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CO-MANAGEMENT OF NATURAL RESOURCES IN DEVELOPING COUNTRIES: THE IMPORTANCE OF CONTEXT

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ABSTRACT. This article analyses the implementation of co-management in developing countries twenty years after its introduction. In a context of tension between the inertia of developing countries and the pressure exerted by international organisations, the dominant model of interaction between central government and local communities is based on rent-seeking. This dominant model does not allow co-management projects to develop under ideal conditions, and in the end this affects how they work, and compromises the effectiveness of projects for the conservation of natural resources. Under these conditions, it appears to be essential to review the nature of the partnership between funding organisations and developing countries, which remains strongly centralised.

JEL Classification: Q23; Q28.
Keywords: Local Communities; Co-Management; Sustainable Development; Stakeholders; Natural Resources.

RÉSUMÉ. Cet article analyse, à l'aune de vingt années, la mise en œuvre de la gestion participative dans les pays en développement. Dans un contexte de tensions entre une inertie des pays en développement et une pression exercée par les institutions internationales, le modèle dominant d'interaction entre l'Etat et les communautés locales est la recherche de rente. Ce modèle dominant ne permet pas aux projets participatifs de se développer dans des conditions optimales, ce qui affecte leur mode de fonctionnement et leur efficience en matière de conservation des ressources naturelles. Dans ces conditions, il apparaît avant tout essentiel de réviser le mode de partenariat entre les bailleurs de fonds et les pays en développement, qui reste fortement marqué par un haut degré de centralisme.

Classification *JEL*: Q23, Q28.
Mots-clés : Communautés locales ; gestion participative ; développement durable ; parties prenantes ; ressources naturelles.

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1. Introduction

Since the publication of the Brundtland report in 1987, the concept of sustainable development has moved centre-stage in international discussions. The Rio Conference in 1992 strengthened the implications of participatory governance, and highlighted the need to take all the stakeholders into account in managing natural resources. The concept of participation has been disseminated via two specific channels. One of these was based on the limits of the technology transfers in the field of agricultural research and rural development;[2] the other challenged the centralised management of natural resources by the State (notably that of forests) (Barnaud, 2008).[3]

In the field of natural resources management, studies running counter to the tragedy of the commons (Hardin, 1968) have constituted the real crucible for the development of the concept of participation (Barnaud, 2008). A considerable volume of literature has developed (McCay and Acheson, 1987; Wade, 1988; Ostrom, 1990; Bromley *et al.*, 1992; Baland and Platteau, 1996; Brown, 1999; Agrawal, 2001; Bertrand *et al.*, 2005; Castellanet *et al.*, 2008, amongst others), highlighting the fact that local institutions, and therefore the communities which support them, have an essential part to play in the efficient and sustainable management of natural resources.

However, the literature is not unified, and at least two significantly different currents can be distinguished (Craig, 2004). A sociological-historical current (Blaikie, 1989; Beck, 1994; Blair, 1996; Mosse, 1997; Goldman, 1998; Cleaver, 2000; Jodha, 2001, amongst others), which concentrates mainly on the transformation of systems of property rights in contextual terms, and is based on a narrative historical method. The other current is based on a hypothetical-deductive logic, and highlights the question of collective action[4] (this includes Ostrom, 1990; Baland and Platteau, 1996; to cite but two crucial references). Craig (2004) stresses that the hypothetical-deductive approach has incontestably become the dominant trend for dealing with the management of natural resources. The Nobel Prize for

2. With regard to the limits of the transfer of technologies in developing countries, there was a considerable deployment of co-management schemes during the 1990s (Chambers *et al.*, 1989; Scoones and Thompson, 1999). Accelerated Methods of Participatory Research (MARP) were applied to many co-management schemes during this period, and affected them not only in terms of the large number of people they involve, but also of how they were viewed by international funding organisations (Lavigne-Delville and Mathieu, 2000).

3. It is of course possible to identify precursors of the co-management approach. For example, Ivan Illich (1971) in the field of education denounced the centralising and hierarchical monopoly of the school system intended solely to satisfy economic needs to the detriment of any popular participation in the acquisition of forms of knowledge intended to promote human fulfilment.

4. As Craig points out (2004), this does not mean that the deductive approach does not use historical references. However, historical facts are reinterpreted through the prism of collective action so as to provide a general theory of the management of natural resources by local communities, and case studies and historical facts are only used to illustrate, confirm or disprove the theory. All reflection on collective action taking place in terms of the Olson model (1965).

