

## The State, the Community, and Natural Calamities in Rural Mozambique

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### INTRODUCTION

Mozambique has been a particular victim of rapid climatic change, regularly enduring the scourge of drought, torrential rains, and floods, as well as tropical cyclones. In the twenty-five years since independence, the country has been hit by two severe droughts, both of more than two years duration, at least sixteen tropical cyclones and several floods, two of them of very wide scale. These phenomena are commonly called "natural calamities."

After independence, the term "calamities" acquired a wide meaning: it came to refer to all sorts of evils affecting society in a context of searching for the "enemy" forces hostile to the construction of the nation-state. Thus, parallel to the calamities caused by regional enemies (especially *apartheid*), there arose, by extension, a definition of nature as inimical when behaving abnormally. Later, "calamities" came also to describe, by association, goods donated by the international community to help victims of emergency situations created both by war as well as by natural calamities, with the Portuguese word "*calamidades*" referring to items such as clothing or maize flour (calamity clothing, calamity maize, and so on). In this text, natural calamities are considered as extreme climatic events—particularly, droughts, floods, and cyclones—characterized by accentuated and often very rapid changes in climatic behavior, with frequently catastrophic consequences for the economy and society. Such consequences consist of the threat to the security of communities, their culture and goods, whether suddenly and totally (cyclones, floods), or gradually, causing the scarcity of water and food (drought).

Mozambique is obviously not the only victim of extreme climatic events. Indeed, nowadays these have become a widespread global problem. Accen-

tuated by various natural or man-made factors, their causes vary from industrialization to population growth and the intensive utilization of resources—in many cases, impeding their renovation. Some of these causes are identifiable, although not always consensually or definitively, and often have extremely negative effects at regional or even global levels. In general, the scientific identification of the factors causing extreme climatic events is carried out by the most developed countries, which have greater capacity for scientific research and more mechanisms to “enunciate” this identification. Normally, these two capacities—identification and enunciation—are found in the states of the North.<sup>1</sup> In contrast, the states of the peripheral South are, correspondingly, not only considered as important agents in the causal processes of “extreme climatic events” (above all as a result of the poor use of resources), but also find themselves deprived of the social and scientific capacity to identify the factors that give rise to such processes (to “perceive” them as global factors).

Whatever the causes, global or local, extreme climatic events manifest themselves in a concrete and local way. This text seeks to problematize the Mozambican response to the effects of these phenomena. What makes the Mozambican case special in this respect in the last few decades is that the intensification of the local effects of abnormal climatic events<sup>2</sup> took place in the context of a particularly long drawn out and destructive civil war. This combination generalized the misery of the rural areas and resulted in the policies adopted to respond to calamities being strongly affected and influenced by this context.

The Mozambican case shows clearly how policies adopted in response to emergency situations caused by natural calamities (as well as to prevent such situations) are far from being merely technical operations. On the contrary, they are established in specific historical contexts and depend on the nature of the state that formulates them and, therefore, on the relation between the state and society. The conflicted nature of this relation is rooted not only in diverse interests, but also in the very unequal conditions of production and legitimization of knowledge that structure the definition of those policies.

## THE STATE AND NATURAL CALAMITIES

### The construction of a formal response

The end of the colonial order in Mozambique in 1975 involved a profound rupture with the colonial state and the emergence of completely new structures. This resulted from a combination of factors, such as the massive exit of the Portuguese population (including the majority of civil servants),

the extremely weak colonial heritage in respect of the education of the black population, and the posture of the liberation movement, FRELIMO, which advocated such a rupture.

Understandably, the new socialist-leaning<sup>3</sup> revolutionary state, weakened by the lack of cadres, resources, traditions, and procedures, was absorbed by efforts to prevent the collapse of the economy, to “control” both population and territory,<sup>4</sup> and to confront what was considered to be the main enemy—military aggression from the “white regimes” of Rhodesia and South Africa.<sup>5</sup> It did not pay much attention to questions of security in relation to natural calamities.

