the trees planted on the holding will belong to the farmer, are important. Bruce and Fortmann (1989 : 4) provide a good overview of the problems related to property and forestry : "People who have been exposed only to the more familiar forms of Western property law often assume that trees are part and parcel of the land on which they grow (...) but many tenure systems confer property rights in standing trees quite different from the land on which they stand and may confer those rights on someone other than the landholder." [28]

State legislation and policies may often have a serious impact on the security of tree tenure for the individual man or woman or local communities depending partly on trees and forests for their living. "Often the state advances the claim that it owns all uncultivated land, frequently in concert with the principle that individuals can establish their claims to land by clearing it"[29]. The transfer of property rights from traditional user groups to

[26] See Konaté ,1992, on the Land Tenure and Agrarian Reform in Burkina Faso.
[27] Unruh 1995.
[28] See also Fortmann and Riddell 1988; Fortmann and Bruce 1988.
[29] Bruce and Fortmann 1989: 4.

others eliminates the incentives for monitoring and restrained use[30]. Famous examples of such policies leading to deforestation are given by Binswanger (1987) for the Brazilian Amazon, and Rassam (1990) for Ivory Coast. In many former French colonies in Africa forest management policy is based principally on regulation of use through enforcement of restrictions, within the forest reserves but also with regard to trees on individual farms. Together with many misinterpretations by the mighty but at the same time poorly equipped forest service, the result is the absence of security for individuals and groups on trees and forests. [31]

The impression of the foregoing is rather pessimistic. National laws, whether they are orientated to private or state property, whether they give room for local rules or not, apparently are no good incentive to equally increase the tenure security of natural resources, and thus improve their local management; they are mainly seen as a fundamental barrier to encourage community environmental efforts. In many countries (notably in the Sahel) promising reforms of environmental legislation have recently been adopted or are under their way, taking into account most of the critiques expressed in the case studies. It is yet too early to measure their impact on the security of tenure.

Decentralization: Some Experiences with Comanagement

Without going into details on the theoretical and technical distinctions between decentralization, deconcentration and devolution, I will define decentralization as the transfer of regulatory and executive competence to local authorities, the central government retaining a limited supervisory role. Applied to the management of natural resources decentralization implies that certain guide-lines are formulated at national level e.g. in a legislative framework and that a national policy plan is then set out and implemented at regional

[30] McKean an Ostrom 1995: 5.
[31] For examples on Land, Trees and Tenure from Africa, Asia and Latin America, see Raintree 1987. See also Kessler & Wiersum 1995 with regard to the Sahel.

and local level, which can be specially adapted and fleshed out according to local circumstances.[32]

The question is whether through decentralization incentives can be generated to more efficient resource utilization and protection. In an interview published in *African Farmer* from October 1993, Ghana's minister of environment is asked the following question : "How do you go about trying to get farmers to change their practices (...) ? Is it simply education, or are there also incentives to farm more intensively ?" Her reaction is simple and clear : "I think decentralization is the answer."

Indeed, recent research in developing countries suggests that environmental strategies built on sound, widely respected local practices and institutions better serve policy goals of sustainable development.[33] Such suggestions seem to assume the presence of local organizations with a long shared history and well-established norms and institutions. A recent research on the role of law in the protection of the tropical forest in Ecuador's Amazon region[34] shows, however, that local social organization must be conceived of as lying on a continuum with on the one hand the extreme situation of heterogenous, instable societies ('immature' communities), and at the other end 'mature' communities of long historical depth, strong relations of reciprocity, a common culture and a functioning social control system with generally accepted norms and legitimate institutions. The impact of decentralized legislation is also function of the 'autonomy' of legal administration from political and social pressures. Here too, the authors propose to consider the position of the local bureacracy on a continuum from a very low to a very high autonomy.

[32] Hesseling 1994 : 132-133.

[33] Vermillion 1994 on irrigation turnover with examples from Asia, Africa and Latin America; see also Sheperd 1992 on Africa's forests; on joint management of forests in Asia, see Pardo 1993 [Nepal], Sharma 1991, Roy 1992, Hobley 1992 [India] and Van Ginneken & Thongmee 1991 [Thailand]; Gilmour e.a., 1989 and Fisher 1993 on indigenous forest management in Nepal; Stocking 1989 on community land-use planning in Lesotho; v.d. Hoek 1992 on local level land use programmes in Indonesia; Sibanda 1995 on the Zimbabwe Campfire approach; Cernea 1994 on rangeland and water use in Senegal, and many others.

[34] Taale & Griffiths 1995.

In general the literature on local participation in natural resource management is abundant and this is not the place for an extensive discussion on the observed problems and solutions. Instead I will discuss some recent experiences with comanagement of natural resources to examine if they provide legal and institutional incentives for local communities to better use their natural resources.

The "Gestion de terroir" Approach

Over the last decade, the *Gestion de terroir* approach has become very popular among national governments, donor agencies (including the World Bank) and NGO's, especially in the former French colonies in Sahelian West Africa. The concept of *terroir* has been developed by French geographers, based on features of sedentary agricultural communities. The *terroir* is seen as linking the community and its "useful environment" [35].