Economics awarded recently to Elinor Ostrom, one of the leading figures in the debate, also reflects the interest in this approach within the economic sciences.[5]

This article will focus essentially on co-management from the hypothetical-deductive standpoint. Not only because this approach is theoretically dominant, but also because it has developed tools for analysing the situations of natural resources management that have had a significant impact on international institutions, such as the IAD framework (Institutional Analysis and Development) developed at Indiana University by Ostrom and her colleagues. Furthermore, we will limit our analysis to developing countries. In these countries, the funding organisations, notably the Bretton Woods institutions, have made co-management the keystone of their development programs. In practice, this involves setting up projects that are subject to conditions, and require local people to be involved. This means that the sphere of influence of reflexion on co-management has been significant in the developing countries via both international institutions (Arnold, 1992) and also some NGOs that have switched from a purely conservation-based vision to a co-management vision (the World Wide Fund for Nature, for instance, McCay, 2002).

There are of course various different definitions of the co-management of natural resources (see Glasmeier and Farrigan, 2005 for a review of the definitions). Here we will adopt two essential criteria: firstly, there must be at least a partial devolution of skills to local communities[6], which implies that communities responsible for the management of resources have some degree of responsibility; secondly, the essential aim must be to conserve resources.

Since the movement of reflexion about the co-management of natural resources has had a significant influence on the implementation of policies to conserve natural resources, the purpose of this article is to analyse how they are being implemented in developing countries. We will not attempt here to carry out a critical assessment of the dominant approach of co-management,[7] but to investigate, relative to the general framework that it proposes, how co-management policies have been introduced in developing countries, and the difficulties they have encountered. This involves analysing the limitations of applying this approach in specific contexts.[8]

The article is structured as follows. In Section 2, we recall the general IAD framework that will be used as the basis of our article. In the following sections, we will use this analytical approach to assess the introduction of co-management policies. In Section 3, we will describe the historical and general institutional context in which co-management has

5. Obviously, this does not mean that the narrative historical approach is of no interest. However, as Craig points out (2004), it is difficult for this approach to win acceptance in terms of a logic based on the supposedly "scientific nature" of research in a Popperian sense.

6. The term "local community" is itself open to challenge. We will use it here in a wide sense: a "community" is all the populations that occupy a given territory, close to the resources, and which are bound by close social, cultural and economic links.

7. For a critical view of this approach, particularly of its use of the concept of the local community, see, for instance, Agrawal and Gibson (1999), Ballet (2007).

8. From this point of view, our approach sets out to copy that used in medicine, where after a drug has been tested in the laboratory, its efficacy is assessed in a real-life context, because this context can affect its efficacy.

emerged in developing countries. In Section 4, we will analyse the model of interactions between the players that develops in this context, and in Section 5 we will highlight some of the implications for the introduction of co-management. And finally we will draw some conclusions.

2. Co-management, the institutional analysis and development framework

The literature on natural resources management by local communities does not claim that these communities will always manage natural resources effectively and efficiently. Like governments, they will sometimes fail to do so (Feeny *et al.*, 1990; Blaikie, 1996; Jones and Murphree, 2004; Hutton *et al.*, 2005). What it does claim is that these communities can do so better than central Government. This does not mean that the Government no longer has any role to play. On the contrary, co-management implies that several actors are involved, including the Government.

This enables us to distinguish between co-management and community management. Community management of natural resources implies that the resources are managed solely by local communities, whereas co-management involves several players (central government, local authorities, local communities, etc.), so that local communities are only one of the players involved in the management process. In this sense co-management encompasses community management.

One particular advantage that local communities have over central government in managing resources arises from their ability to access detailed information rapidly about the state of the resources, which allows them to respond and therefore adjust more quickly. Furthermore, the cost of implementing and monitoring management rules is lower as a result of the social capital available to local communities. In contrast, central government also has some advantages over communities in managing resources. In particular, as a result of their social distance from the users of resources, government departments are relatively free from social pressures that can be exerted by individuals locally in order to maximize their advantages from exploiting the resources. Central government also has access to ecological information at a wider scale, and to more sophisticated analytical tools than local communities. Central government can also help local communities to reduce the pressure on resources by supporting their land rights when they are confronted by migrant communities from outside who are looking for fresh opportunities. This type of pressure is a major factor in the failure of resource management by local communities (Baland and Platteau, 1996). Finally, central government has access to much greater financial resources, which can be used to compensate local communities for losses that result from restricting their access to resources (Singleton, 2000). Co-management attempts to combine the advantages of local communities with those of central government and various departments of the State (for example, see Susskind *et al.*, 1999, for an enthusiastic account). The ability to manage natural resources well depends on the models of interaction between central government and local communities, and more specifically on the ability to create, not only horizontal social capital between the members of the community, but also vertical social capital linking local communities and central government (Taylor, 1996).