Surprised in 1977 by the first major floods of the Limpopo and, a little later, of the Zambezi, the state established commissions to provide aid to the affected populations. The experience of the Zambezi floods, to combat the effects of which the state established the Inter-Provincial Commission for Natural Calamities and Communal Villages (Comissão Inter-Provincial das Calamidades Naturais e Aldeias Comunitárias—CIPC-NAC), revealed the limitations of *ad hoc* institutions created in times of crisis. CIPC-NAC had great difficulty in mobilizing resources and, above all, in coordination, composed as it was of personnel taken on an individual basis from other institutions. As a result, in September 1980, the government announced the creation of a more stable and institutionalized body, the Coordinating Council for the Prevention and Combat of Natural Calamities (Conselho Coordenador de Prevenção e Combate às Calamidades Naturais—CCPCCN), headed by the Prime-Minister and involving several ministers. Shortly afterwards, this body created its executive arm, the Department for the Prevention and Combat of Natural Calamities (Departamento de Prevenção e Combate às Calamidades Naturais—DPCCN), headed by a National Director under the authority of the Minister of Cooperation.<sup>6</sup>

The first years of the 1980s proved to be very difficult. In addition to the severe drought, which began to make itself felt towards the end of 1981 and which lasted until 1984, civil conflict, which had been latent for two years, now intensified rapidly, with the expansion of RENAMO guerrillas to almost the entire country. The combined effects of war and drought, aggravating the effects of rural socialization, resulted in the complete destabilization of rural Mozambique, creating a highly negative structural situation that came to last more than a decade. The consequences for the economy were naturally catastrophic, intensified as they were by the sharp deterioration in the international terms of trade.<sup>7</sup> As a result, from 1983, the country became for the first time an importer of foodstuffs as well an important recipient of food aid.<sup>8</sup>

*Table 1: Natural Calamities in Mozambique since Independence*

Data	Natural Calamity		
	Cyclones	Floods	Droughts
1976	Claudette, Dannae, Gladys, and Ella		
1977	Emille	Limpopo River	
1978	Angele	Zambezi River	
1979			
1980	Bettina		
1981	Benedette		Whole country
1982			Whole country
1983			Whole country
1984	Domoína		Whole country
1985	Center and South		
1986			
1987			South
1988	Filão		
1989		Center and South	
1990			
1991			Whole country
1992			Whole country
1993			
1994	Nádia		Whole country
1995			Whole country
1996	Bonita	Zambezi, Púnguè, and Búzi Rivers	
1997	Lisette		
1998		Sofala, Inhambane	
1999			
2000	Connie, Eline, Huddah, and Glória	Center and South	
2001		Zambezi valley	

As Mozambique could not receive significant help from socialist countries, the government sought aid from the West, particularly from the United States. The request for aid was accompanied by the necessary signals that the politics of the country was really changing, including the first steps toward a market economy and a formal request for membership of the World Bank and the International Monetary Fund. At the same time, these were paralleled at the political level by the first contacts for peace negotiations with South Africa, the main source of support for anti-government forces in the civil war.

The United States responded positively to the requests for food aid on certain conditions.<sup>9</sup> One of these was that consignments of food aid should reach beneficiaries without passing through state institutions considered suspect, namely the state commercial network and the DPCCN. The Mozambican government responded that the prevention and combat of natural calamities was a matter of national interest. In the end, an agreement

was reached allowing the DPCCN to carry out the distribution of food aid in partnership with an American NGO, CARE (Concerned Americans for the Reconstruction of Europe). In this way, CARE International came to operate in Mozambique with central authorization and a very wide mandate, ranging from technical assistance to the training of personnel and organization of the DPCCN, as well as direct intervention in the system of transport of food aid.<sup>10</sup>

CARE International helped create a Logistical Support Unit (LSU) in the DPCCN. While the DPCCN defined intervention policy, the LSU functioned as a technical unit, equipped with radio communication means and a fleet of lorries for the transport of food consignments. The LSU had control over technical coordination, statistics, training of personnel, and the transport and storage of goods.

The negative impact of drought combined with war forced the DPCCN to widen its range of action. While initially it had focused its efforts only on Inhambane province, in 1984 it was operating in three, and in 1987 in all ten provinces of the country. At this juncture, the department created provincial branches to coordinate work at this level.

The CCPCCN thus became a weighty institution and, in May 1987, the government sought to transform it by creating in its place the National Emergency Executive Commission (Comissão Executiva Nacional de Emergência—CENE), headed by the Vice-Minister of Commerce. Following the appearance of CENE, Emergency Commissions (CPE) were created in all the provinces in what was intended to be a more decentralized system: CENE established its list of priority provinces in terms of action, while the CPE established their own priorities and coordinated emergency aid operations at the provincial level.