It is however difficult to give a clear definition of the *Gestion de terroir* approach, because it encloses in practice a considerable variety of institutional forms, strategies and activities.[36] In the only area of Mali-Sud, Joldersma e.a. (1994) distinguish six different *Gestion de terroir* -programmes with particular features. But the approach is considered to be global, multisectoral, integrated, participatory and long-term.[37] Although little distinction is made between the terms *aménagement* and *gestion de terroir*, they actually refer to two closely related but distinctive activities : *aménagement* aims at a division of the territory on the basis of natural resources and involves technical activities in the form of plans, whereas *gestion* refers to the socio-economic, juridical and organizational aspects allowing for an efficient use and control of the natural resources by the local community. I will mainly emphasize the second set of aspects.

At present, all *Gestion de terroir* -projects are still in an experimental phase and at the starting point of implementation. It is thus not surprising that the results are not yet fully

[35] Painter e.a. 1994.

[36] Kessler & Wiersma 1995 : 12.

[37] Painter e.a. 1994: 451.

documented, but on the basis of the available case study literature a first glance at the promises and limitations of the approach is possible [38].

Despite some promising results, most authors on case studies are quite critical in their analyses of the *Gestion de terroir* -approach. Let me just list the most striking shortcomings which have been raised.

Tenure security
Due to its methodological weakness, the approach does not substantially contribute to clarifying the complex tenure security system As Marchal (1993) states : "Gestion de Terroir programmes are build on a backdrop of tenure insecurity". Furthermore, the approach does not fully acknowledge the importance of more mobile modes of resources management. There is indeed a tendency to close the frontiers of the village and to exclude the less-rooted users of the natural resources, such as migrants and transhumant pastoralists. And when the position of women improves, it concerns only women belonging to the sedentary farmers' community. As a consequence the approach is not suited for pastoral areas.[39]

Organizational aspects
Gestion de terroir -programmes involve the creation of new local organizations of a representative nature. These management committees are sometimes mere instruments to obtain funds and they are created to please outside donors. They are often lacking both official recognition and local legitimation.[40] In fact, the approach offers no institutional guarantees that benefits will be equally distributed, as the institutions are still depending on social and political power relations. The often problematic and conflictuous relations between the involved public services, and especially the dominant position of the agricultural service, are a serious hindrance for the implementation. Finally, to date, numerous *terroir* -programmes are limited to a single village denying the importance of intervillage natural resources.

[38] Engberg-Pedersen 1995 on Burkina Faso; Marchal 1993, Joldersma e.a 1994, and Benjaminsen 1995 on Mali; van den Briel e.a. 1994 on Niger; and Travaux de Recherche Développement 1993 on 13 case studies in Africa and Malagasy.
[39] Painter 1993, Painter e.a. 1994.
[40] Engberg-Pedersen 1995.

Impact on environmental management
The most severe notice concerns the impact of the *Gestion de terroir* -approach on environmental management. With regard to the reforestry project in Téra (Niger) where the approach has been adopted in 1990, Van den Briel e.a. (1994) conclude, in spite of some promising results : "However, the activities undertaken do not necessarily contribute to a more sustainable land management, and some could even be harmful." According to Engberg-Pedersen (1995: 16), there is an obvious incongruity between the issues emphasized by the villagers (asking for short-term manifest results such as infrastructure) and the (long-term) focus upon national resources in the programmes.

According to this interpretation of the case studies, the *Gestion de terroir* -approach apparently does not yet score points on crucial topics as security of tenure, the status of vulnerable social categories and sustainable management of natural resources. So, do we have to write it off? I think this would be premature and I have several reasons to see enough deeming features.

Firstly, an important strong point of the *Gestion de terroir* approach is, according to Kessler and Wiersma (1995: 14) the fact that the natural resources are looked upon in a holistic way. It gives attention to the need for organization of the village, the technical (government) services, and their interactions, and the change of full management responsibilities towards the local land users. Where technical solutions may not always be available, the result of better mutual understanding is already a great achievement, where objectives by developers and by target groups have so often been widely apart.

Secondly, the authors actually also did mention some real promising developments as a result of the programmes. In settled agricultural communities the behaviour of the villagers towards a more conscious use of natural resources has been observed, as a result of their improved knowledge of the environment, the participation of the local people was considerably increased in every step of the process, including planning and evaluation, and the approach also allowed a more adequate response to local needs and interests. Finally, we have to bear in mind that the methodology of the approach is still in full evolution, which partly explains the severe criticism of the authors in search for improvements.

At this stage however, the case studies do not provide enough evidence to conclude that the approach generates valuable legal and institutional incentives for local environmental management. In my opinion this can mainly be attributed to the (understandable) focus on technical interventions and a certain neglect of the legal and institutional prerequisites. The process of giving users access to and control over local resources is a long and complex process. The *Gestion de terroir* -approach is certainly not a ready-to-use model of decentralized resource management and it is not easily reproducible in every area. But it may have enough potential to meet the local environmental problems in a well defined context, provided that the methodology will be progressively improved and the flexibility increased.