However, co-management projects are far from always leading to the intended positive outcomes. They can also be particularly time-consuming, expensive and destructive of social capital (Conley and Moote, 2003). They can make illegitimate conflicts, and lead to compromises based on the lowest common denominator (Kenney, 2000). In fact, Ostrom (2007) acknowledges that there can be no panacea solution to complex problems. The challenge is therefore to analyse how co-management projects, and the interactions between central government and local communities, is organised. Just such an analysis lies at the heart of the Institutional Analysis and Development framework (IAD) proposed by Ostrom and her team at Indiana University.

The IAD framework originated mainly in a research panel set up by the National Academy of Sciences to look into the concept of common property (National Research Council, 1986). A general framework for the investigation of various types of situation was then developed (in particular see Bromley *et al.*, 1992; Ostrom, 1992). The IAD framework was initially used as a tool for academic research, but it has subsequently been used to define and manage public policy (in particular, see Polski and Otrom, 1999).

The IAD framework involves four steps (Ostrom *et al.*, 1994). The first consists of identifying the basic aspects of management by local communities: first of all the physical environment i.e. the natural resources involved, but also the ecosystem in which they are found, since the condition and changes in the natural system can be crucial to understanding what is happening to the resources concerned.[9] This step also includes identifying the communities linked to the management of the resources, and finally, the current regulations that govern access to and use of resources within these communities. The second step involves identifying all the other players who interact with these local communities, and the context in which their interactions occur (the arena occupied by the players). This means that the IAD framework includes a principle of contextualisation.[10] The third step consists of analysing the models of interactions between the players. The fourth step evaluates the situation from the results with regard to resource management and the models of interactions between the players.

The analysis that we propose in the following sections sets out to highlight the context within which interactions between the government and communities take place, to examine the dominant model of interactions in this context, and to deduce its implications for natural resource management.

9. For example, Wilson (2006) questions whether it can be used to manage fish resources in the complex system of the ocean.

10. The importance of this contextualisation principle has often been pointed out in institutional analyses, notably that of Cyriacy-Wantrup (1963). We should note that from this point of view, if we accept that the present situation is never totally unrelated to the past, the hypothetical-deductive approach can extract important information from the analyses carried out in the context of a sociological-historical approach.

3. The context in which co-management projects are set up

Co-management is based on at least a partial devolution to local communities, in application of the principle of subsidiarity (Mors, 1993). However, this devolution takes place in response to pressure from international institutions, in a general context of challenging the old order marked by strong centralisation, and also by the marked inertia of developing countries.

3.1. Challenging the old order and the emergence of co-management projects

In most developing countries, the colonial and post-colonial periods have been marked by bureaucratic state control of resource management, to the detriment of local communities (Peluso and Vandergeest, 2001; Sivaramakrisnan, 1999). This centralised management has usually been combined with a repressive management structure (Ribot, 2001). For example, in the former Afrique Occidentale Française (AOF), the colonial order of July 4, 1935, which laid down the procedure for constituting a listed forestry domain, ignored the wishes of rural populations (Lavigne Delville *et al.*, 1996). It did already envisage increased protection of forests, in response to pressure from naturalists, but it proceeded to do this by curtailing the rights of indigenous populations to exploit resources located within forest reservations. The same is true of the 1930 text on the forests of Madagascar (Montagne and Ramamonjisoa, 2006). This governance, which guaranteed access to forest resources for some people whilst making it more precarious for others, led to institutional violence (Ballet *et al.*, 2009).

This also partly explains repeated failures of forestry policies (Ribot, 2001; Montagne and Ramamonjisoa, 2006). State control has severely undermined the previous models of community management (Ribot and Peluso, 2003), and this has significantly contributed to the destruction of resources, as illustrated, for example, by the deforestation of Nepal (Ives and Messerli 1989, Gilmour and Fisher 1991, Agrawal 1999, Agrawal and Ostrom 1999, Waltner-Toews *et al.*, 2003).