From this time on, there were two central coordinating organs in CENE. The first was the Emergency Technical Council (Conselho Técnico da Emergência—CTE), headed by the coordinator of CENE. The sectoral emergency units of the ministries involved—namely, those for health, education, agriculture, construction, and water, and for transport and commerce—participated in this body. The CTE was responsible for the identification, conception, implementation, and control of emergency projects. The other major coordinating structure was the Emergency Operations Committee (Comité das Operações de Emergência—COE), also headed by the coordinator of CENE. The aim of this body was to ensure effective relations with international bodies: it was constituted by representatives of individual donor countries, NGOs, UN agencies and governmental structures (Ratilal, 1989: 77–79; 110–122).

At the end of 1988, with Mozambique having joined the World Bank and showing clear signs of liberalizing its economy, the government invited its

various partners to reflect upon the efficacy of state-based emergency logistics. At this time, USAID strongly advocated the involvement of private transport operators, while other partners, such as Canada, the Netherlands and the Nordic countries, indicated their reservations about such a decision, arguing that private operators operating on a commercial basis would not be inclined to take food aid to the areas considered most difficult.

From the end of the 1980s, the government sought to impede the development of parallel emergency structures that might add to the already very complex organizational situation. An effort was made to integrate existing structures into more permanent ones within such state bodies as the Ministries of Agriculture, and Commerce and Transport. At the same time, difficulties created by the war led the government to invite NGOs to involve themselves increasingly in the emergency effort. From this time, various tripartite agreements were made between the government, NGOs and United Nations agencies, particularly the World Food Program (WFP).

The drought of 1991–92, associated with the problems of food aid distribution caused by the war, created what was perhaps the most difficult situation of the post-independence period. At this time, the country requested emergency food aid of some 450,000 tons a year, a volume that the DPCCN was far from capable of handling. It was at this juncture that the WFP created its own logistical unit (UNILOG). At the same time, as a result of the talks preceding the Peace Agreement of 1992, the United Nations Humanitarian Assistance Coordination (UNOHAC) was created as the humanitarian component of the UN peace operation in Mozambique (ONUMOZ).

The severe drought of the early 1990s was also a very important factor behind the strong pressure exerted by external partners (particularly the NGOs) for the establishment of a peace accord between the government and RENAMO. Only an effective ceasefire would make possible the opening of corridors for emergency aid to reach hundreds of thousands of victims.

In the period of the implementation of the Peace Accord, from 1992 to 1994, there continued to be a vast array of emergency operations. Apart from support for the repatriation of 1.5 million refugees in neighboring countries and the resettlement of the more than 4.5 million internally displaced persons, the humanitarian structures were also involved in support for the victims of drought in 1991–2 and 1994–5 and of floods in 1996.

However, with the end of the war—without doubt the major cause of emergency situations—the falling away of the original justification for maintaining such a complex structure and the problems that it brought about, as well as international pressure, resulted in considerable restructuring. At the end of 1994, CENE ceased operating and, after a period of discussions with UN agencies, representatives of donor countries and of SADC, a new

institutional model, implying an organization much smaller than the DPCCN but still capable of ensuring coordination, began to emerge. Finally, in June 1999, the National Institute for the Management of Calamities (Instituto Nacional de Gestão das Calamidades—INGC) was created to replace the DPCCN.<sup>11</sup> Besides ensuring the coordination of activities related to emergencies, it is the INGC's role to involve banks and insurance companies as partners, and to mobilize companies and civil society. Like the old DPCCN, the INGC is under the jurisdiction of the Ministry of Foreign Affairs and Cooperation.

#### The nature of the state response

The development of the response by the Mozambican state to natural calamities was informed by various contextual factors and also by a range of political options. Since independence, there have been two main periods: the socialist and the neoliberal. In the first, which lasted until the mid-1980s, the dominant context was, without a doubt, the extreme hostility with which Mozambique was viewed by its Rhodesian and South African neighbors, a context that made it extremely difficult, if not impossible, to implement a coherent and effective policy in the chosen direction. This was not only because it sidelined in the list of state priorities any policies designed to respond to the natural calamities (or it furnished the justification for such), but also because it impeded the development of regional perspectives for the resolution of problems that in large part were regional or global in origin. A clear example of this was the non-existence of agreements on the management of water resources: all of Mozambique's main rivers flow from the hinterland, where there are various storage dams, placing the country at the mercy of the management of these infrastructures upstream during times of drought or flood.