The Contractual Approach

In the current discussion about improved management of land and natural resources, local management contracts are increasingly considered as a valuable option. To date, few experiments with local management contracts have been fully documented; consequently there is little evidence to evaluate the long-term role, impact or sustainability of those contracts.

Bruce e.a. (1995) describe experiments with approaches to common property forestry in China. According to the authors, the "lack of law" in China's legal culture does not prevent but rather facilitates experimentation. "Contracts have played a major role in filling gaps in both the law of property and the law of associations, with charters and agreements used to define institutions and leases used to customize tenure arrangements." (p. 48). At the same time they plead for greater legal formalization, "both to consolidate organizational forms and property rights and to buttress them against policy fluctuations and attempts at excessive regulation by government which undermine the new autonomy and incentives." (p. 48).

In Mali, contracting local management conventions forms an integral part of the decentralization policy with regard to natural resources. As in the beginning of the 90s, the Land Law and the Forestry Code were in a process of reform, the drawing up of local rules for resource management was allowed by the

authorities by way of exception. To my knowledge, just one experiment with this kind of conventions has been documented [41]. It concerns a convention involving six villages in the management of the "brousse" (common property resources – forest and pasture – in the "bush"). The negotiations to arrive at a draft convention took years, mainly because of the following factors :

(1) difficulties in convincing the villagers to limit their activities with regard to their resources;

(2) some villages had to give up part of their resources in favour of less gifted villages;

(3) the elaboration of a system of control and sanctions,

(4) the low prices of wood as a disincentive for investments in the maintenance of the forests and pastures, and

(5) the resistance of local forest agents and civil servants to really transfer part of their powers to the villages.

The draft convention still needs the support of a professional lawyer in order to be designed in proper juridical terms. And the sometimes vehement discussions with the official parties in order to overcome their resistance seriously slow down the process of operationalization. But the process of negotiation in itself (involving not only the six villages, but also civil servants and external donors) constitutes a promising result of the contractual approach.

Contractual arrangements are not always considered as a valuable option. In his reaction on the draft version of this article, Trond Vedeld wonders whether the situation in the Sahel is mature for a contractual approach, considering its development level, its legal system, its lack of jurisprudence on laws that have long existed (developed by the French), its lack of predictable law enforcement, its lack of constitutional (democratic) gevernement, and its lack of Rule of Law. Although I do not deny the serious constraints resulting from the yet imperfect functioning of the Sahelian states, the questioning of

41 Hilhorst and Coulibaly 1995, 1996.

the maturity of the local communities for management contracts seems to me an inappropriate approach. African communities have indeed a long tradition of contracts and 'indigenous' contract procedures. The classical example in the Sahel is the *contrat de fumure* between pastoralists and farmers. For central Africa, Achim von Oppen has drawn my attention to early travellers' reports on contract ceremonies in the 19th century.[42] As the above example from Mali has shown, the contractual approach in itself is not so much the crucial stumbling block, but the willingness of state representatives and the actual functioning of state institutions. In this sense I do agree with Vedeld that a predictable and fair legal system is an important precondition for sustainable use of resources.

De Zeeuw (forthcoming), also states that the contractual approach is not always a good solution. He refers to oral borrowing arrangements with regard to land currently applied in some parts of Burkina Faso. In this context, the introduction of formal borrowing contracts might even seriously undermine the security of access to land for the borrowers, disturbing the social relationship between the contracting parties. His argument that some local types of tenure labelled as insecure, may be perceived by the local population as secure, is confirmed by other research [43]. And I do agree that in such situations formalization of tenure arrangements may have unintended, negative side effects.

However, in certain situations, especially in situations of rapid changes and transition, the contractual approach may have advantages and provide positive legal and institutional incentives for local management. Indeed, the contractual approach offers flexibility in:

• the number of parties involved. For example, it could make it easier to involve the appropriate groups, e.g. seasonal users of a natural resource, plus local NGOs and private producers groups;

[42] An example from Arnot (1889, reprod. 1969, p. 154) : "(H)e gave me a receipt for the ox in full as if I had bought and paid for it. This he did, as is the custom amongst the Chibokwe, by first declaring the matter to his people, then taking a twig, breaking it in two and throwing a part over each shoulder. The whole twig in front of him represented the question on hand; the twig broken and cast behind the chief's back, the question decided and forgotten." See also Von Oppen 1993.

[43] See for an example in a quite different context White and Runge 1995.

• protecting 'bundles of rights' of various users groups. While property rights (which in the long term make land registration) establish the rights of one person or one group, a contract can handle situations involving 'bundles of rights' and a variety of user groups;

• duration of the contract. In situations of rapid developments, a contract can yet guarantee users the benefits of their investments, as long as they fulfil their obligations.

• tailoring contract stipulations to specific local situations.

Additional advantages are:

• certain stipulations could be used to lay down the rights and obligations of all parties;

• a contract can be better adapted to local conditions; in particular, it can contain a clause creating the possibility of, under specific conditions, breaking open the contract and reopening negotiations;

• agreement of local contracts with regional and national policy can be assured by standard incorporation of the obligation that these must fit within the local policy plans, since this must be in accord with the framework of regional and national policy plans (Hesseling 1994a and Picciotto 1992).