This old order was not called into question in most developing countries until the 1990s. Some examples of resource management by communities occurred in Asia from the 1970s (Arnold, 1992; Pardo, 1995; Glasmeier and Farrigan, 2005), the most emblematic example clearly being that of Nepal, where in 1978 government legislation recognised the right of local populations to manage forest resources via the intermediary of a local institution known as the *panchayat* (Acharya, 2002); this approach to resource management really took off in the 1980s (Western *et al.*, 2004; Borgerhoff Mulder and Coppolello, 2005; Brosius *et al.*, 2005). However, in most developing countries (especially in Asia and in Africa) we had to wait for the 1990s before we saw the emergence of a plethora of environmental action plans, in response to pressure from international funding organisations (World Bank, FAO, UNDP, etc.) (Poffenberger and McGean, 1996; Ekoko, 1997; Wily and Mbaya, 2001; Ribot, 2002; Plummer and Fitzgibbon, 2004). Throughout sub-saharan Africa, whether in French-speaking, English-speaking or Portuguese-speaking countries (Cirelli *et al.*, 2003), the decade of the 1990s was a key period for reforms and innovation in the field of environmental legislation, with participatory tools to the fore. The stark alternative between State or market monopolies was shattered, and replaced by the possibility of negotiated institutional arrangements. Local populations began to be involved in many decisions concerning environmental policies (for instance, see Brian, 1999 on Namibia; Seshia, 2002, on Mozambique; Montagne *et al.*, 2005, on Mali and Niger; Féral, 2007, on Mauritania and Senegal).

3.2. Convergence between co-management and decentralisation

The concept of decentralisation is important in the analysis of co-management.[11] The lack of any real decentralisation is a recognised barrier to the introduction of co-management (Shackleton *et al.*, 2002; Child and Dalal-Clayton, 2004; Jones and Murphree, 2004; Murphree, 2004). Even though decentralisation and co-management are not synonymous, they both refer to the principle of subsidiarity, and involve a requirement for cooperation between players at different levels of responsibility (central government, territorial authorities, local populations…). This reference to the principle of subsidiarity signals the end of the monopoly of the centralising State in the management of natural resources. It implies both recognition of the rights of decentralised communities over resources in their territories, and the redistribution of management rights and powers by their transfer from central government to legitimate, decentralised representative communities (territorial authorities, civil society, local populations…). The principle of subsidiarity demands the effective delegation of some of the prerogatives and roles of the State to decentralised authorities to enhance the effectiveness of the allocation of rare resources and planning for the development of the territory. This means that a hierarchical level must be chosen for the implementation of policies that keeps economic costs to a minimum, and maximises social well-being (Mors, 1993). However, the role of central Government is reaffirmed in the sense of creating the political and legal environment that ensures the lasting nature of local agreements concerning the management of natural resources (Castella *et al.*, 2005).

Lavigne Delville (2005), referring to the concept of *devolution*, distinguishes between co-management and decentralisation. In decentralisation, responsibility for defining the rules is entrusted to local organisations; the bodies involved may be the communities to which people belong, such as associations, or territorial authorities resulting from administrative decentralisation. Decentralised management is thus clearly distinct from co-management, in which local players are mobilised to implement the rules laid down by the administration. In this sense, according to Chambers *et al.* (1989), an essential challenge facing participatory approaches is the sharing of power between players.

11. Decentralisation must be distinguished from deconcentration. The latter refers solely to the transfer of skills to State employees working in a local region (for example a Regional Directorate of a central government administrative department). The deconcentrated department still acts directly under the authority of central government. In contrast, decentralisation combines a transfer of both skills and of responsibility and authority.

The involvement of local populations gives rise to a great need for coordination between the members of local communities and the other outside players responsible for the governance of natural resources. This process leads to the formulation and modification of the management rules within the framework of collective decision-making, which Ostrom (1999) designates *self-governance*.