With respect to the initial political options behind the shaping of the response, clearly the most important was the tendency for highly centralized organization, given formal expression in the Third Congress of FRELIMO and developed in the following years. Apart from the need to guarantee control of the country—under attack by Rhodesians and threat from South Africans—authoritarian centralization was the result of several factors. These included the example of the socialist states during the Cold War, the authoritarian legacy of the colonial state—of which the new state, somewhat paradoxically, claimed to be the antithesis—and also, for some, the influence of the rigid hierarchy of “traditional” power.

In the economic sphere, this conception resulted in the emergence of a perspective in which progress was conceived in quantitative terms, in a dualistic scenario where the state was the prime “motor”<sup>12</sup> and the peasant

masses were relegated to the marginal role of backward partner, which should nevertheless ensure their own reproduction. While the state took over the best land and the few installations left from the colonial period—apparently in order to modernize agriculture and sustain the accumulation that would provide the basis for development—the peasantry would be concentrated in communal villages—in reality labor reserves for state enterprises. In these first years of independence, 90 per cent of investment funds were attributed to the state sector, while the cooperative sector was awarded a mere 2 percent and peasant families completely neglected.<sup>13</sup>

In this context, the first responses of the independent state to the frequent natural calamities affecting the country were not specifically targeted, but rather subordinated to the objectives and efforts stemming from this developmental perspective, which gave great priority to political and administrative control of population and territory. Thus, the state pressured for and supported the creation of the first twenty-six communal villages in Gaza<sup>14</sup> in the aftermath of the floods affecting the Limpopo in 1977. Similarly, the state took advantage of the serious flooding of the Zambezi valley in 1977–8 to transfer the affected population and promote the creation of new communal villages.<sup>15</sup> For example, in the Mutarara district, one of the most heavily affected by floods in this period, in only a few days seven communal villages were created, on the basis of plans brought from Maputo of which the local population was totally ignorant. Despite authoritarian action in the shape of ideological pressure and what was described ambiguously as “intense persuasive effort” or “aggressive political mobilization,” the project encountered resolute popular resistance. Clearly, there emerged two conceptions of security in the face of the risk of further floods: the state would impose massive population transfer to higher lands close to roads (thus associating political and administrative control to security from flooding); to ensure their own security, however, communities would only reluctantly leave the river margins where, despite the periodic risk of floods, the soils were much more productive, thus offering much greater security against hunger.

CIPCNAC, the state commission implementing this resettlement, displayed two of the most important tendencies that would come to typify state responses in subsequent years: on the one hand, the increasing centralization of action (mirroring the working of the state in other areas, particularly the economy) and, on the other, the search for the development of management capacity in calamity situations rather than their prevention. Rural communities were excluded from decision-making here, just as they were in the economic sphere.

In 1980, the creation of a more developed state structure—the CCPCCN, with its executive body, the DPCCN—was part of this “socialist conception” based on an all-powerful state, which the intensification of war and a

severe period of drought in the early 1980s would only reinforce. In this the state sought the capability—here also “monopolistically”—of protecting society from natural calamities. The intensification of drought and war in the north-central and southern provinces in the following years reinforced this conception by gravely destabilizing the rural areas and multiplying the number of highly vulnerable refugees and displaced persons, thus giving space for the DPCCN’s action as well as legitimization for its uncontrolled growth.<sup>16</sup> The resources were found thanks both to increased efforts of the state, which, despite obstacles, maintained social objectives, and to the intensification of international aid.

The adherence of Mozambique to the World Bank and International Monetary Fund, as a result of economic and social disarticulation affecting the country in the mid-1980s, signified the beginning of a process of profound transformation of the socialist state. It was a process that ended only in the 1990s, when, with the end of the war, the state assumed a clear position of submission to market dynamics. During the “grey” period of transition, the DPCCN resisted deeper American “penetration” through CARE International. As the state reluctantly opened up space for the humanitarian intervention of international agencies and non-governmental organizations, the DPCCN gradually changed into what would become its final shape: an immense and inefficient state body, riddled with corruption and discredited in the eyes of both Mozambicans and the international community.