In conclusion, contracts may contribute to creating a socially broad basis for new policies, because parties have more influence on, and are with respect to content also more interested in the outcome as in the case of government regulations. That does not alter the fact that important juridical and institutional conditions are yet to be fulfilled in present day Africa to really make the contractual approach a workable option for local environmental management.

Legal Incentives: Some Remarks for Discussion

In conclusion I will make some more general remarks for discussion, with regard to three items : (1) the importance of

national legislation for security of tenure; (2) the social working of law; and (3) decentralization.

The importance of national legislation for security of tenure
In a rather schematic way, we may distinguish three situations of national laws in relation to tenure security.

1. National laws are often considered as a disincentive for tenure security. If this is the case, reforms may be indicated to break down the legal barriers and formalize clearly defined and legally defensible rights to land and natural resources.

2. In other cases, national laws do not have a real impact on local tenure systems which are perceived by local communities as 'secure'. This is particularly the case when national authorities remain at distance or are incapable to implement legislation at the local level. In times of stability, those laws may be 'neutral' in the sense that they are not an incentive and neither a disincentive for tenure security. But in times of conflict and rapid changes, the same law may become a constraint for better local management and then the need for law reform may occur.

3. Sometimes, the confusion created by (impropriate) national laws or the 'lack of law' may give room for local experiments and strategies. In times of profound transition non-reform approaches to apparent tenure constraints may be recommended.

The debate public versus private ownership seems to be a never-ending one, but as Bromley (1992: 468) states : "The nominal property structure (whether something is held as private property, as state property, or as common property) is less important for managerial performance than is the effectiveness of the authority system (the rights and duties) that accompanies a particular property regime. In this respect we have to remind the remark of Cernea, quoted before, that state laws are to guarantee, reinforce, and stiffen the back bone of even the lowest local resources management system. And they can only fulfil this 'mission' if the gap between the formal legal situation and the community-based systems is phased out. This means that the lawmaker in most developing countries is confronted with the challenge of building their legal system on a double foundation : the useful elements of the local values in

their society and the achievements of modern legislations. Reminding Smith's remark on external incentives, cited before, that the ingredients for change have to be present in order to function as a catalyst, legal reform should mainly concentrate on facilitating changes that are already going on in the society".

The social working of law
National authorities take in general an instrumental and positivist approach, based on the idea that legislation is capable of influencing social behaviour. Law is regarded as an instrument of social change. Legislation is meant to adapt the behaviour of citizens and make it consistent with the law. But the reality is quite different. The behaviour of individual and groups is in first instance regulated by a complex web of reciprocal relationships and social fields, and they are guided more by the social and cultural standards valid in their own community. National laws are not the sole source of change in behaviour with regard to natural resource management. In pluralist societies, the social working of law must be taken into account and this means that the legislator must take a sociological approach in shaping new environmental laws. But once a new law has been adopted, the legal messages rarely reach the population in an undistorted form (they are misinterpreted or transformed). At that stage account must be taken of the social factors that determine how far local communities can 'internalize' it (in particular, their capacity to understand the text of a law correctly and to take position according to the priorities of their local environment). In short, the effects of new environmental laws (and thus of their ability to play a role as incentive for local environmental management) depend more on the motivation and situation of social agents than the intentions of the legislator. [44]

Decentralization
Is decentralization the miracle remedy for a better management of local resources? Of course not. Although expectations of decentralization are sometimes extremely high, its dangers and pitfalls are often grossly underestimated. As a result of the pressure of donors on developing countries to reduce state intervention, they are in danger of accepting decentralization in theory, but of doing little to flesh it out in practice. If the policy

[44] Griffiths 1992; Hesseling & Le Roy 1990, Mathieu 1990.

of decentralization is introduced too rapidly, there is the risk of actually reinforcing existing patronage relations or hierarchical social structures. And in a period of structural adjustment programmes, the will to decentralize natural resource management is likely to consist merely of off-loading some of the State's more costly responsibilities onto the peasant's backs. The adaptability faculty of local tenure systems is unevenly spread among the many different local communities. Strengthening local capacities is therefore a necessary accompaniment to any decentralization measure. But all those potential dangers do not alter the appropriateness of the maxim put forward by Oakerson (1988: 151) : "Don't destroy the base. Decide what part of the existing structure of society constitutes a useful base, and seek to preserve and build upon it". At the same time : "The local level derives strength not just from its 'localness' and self containment, but from the extent to which the *supra*local levels stand behind it, and legitimize and empower it." [45]

Legal and institutional incentives for local environmental management?

My interest in legal and institutional incentives for local environmental management started after a rather trivial but familiar dispute between what I always jokingly call "boffins" – technical experts – and what they call – not always as a joke – "softies", more focusing on the social fabric than on the technical package with regard to natural resources. But an analysis in terms of incentives bears the risk to be a misleading one for its suggestion of an incentive starts a linear type of social process: the incentive resulting in a predictable response from the individual or the community.