3.3. Inertia of developing countries and the shift of political-administrative burdens

Co-management projects have been implemented in a context in which developing countries were being forced to abandon the prevalent extreme centralisation. Many authors have referred to the perverse effects of heavy-handed government intervention in developing countries. In Côte d'Ivoire, Contamin and Fauré (1992) have criticised the haste with which State companies were set up, and the fact that they are managed without any regulatory framework, and rely on external aid and State generosity. These authors think that the crisis that developed from the 1970s was a pretext for relaxing the rigorous principles of management, with poorly-defined goals, and a failure to clarify the responsibilities of those in charge. Under these conditions, the public authorities assumed the right to interfere systematically, thus undermining the managers of these State-owned companies. Duruflé (1988) comes to a similar conclusion by revealing the headlong rush into increasingly constraining interventionism. It was in societies that were still marked by the logic of the exercise of public power that participatory governance was seen as the "secret weapon" of international institutions. According to Bied-Charreton *et al.* (2006), a change in direction occurred in the 1990s, in the priorities of Indian water policy defined in response to pressure from the World Bank in particular, which was intended to restrict the role of central government. Vaidyanathan (1999, p.131-132) points out that in this context that "the government's approach is always *ad hoc*, hesitant and at the same time, defensive"; which foreshadowed the lack of preparedness of the public authorities in developing countries.

Two observable facts illustrate this lack of preparation: on the one hand the instability of the ministers responsible for managing natural resources and the environment; and on the other, the confusion that surrounds the legal definition of property rights (customary versus modern), and the gulf between the definition and the application of legal texts. In many developing countries, a large number of ministries and public bodies (development agencies etc.) are responsible for natural resources and the environment, without the links between the specific problems being clearly identified. This has led to a constant to-ing-and-fro-ing between the Ministries of Agriculture or of the Environment, or of Water and Forests, etc. This instability led to the fragmentation of the governance of natural resources, and made it impossible to optimise the implementation of public policies. With regard to the introduction of new legislation, local norms have often been cast aside in favour of laws that were incomplete and inadequate (Bied-Charreton *et al.*, 2006), but had been voted by national parliaments. The lack of legal clarity gave some users the idea that they were entitled to free access to the resource, thus promoting the opportunist behaviour of free riders. Very often there is no legal text defining how participation structures should work apart from the texts introducing them. This lack of official texts results in a climate characterised by a lack of confidence and legitimacy, which tends to lead to the disintegration of authority. The inefficiency of co-management is the corollary, due to a lack of institutional and democratic underpinning. As a result, participatory projects lose their ability to continue after outside funding is withdrawn.

To this lack of preparedness, we can add the political-administrative burdens. With regard to the management of water resources in India, Bied-Charreton *et al*. (2006) point out the heaviness and slowness of administrative procedures, and the inadequacy of the monitoring and follow-up system. In the context of irrigation in Tunisia, the same authors highlight the fact that groups of people using water for agricultural purposes were not set up until 1992, even though the framework for their creation dated from 1987. With regard to subterranean water, Berkoff (1994), Tolentino (1996), Grimble *et al*. (1996), for instance, have shown that in general developing countries did not have sufficient administrative management capacities. After observing similar problems in the forest sector of Central Africa, Karsenty and Fournier (2008) stress the application of the regulatory frameworks drawn up and the promotion of institutional counter-balancing powers alongside and within the public institutions in order to improve the governance of natural resources.

Furthermore, in developing countries where the public authorities play an important role in the management of resources, the problem of political and administrative corruption is also crucial. Mookherjee and Png (1995) raise two key problems linked to the governance of resources: the motivation of the control agencies and the possible corruption of the inspectors or civil servants. Koffi (2005) highlights the complexity of the situation in developing countries, where information is severely asymmetric, due to the low level of education and the poor dissemination and availability of information within communities. He notes that on the one hand, development is seen as something ordered by the Government and its national and international experts, and on the other it is seen as having a dynamism specific to given populations. From the technocratic connivance between the politicians (political parties and elected representatives), administrators (civil servants, including senior civil servants and government employees), socio-economic partners (civil service unions and bosses, NGOs…), and international development institutions, emerges an utilitarian conception of development, which provides fertile ground for all the deviations due to poor governance.

The new strategies of the World Bank are intended to correct this observed deviation by introducing the concept of good governance. However, these strategies remain attached to the domination of the Bretton Woods institutions in the definition of the objectives of policies and their implementation. The invasive and technocratic nature of these policies, their procedural rationality from their conception to their implementation, and their standard-setting content, lead to a separation of the worlds that are intended to take part in a joint action (Isla and Baron, not dated; Baron, 2003, 2007). The apparently consensual institutional dynamics involved hide the growing autonomy of spheres that are juxtaposed or in some instances, actually in opposition to each other.

Participatory projects are thus part of a general movement towards to reform of the political and administrative systems of developing countries, which is characterized by a dual dynamism: on the one hand, at the national level this tends to be a dynamism of inertia; on the other, there is the pressure exerted by international institutions.

4. From the plurality of participatory projects to a dominant interactive model

The dual dynamism described above has resulted in reforms that in fact exist only on paper, while the power to allocate resources continues to be monopolised by the central players in a neo-patrimonial approach (Ribot *et al.*, 2006). Despite this, many participatory projects are being instigated. However they take place in the gaps left by the logic of the dominant model of interaction between the Government and the local communities characterised by rent-seeking.[12]

4.1. Pluralism of the projects and of the institutional arrangements

Behind the principle of the participation of populations there is a multiplicity of projects. Thus, the implication of local populations can involve management transfer contracts that take the form of new protected areas (Aveling, 1996) or of community or village forests (Karsenty *et al.*, 1997). This new generation of projects are organized around the management of land, reforestation or agroforestry. In the Côte d'Ivoire, the projects of agro-forestry reforesting, in the central-northern region in the early 1990s, rewarded the peasants by money paid per hectare cleared and/or planted. However, this experience soon came to an end, and the reforestation projects were discontinued just a few years later (Koffi, 1996). In some of the countries in the Sahel (Burkina Faso, Mali, Niger, Senegal), the populations have been associated with the commercial activities of the production and transportation of timber via the creation of rural wood-energy markets. (Ribot, 2001; Montagne *et al.*, 2005). Lapeyre (2006) highlights the institutional arrangements between rural communities and private tourist operators in rural zones of Namibia. The former concede natural assets to the latter in exchange for financial capital and know-how. In Nepal, in the context of powerful groups of users of forests (GUF) set up by the community forest programme, Dahal *et al.* (2008) indicate that a certain percentage of the funds intended for revenue-generating activities has been assigned to the poor and to pay for the education of children from poor families (school expenses, uniforms, school notebooks, books, etc.). We also see that within these GUFs, the participation of women and underprivileged groups in the decision-making process has increased. In the Philippines, one of the main incentives used to persuade local communities to get involved in the co-management forests has been to grant each resident household an area of land. These areas of land, which have a maximum area of five hectares, have to

12. Of course we do not wish to say that no participatory project can take on board the logic of a true desire to conserve resources. However, what emerges is a dominant model of interaction that reduces the space available for other forms of interaction.

be used to cultivate forestry species, and thus allow the households to provide for their own needs (Dahal *et al.*, 2008).

This multiplicity of participatory projects is associated with a multiplicity of institutional arrangements, combined with rules of allocation that result from the interactions between the parties involved. These institutional arrangements display wide diversity, and have an hybrid nature as a result of a compromise between the players and the instruments of public, market and community regulation (Bied-Charreton *et al.*, 2006). For example, Méral (2004) distinguishes between five categories of co-management that combine varied forms of practice (land management, community management, co-management, collaborative management, adaptive management). The involvement of local players can also range from simple consultation (passive participation) to true decision making (active and responsible participation), in a variety of different approaches (Chambers, 1997; Buttoud, 2001; Froger *et al.*, 2004).

4.2. Rent-seeking: a dominant model of interaction

As we have pointed out, participatory projects have developed in response to funding organisations, with some reticence or inertia from the national authorities. However, when the methods of financing and the expenses of the projects depend entirely on outside agencies, two problems arise: that of the sovereignty of the decisions (the autonomy of the players at the national and local levels), and that of the economic incentives used to motivate the players. As Nelson and Agrawal (2008) point out, on the basis of a study of eight African countries (Botswana, Kenya, Mozambique, Namibia, Tanzania, Zambia and Zimbabwe), the political willingness to transfer resource management to local communities is inversely correlated to the income that the political authorities can obtain. However, pressure from international institutions does tend to result in the setting up of projects, as long as the central authorities can maintain discretionary power over controlling the resources.

This means that although some power is indeed given to the local populations, the political authorities hang on to their own interests. So according to Rahnema (1992), it is usually when the operations involved are of little importance that local players are invited or even forced to get involved. In this way, by setting up minor projects the authorities are able to satisfy the requirements of the funding organisations without letting go of their income from key resources.