The empirical studies focusing on the different legal and institutional strategies adopted to improve the management of natural resources at the local level, and reviewed in the second section, have indeed revealed that rulemaking (state laws or customary laws, at a national or at a decentralised level) will not automatically generate incentives for certain kinds of activities or discourage actors from other kinds of behaviour.

[45] Cernea 1994 :189.

To avoid simplistic arguments leading to a blueprint approach with respect to rules and institutions, several bodies of socio-legal theory have been called for help.

Firstly, according to the socio-legal theory of land tenure, the denial of the relatively efficient, dynamic and legitimate nature of local tenure practices and the centralistic character of modern law systems have been identified as important explanatory factors for the fact that modern land laws provide so few safeguards for local people which undermines their potential of incentive for a better management of natural resources. Thus, a prerequisite for legal incentives in local land management is that they are flexible and adapted to fit the various local tenure practices.

Secondly, an analysis in terms of incentives has to be situated in a perspective of the social working of law, including the strategies developed by the (wo)men at the shopfloor in response to the incentive on the basis of their culture (norms, rules, social relations etc.), the specific characteristics of the resource involved, the social and political context and so on. Thus, the degree of success of external norms varies greatly, depending on the context in which they must work.

Thirdly, in the current debate on institutions as sets of rules, the theory of common property resources appears to be a substantial contribution to a better understanding of legal and institutional incentives in local management. It warns us that local organizations have to be nested within a set of larger organizations and authorities, including the state, for dealing with problems byond the boundaries of the community.

The conclusion of this intellectual exercise with the concept of legal and institutional incentives may be somewhat disappointing: the point of departure being very general, the conclusion becomes also general.

Indeed, my reaction to my colleague's statement would be that laws and institutions appear to be at the same time incentives and disincentives for local environmental management and therefore interventions in the sphere of lawmaking at all levels will remain indispensable. The potential to create legal and institutional incentives for local environmental management is

undoubtedly present in national legislation, in decentralized management structures and in local contracts and agreements. There is no need to make a choice between these three approaches which may coexist within the same legal system. Methods and strategies of the approaches have to be continually improved and adapted to new challenges by taking into account social, technical and political factors. And finally, legal and institutional instruments alone will never generate enough incentives to change the environmental behaviour of local communities They have to be accompanied by technical innovations, economic and social incentives.

References

André. C., 1994, "Evolution des droits fonciers au Rwanda: une main invisible?", in *Croissance, répartition, environnement. Quelles régulations pour un développement durable*? Louvain-la-Neuve: Centre Interuniversitaire de Formation Permanente, p. 199-217.

Arnot, F.S., 1889 (repr. 1969), *Garenganze or seven years of pioneer mission work in Central Africa*. London : Rotberg.

Bakema, R.J. (ed.), 1994, *Land tenure and sustainable land use*. Amsterdam : Royal Tropical Institute, Bulletin 332.

Bell, M. and P. Hotchkiss, 1989) "Political interventions in environmental resource use", *Land Use Policy*, 6(4), p.313-323.

Bassett, T.J. and D.E. Crummey (eds), 1993, *Land in African Agrarian Systems*. Madison : The University of Wisconsin Press.

Benda Beckmann, F. von, 1991, "Legal uncertainty and land management", *in* Savenije and Huijsman, p.75-88.

Benjaminsen, T.A., 1995, *Natural Resource Management and Decentralisation. Towards Comanagement in Mali?* Oslo: Centre for Development and the Environment, Working Paper, 3.

Bertrand, A. and G. Madon, 1993, *Propositions de réforme de la réglementation forestière, du dispositif de contrôle forestier et du régime de taxation du bois-énergie*. Nogent sur Marne/Paris : CIRAD-Forêt/SEED.

Berry, S., 1989, "Access, Control and Use of Resources in African Agriculture : An Introduction", *Africa* 59 (1).

Binswanger, H. P., 1987, *Fiscal and Legal Incentives with Environmental Effects on the Brazilian Amazon*. Washington DC : World Bank.

Bloch, P.C., 1993, "An Egalitarian Development Project in a Stratified Society : Who ends up with the land ?", *in* Bassett and Crummey, p. 222-243.

Briel, J. van den, P. Schuthof and E. Topper, 1994, *L'aménagement des terroirs villageois : une contribution à la gestion durable des ressources naturelles*. Wageningen : Agricultural University (Tropical Resource Management Papers).

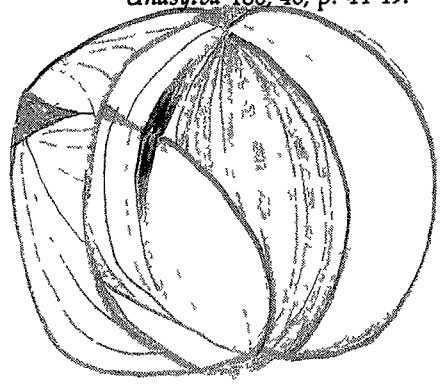
Bromley, D.W. (ed.), 1992, *Making the Commons Work*. San Francisco : ICS Press.