It is not only central government that gets this income. As Nelson and Agrawal (2008) point out, the existence of a bureaucracy in which there is a lack of transparency and which does not have to account for its actions, makes it easier for the administrative managers of projects to privatise public resources, such as those intended to ensure the conservation of resources. As a result, the managers of participatory projects may be preoccupied by the search for funding, rather than by ensuring that the sustainable management measures introduced are effective.

Indeed, local populations themselves sometimes perceive conservation projects as opportunities to receive money. In some cases, the compensation they receive is assimilated to State grants (Baland and Platteau, 1996). In the end, this forces the government to seek international funding to meet the costs entailed in implementing the projects. In this way, participatory projects can be developed without there being any real interest in conservation. The systems of allegiance and loyalty that are created between local communities and the local authorities around conservation projects provide a way to control and redistribute resources. Thus, on the basis of an analysis of two case studies in South Africa, Fay (2007) indicates that the implementation of participatory projects to conserve natural resources has resulted in the emergence of new communities that "fight" for the financial gains resulting from these resources. In both cases, systems of allegiance and loyalty have been built up around government representatives, and are intended to seize control of the resources involved. In contrast, in their case study of the forest reservation of Moribane in Mozambique, Schafer and Bell (2002) show that the introduction of a participatory project for managing resources was intended to restore government control of a zone that was in the hands of guerrillas. The participatory project thus created new allegiances within the local population in exchange for financial benefits.

5. Implications of the interactive model on participatory projects

The thinking behind the implementation of participatory projects, essentially dominated by rent-seeking, has a negative impact on the effectiveness of these projects,[13] and this is for at least two reasons. On the one hand, the projects are defined mainly by government departments, independently of the local populations, which leads to a mismatch between the way local populations represent and use them, and the way that agents acting on behalf of the State use natural resources. In addition, when local populations are associated with the projects, the projects tend to exacerbate social inequalities within the communities. Finally, in addition to these two effects on effectiveness, there is also a major risk that the projects will have little staying power if the funding ceases.

5.1. A mismatch between projects and the usual practice of the populations

Instead of a true devolution of the management power to local communities, national or international organisations remain at the centre of the system, with the local populations being marginalised, and simply told what to do. The underlying conditions imposed, that may range from the recruitment of local communities to these projects to the creation of the

13. Of course, this does not mean that these projects have no beneficial effect. According to the evaluations of Collas de Chatelperron and Razafindrianilana (2005) in Madagascar, they contribute significantly to improving the environment. According to Poissonnet and Lescuyer (2005), participatory activities constitute a dual pole of development. They provide additional local taxes (Collas and Chatelperron, 2005), and create new jobs.

socio-economic infrastructures, were supposed to be for their benefit. However, this is no longer evident when the goals of the projects are defined outside the local communities. These goals imposed from above require the populations to be actively involved.

There is relatively little real participation by local people. Plans for the management of the resources are often drawn up by government departments, using their own representations, and the technocratic complexity of administrative procedures that are beyond the grasp of rural populations. It is only after this that rural communities, who are often illiterate, are belatedly asked to give a purely consultative opinion. The participatory framework constructed is very often biased as a result of its composition, the instructions it receives, and the fact that it is directed by the regional "Préfet" or government agent, who is simply the local representative of the central administration. The consultative context usually remains at the level of aspirations and practices, involving meetings or socio-economic surveys.

However, this approach involving little real participation of the populations leads to a mismatch between government agents and local populations on the representation of the natural resources. For example, in the area of forestry, the practices of the communities are based on sociocultural and spatial ideas about property. A series of symbolic functions are attached to this space, and control the relationship to resources via spiritual beliefs. Through their relationship to resources, people manage the relationship between human beings and supernatural beings (Nguinguiri, 1996); this is very different from the technical and administrative approaches to land use planning that generally adopt a purely utilitarian perspective. The legislation linked to natural resource management methods refers more to the "modern" legal framework, than to the traditional and sociocultural bases of behaviour. Sometimes the degree of ignorance of the traditional ways of appropriating land is such that the legislators wrongly classify any land that is not being actively exploited as being vacant. Local communities then do not see the relevance of the resulting rules to themselves, and consequently do not modify their behaviour with regard to using the resources. We find the effects of this clash of representations in the mismatch between zoning plans and customary areas (Vermeulin, 1997), and it has contributed to the failure of many participatory projects (Karsenty, 1999). Poissonnet *et al.* (2006) observed in Kenya that farmers did not see the relevance of these laws, and so continued to exploit forest products, the sale of which provides 10 to 85 per cent of their income. Similar observations have, for example, been made concerning the implementation of projects in Cameroon, Gabon, Congo (Joiris, 1997), and Côte d'Ivoire (Koffi, 2005). The conflicts linked to these representations are therefore latent, even though the representations are not set in stone, but can change in response to contact with the outside world (Olivier de Sardan, 1991; Nkoumbele, 1997; Solly, 1997).

5.2. Projects that reinforce social inequalities

When local communities are consulted and involved, participatory projects are generally based on the traditional authorities, particularly as they are the essential link required to construct networks of loyalty to local, elected politicians. However, a mechanism of this type limits the effectiveness of co-management. The vertical hierarchy of power that exists within communities means that all their members do not have the same weight in decision-making, even when the decision reached is described as being "collective". For instance, the hierarchical structure of rural communities, which often takes a gerontocratic form, means that everyone may not be free to speak at meetings. The local power structure that governs these meetings does not permit freedom of expression, and keeps some parts of the local populations away from the heart of co-management. This is true particularly of young people and women, whereas, for example, Dolisca *et al*. (2006) show that in the case of the "Forêt des Pins" reserve in Haiti, young people were those most likely to want to take part in forest work. Takforyan (1996) thinks that the participatory approach often remains outside the local populations. This leads to the question of whether the wishes recorded during these meetings are not those of the local powerful clique, rather than of the local people as a whole.

In this regard, Bardhan (1993) points out that even if many local communities have been able to maintain rudimentary forms of cooperation over time by means of the traditional authority structures, these structures are often based on mechanisms of "clientelist" allegiance, which skews the redistribution of wealth, including access to natural resources. However, inequalities and exclusions also have an impact on the effectiveness of resource management. Andriananja (2005), in a study of the participatory management of forests in Madagascar, highlights the fact that individuals who are denied access to resources, or who are unfairly treated with regard to using these resources, resort to reprisals, such as deliberately setting fire to the forest. In general, Bowles and Gintis (2002) indicate that the division of the population into "insiders" and "outsiders" tends to reinforce a narrow vision of what is at stake in development rather than solving the problems that arise.

5.3. Short-term projects

Participatory projects have a funding horizon of five years, which is sometimes renewed once. Neef (2005) indicates that the effect of participatory projects cease once the projects themselves end, because they are not taken on by the institutions that already exist *in situ*. The fact that participatory projects generally only benefit the customary institutions deprives them of any institutional grounding. In the end, the only result of participatory projects is to superimpose customary institutions and decentralised state institutions. As soon as the funding ceases, the projects wane.

From this point of view, Randrianalijaona (2008) has shown that in the case of Madagascar the most effective of a series of resource conservation projects in terms of sustainability were those that had been able to create activities and channels that guaranteed a regular income to the local populations; thus ensuring that the projects would last by freeing them from dependence on external funding.

6. Conclusion

After nearly twenty years of co-management, the progress made can only be significantly assessed within a changing society that is entering into a new social contract. This involves taking at least three factors into account: firstly, the history of colonial governance in many developing countries which was based on authoritarian and repressive centralism; then the inherent inertia to any profound change in society (the switch from vertical governance to horizontal governance in a context of asymmetry and socio-political tension); and finally, the sequential appropriation of the tools of decentralisation and participation.

The context in which the concept emerged has made it a sort of lifebelt for many people. It has been presented in an attractive light, and many national and international bodies have been fascinated by its theoretical advantages. However, the effectiveness of this method of management is undermined by a lack of institutional and democratic foundations in developing countries. The inertia of developing countries, reflected in the rent-seeking, has created a mismatch between the practical implementation and theoretical advantages of this approach. Some of these theoretical advantages are themselves open to criticism; but we have stressed here the context in which projects are implemented. Co-management does not offer a miraculous solution, and when the real impacts of projects are being evaluated, it is important to highlight the context in which they were introduced, and the models of interaction associated with them. Much of the discussion concerning co-management continues to focus on technical aspects (for example, see Jones, 2004). However, an understanding of the political and economic context, and of the associated models of interaction suggest the need for a total review of the general strategy of donors and international NGOs with regard to developing countries, which is currently essentially dominated by a centralised partnership (Nelson and Agrawal, 2008), even when the involvement of the local populations is a condition for receiving the funding. It is the type of partnership involved that is precisely what we need to think about.

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