Bruce, J.W., 1988, "A Perspective on Indigenous Land Tenure Systems and Land Concentration", *in* Downs and Reyna, p. 23-52.

Bruce, J.W., 1993, "Do Indigenous Tenure Systems Constrain Agricultural Development ?", *in* Bassett and Crummey, p.35-56.

Bruce, J.W. and L. Fortmann, 1989, *Agroforestry : Tenure and Incentives*. Madison : Land Tenure Center (LTC Paper 135).

Bruce, J.W., S. Rudrappa and L. Zongmin, 1995, "Experimenting with approaches to common property forestry in China", *Unasylva* 180, 46, p. 44-49.



Campen, W. van, 1992, "Incentives for sustainable land use : some general aspects of constraints on design, implementation and financing. With special reference to southern Mali", *in* : Agriculture, economics, and sustainability in the Sahel, Amsterdam : Royal Tropical Institute, p.83-93.

Carter, M., K. Wiebe & B. Blarel, 1991, *Tenure Security for Whom ? Differential Impacts of Land Policy in Kenya.* Madison-Wisconsin : Land Tenure Center (Research Paper no. 106).

Cernea, M.M., 1994, "Environmental and social requirements for resource-based regional development, *Regional Development Dialogue,* 15 (1), p. 186-198.

CILSS, 1988, *Analyse des textes législatifs et réglementaires des pays membres du CILSS en matière de gestion des ressources naturelles,* Volumes I-IX. Ouagadougou : CILSS.

Crousse, B. and G. Hesseling, 1994, "Transformations foncières dans la vallée du Sénégal", *Politique africaine,* 55, p. 89-100.

Downs, R.E. and S.P. Reyna (eds.), 1989, *Land and Society in Contemporary Africa.* Hannover : University of New Hampshire Press.

Elbow, K. and A. Rochegude, 1990, *A Layperson's Guide to the Forest Codes of Mali, Niger, and Senegal.* Madison-Wisconsin: Land Tenure Center (LTC Paper 139).

Engberg-Pedersen, L., 1995, *Creating Local Democratic Politics from Above : The "Gestion des terroirs" Approach in Burkina Faso.* London : IIED Paper no., 54.

Famoriyo, S., 1987, "Land use based on need ?", *Ceres (FAO),* 20 (1), p. 24-28.

Feder, G. and R. Noronha, 1987, *Land Rights Systems and Agricultural Development in Sub-Saharan Africa.* Washington D.C.: The International Bank for Reconstruction and Development/The World Bank.

Fisher, B., 1993, "Creating space : development agencies and local institutions in natural resource management", *Forests-Trees and People Newsletter,* 22, p.4-11.

Fisyi, C.F., 1992, *Power and Privilege in the Administration of Law.* Leiden : African Studies Center.

Fleuret, A., 1988, "Some consequences of tenure and agrarian reform in Taita, Kenya", *in* Downs and Reyna, p. 136-158.

Fortmann, L. and J. Bruce (eds.), 1988, *Whose Trees ? Proprietary Dimensions of Forestry.* Boulder : Westview Press.

Fortmann, L. and J. Riddell, 1988, *Trees and Tenure : An Annotated Bibliography for Agroforesters and Others.* Madison : Land Tenure Center and International Council for Research in Agroforestry.

Gilmour, D.A., G.C. King and M. Hobley, 1989, "Management of forests for local use in the hills of Nepal. Changing forest management paradigms", *Journal of World Forest Resource Management,* 4(2), p. 93-110.

Ginneken, P. van & U. Thongmee, 1991, "Attempting integrated watershed development in Phu Wiang, Thailand", *Unasylva* (FAO), 42(164), p. 8-15.

Griffiths, J., 1992, "Legal pluralism and the social working of law", *in* P.W. Brouwer e.a. (eds), *Coherence and Conflict in Law,* Deventer/Zwolle : Kluwer/W.E.J. Tjeenk Willink, pp. 151-176.

Griffiths, J., 1995, "Legal pluralism and the theory of legislation – with special reference to the regulation of euthanasia", *in* H. Zahle & H. Petersen (eds), *Legal polycentricity : Consequences of Pluralism in Law.* Aldershot : Darthmouth.

Gruppe, H. and W. Ofosu-Amaah, 1981a, *Legal, regulatory and institutional aspects of environmental and natural resources management in Malaysia.* London: IIED.

Gruppe, H. and W. Ofosu-Amaah , 1981b, *Legal, regulatory and institutional aspects of environmental and natural resources management in Ghana.* London: IIED.

Hardin, G, 1968, "The Tragedy of the Commons", *Science* 162, p. 1343-1348.

Haugerud, A., 1989, "Land Tenure and Agrarian Change in Kenya", *Africa* 59(1), p. 62-90.

Hesseling, G., 1994, "Children as social security in Africa ?", *in* Poverty, and Development, The Hague : Ministry of Foreign Affairs, p. 129-136.

Hesseling, G., 1994a, "Legal and institutional conditions for local management of natural resources : Mali", *in* Bakema, p. 31-46.

Hesseling, G. & B.M. Ba (eds.), 1994, *Le foncier et la gestion des ressources naturelles au Sahel.* Ouagadougou/Paris: CILSS/Club du Sahel.

Hesseling, G. and E. Le Roy, 1990, "Le droit et ses pratiques", *Politique africaine* 40, p. 2-11.

Hilhorst, T. and A. Coulibaly, 1995, *L'élaboration d'une convention locale dans la zone Siwaa.* Sikasso : Centre Régional de Recherche Agricole.

Hilhorst, T. and A. Coulibaly, 1996, "L'élaboration d'une convention locale au Mali-Sud", Article préparé pour le symposium international "Institutions et Technologies pour le développement rural en Afrique de l'Ouest, 18-22 février 1996, Cotonou, Benin.

Hobley, M., 1992, *Policy, Rights and Local Forest Management : The Case of Himachal Pradesh, India.* London : Overseas Development Institute.

Hoek, A.I. van den, 1992, *Planning as a learning process: a strategy for planning land use programmes at local level with special reference to uplands of Java.* (Thesis).

IFAD, 1993, *Common property resources and the rural poor in Sub-Saharan Africa.* Rome: IFAD.

Johnson, B. and W, Ofosu-Amaah, 1982, *Legal, regulatory and institutional aspects of environmental and natural resources management in the Sudan.* London : IIED.

Joldersma, R., L. Coulibaly e.a., 1994, *Siwaa, la brousse sèche. Expérience de gestion villageoise d'un terroir intervillageois au Mali.* Sikasso : Centre Régional de recherche agricole.

Kessler, J.J. & K.F. Wiersum, 1995, *Forest Policy Development in the Sahel: Contexts, Processes, Contents and Impact.* Wageningen : Agricultural University, Forestry Department (Working Paper).

Konaté, G., 1992, *Femme rurale dans les systèmes fonciers au Burkina Faso. Cas de l'Oudalan, de Sanmatenga et du Zoundweogo.* Ouagadougou : Ambassade Royale des Pays-Bas.

Lawry, S.W., 1989, *Tenure policy towards common property natural resources.* Madison-Wisconsin : Land Tenure Center (LTC paper 134).

Le Bris, E., E Le Roy and F. Leimdorfer (eds), 1982, *Enjeux fonciers en Afrique noire,* Paris : Karthala.

Le Roy, E., 1992, *La mobilisation de la terre dans les stratégies de développement rural en Afrique noire.* Paris: APREFA-Laboratoire d'Anthropologie Juridique.

Marchal, D.,1993, "La Gestion de terroir villageois", *Arbres, Forêts et Communautés Rurales bulletin,* no. 3, p. 22-31.

Marty, A., 1985, *Crise rurale en milieu nord-sahélien et recherche coopérative.* Tours : Université de Tours (Thèse de doctorat d'Etat).

Mathieu, P., 1990, "Usages de la loi et pratiques foncières dans les aménagements irrigués", *Politique africaine,* 40, p. 71-91.

Matowanyika, J.Z.Z., 1991, "In pursuit of proper contexts for sustainability in rural Africa" *Environmentalist*, 11(2), p. 85-94.

McKean, M. and E. Ostrom, 1995, "Common property regimes in the forest: Just a relic from the past ?", *Unasylva* 180, 46 : p.3-15.

McLain, R., 1992, *Recommendations for a new Malian forest code; Observations from the land tenure center's study of land and tree tenure in Mali's Fifth Region.* Madison-Wisconsin: Land Tenure Center (LTC Paper 109).

McLain, R., 1993, *Report on the LTC/CILSS Sahelian Forest Code Workshop.* Madison-Wisconsin: Land Tenure Center.

Moore, S.F., 1986, *Social Fact and Fabrications. "Customary" Law on Kilimanjaro, 1880-1980.* Cambridge MA : Cambridge University Press).

Noronha, R., 1985, *A Review of the Literature on Land Tenure Systems in Sub-Saharan Africa.* Washington D.C. : The World Bank.

Oakerson, R.J., 1988, "Reciprocity : A Bottom-Up View of Political Development", *in* Ostrom, Feeny and Picht, p. 141-158.

Okoth-Ogendo, H.W.O., 1994, "Land tenure, agrarian legislation and environmental management systems", *in* R.J. Bakema, p. 21-30.

Omotola, J.A. (ed.), 1986, *The Land Use Act : Report of a national workshop.* Lagos : Lagos University Press.

Oppen, A. von, 1993, *Terms of trade and terms of trust. The history and contexts of precolonial market production around the Upper Zambezi and Kasai.* Hamburg/Münster : LIT Verlag.

Ostrom, E,, 1992, "The Rudiments of a Theory of the Origins, Survival, and Performance of Common-Property Institutions", *in* Bromley (ed.), p. 293-314.

Ostrom,V, D. Feeny and H. Picht (eds.), 1988, *Rethinking Institutional Analysis and Development.* San Francisco : ICS Press (International Center for Economic Growth).

Painter, T., 1993, *Getting it right : Linking concepts and action for improving the use of natural resources in Sahelian Africa.* London: IIED, Dryland Networks Programme Issues Paper no. 40.

Painter, T., J. Sumberg and T. Price, 1994, "Your *terroir* and my 'action space': implications of differentiation, mobility and diversification for the *approche terroir* in Sahelian West Africa", *Africa* 64(4), p. 447-464.

Pardo, R., 1993, "Back to the Future : Nepal's new Forestry Legislation", *Journal of Forestry (USA)*, 91(6), p. 22-26.

Picciotto, R., 1992, *Participatory development. Myths and dilemmas.* Washington DC: World Bank (Working Paper WPS 930).

PLAE, 1991, *Note sur mesures incitatives,* Koutiala : PLAE.

Platteau, J.-Ph., 1991, *Formalization and Privatization of Land Rights in SubSaharan Africa : A Critique of Current Orthodoxies and Structural Adjustment Programmes.* Namur : Facultés Universitaires Notre-Dame de la Paix.

Raintree, J.B. (ed.), 1987, *Land Trees and Tenure.* Nairobi and Madison: ICRAF and Land Tenure Center.

Rassam, A., 1990, *Land tenure in the Ivory Coast.* Madison : Land Tenure Center.

Reyna, S.P. and R.E. Downs, 1988, "Introduction" *in* Downs and Reyna, p.1-22.

Roy, S.B., 1992, "Forest Protection Committees in West Bengal", *Economic and Political Weekly (India)*, 27(29), p. 1528-1530.

Sargent, C. e.a., 1994, "Incentives for the sustainable management of the Tropical High Forest in Ghana", *Commonwealth Forestry Review*, 73(3), p. 155-163.

Saussay, C. du, 1986, *Statuts fonciers et politique forestière*. Rome : FAO.

Savenije, H. and A. Huijsman (eds), 1991, *Making haste slowly*. Amsterdam : Royal Tropical Institute.

Scherr, S.J., 1989, *The legislative context for agroforestry development in Kenya*. Nairobi : ICRAF Reprint Series, no. 56.

Sheperd, G., 1992, *Managing Africa's Tropical Dry Forests : A Review of Indigenous Methods*. London : Overseas Development Institute.

Sharma, R., 1991, "Agro-forestry : some policy issues", *Yojana (India)*, 35(8), p. 17-22.

Shipton, P., 1988, "The Kenyan land tenure reform : misunderstandings in the public creation of private property", *in* Downs and Reyna, p. 91-135.

Sibanda, M.C., 1995, "Wildlife, conservation and the Tonga in Omay", *Land use policy*, 12(1), p. 69-85.

Smith, A., 1994, *Incentives in community forestry projects: a help or a hindrance?* London : ODI Rural Development Forestry Paper 17c.

Stocking, M.,1989, "How Lesotho is tackling soil degradation", *Appropriate Technology* 15(4), p. 14-16.

Swallow, B.M. and D.W. Bromley , 1992, *Institutions, Governance, and incentives in common property regimes for African rangelands*. Madison : University of Wisconsin.

Taale, T. & J. Griffiths (eds), 1995, *The Role of Law in the Protection of the Tropical Forest in Ecuador's Amazon Region*. Groningen : University of Groningen (Draft version).

Thébaud, B., 1995, *Land Tenure, Environmental Degradation and Desertification in Africa : Some thoughts based on the Sahelian example*. London IIED.

Thomson, J.T., 1992, *A framework for analyzing institutional incentives in community forestry*. Rome : FAO.

Travaux de Recherche Développement, 1993, *Gestion de terroirs. Problèmes identifiés par les opérateurs de terrain en Afrique et à Madagascar*. Paris: Réseau Recherche-Développement.

Unruh, J.D., 1995, "The relationship between indigenous pastoralist resource tenure and state tenure in Somalia", *GeoJournal*, 36(1), p. 19-26.

Uphoff, N., 1986, *Local institutional development; an analytical sourcebook with cases*. West Hartfortd : Kumarian Press.

Venema, B., 1995, "Local management of common property: theory and practice of the common pastures in Morocco", *Bulletin APAD*, 8, p. 69-78.

Vermillion, D.L., 1994, "Irrigation management turnover; the shift from agency to local control", *Quarterly Journal of International Agriculture*, 33(4), p. 364-379.

Wade, R., 1987, "The management of common property resources : collective action as an alternative to privatisation or state regulation", *Cambridge Journal of Economics*, 11, p. 95-106.

Wade, R., 1988, *Village Republics. Economic conditions for collective action in South India*. Cambridge and New York: Cambridge University Press.

Webster , 1976, *Webster's third new international dictionary*.

White, F.A. and C.F. Runge, 1995, "Cooperative watershed management in Haiti : common property and collective action", *Unasylva*, 46, p. 50-57.

World Bank, 1989, *Sub-Saharan Africa: From Crisis to Sustainable Growth.* Washington D.C.

Zeeuw, F. de (forthcoming), *Borrowing of land, security of tenure and sustainable land use in Burkina Faso.* Wageningen: Agricultural University (Tropical Resource Management Papers).