In the second main period we have defined, after the changes that followed the peace accord of 1992 and the institution of formal multi-party democracy, the state took on the markedly neoliberal role of mediation between market and society. Consequently, the hitherto sustained “structural vocation” of social protection disappeared. In this period, the evolution of the response to natural calamities was also informed by factors of context and of political option. With regard to the former, there were indeed great changes. In the first place, a climate of regional and internal peace and security<sup>17</sup> was established, allowing policies related to emergency aid to victims of natural calamities to be clearly dissociated from the context of war. In the absence of a direct threat, the demilitarization of society went ahead rapidly, and the prime need of the state to constantly reassert its political and administrative control in the country fell away (the struggle for political control took other forms). In the second place, détente in southern Africa enabled the widening of regional and international cooperation, having an impact on meteorological forecasting and food security at the local level.<sup>18</sup>

This new dynamic, no doubt very positive, did not imply, however, a profound change of state attitude toward coping with calamities. In fact, research on forecasting continued to occupy a secondary place on the list of

the state's priorities, which were confined more and more to the area of management.<sup>19</sup> Following the prevailing logic of the market, the state focused its action on the management of emergency situations. The INGC, created in 1999 to replace the DPCCN, mentions management in its title but omits any reference to prevention. Unlike prevention, management enables the collection of much more substantial funding, more direct commercialization of emergency action (set out in the guidelines of the INGC), besides creating the appearance of a more effective reply to calamity situations.<sup>20</sup>

Policies formulated in this new context have not substantially altered the relation between state and communities in the sense of enabling the greater participation of the latter.<sup>21</sup> On the contrary, in some ways they have exacerbated even further the marginalization of local communities, as the previous socialist state, in spite of everything, undoubtedly had more social concerns than its successor.

## COMMUNITIES AND CALAMITIES

### The knowledge of the community

After almost thirty years of independence, policies of response to natural calamities continue to limit rural communities to a very marginal role in the process.<sup>22</sup> This is not surprising in that it corresponds to the marginal position they occupy in other sectors of Mozambican life, despite the post-independence popular government having emerged from armed struggle. We can however indicate several reasons why the situation should be very different in this respect, particularly taking into account the fact that Mozambican rural communities constitute a clear majority of the population (around 80 per cent), and are perchance most exposed to the negative effects of extreme climatic events.

But there are also economic reasons in the sense that, as Mozambique is an eminently agricultural country, rural communities carry out as their main activity the domestic agriculture that produces most of the food crops.<sup>23</sup> Domestic agriculture is, in general terms, dryland agriculture reliant on burning, and uses the hoe as its main tool in a system of cultivated and fallow fields. Because it depends to a great extent on rainfall and soil fertility, it is an agriculture that maintains a delicate and vital equilibrium with the environment. Its viability depends, by definition, on the close attention its practitioners give to climatic variability.

We can consider local knowledge relating to climatic variability on two levels. The first includes a body of knowledge socially transmitted over time and constructed on the basis of observation, repetition, and the pattern of phenomena, in support of actions of local prevention. Historically, this

knowledge structured criteria for the establishment of villages (above all, close to water) and the verification of natural conditions—not only the fertility of soils, but also the comportment of rivers, the threat or benefit presented by various types of rainfall, the hidden signs in, for example, the development of particular plagues of insects or particular types of winds—so as to construct forecasts (forecasting being the most effective form of guaranteeing security).

Upper Zambebian communities are exemplary in the construction and use of this knowledge of resource utilization and forecasting. The Tawara language, on the right bank of the river, distinguishes with great precision soil types such as those directly irrigated by the rivers (*gombe*, consequently the most disputed lands), and those of the interior lands (*kunja*), which are occupied when there is no room in the former. The choice of land depends also on knowledge of specific indications of fertility or suitability for particular cultures, such as the presence or absence of certain types of trees or grasses. Besides soil suitability, the choice of which crops to develop depends also on the always centrally important forecast of success of such cultures, particularly in relation to water. Thus, for example, in certain zones considered very suitable for the cultivation of sorghum, in years when drought is foreseen, this may be substituted by millet, which is much less demanding of moisture and has a shorter maturation cycle, or by maize, because experience shows that sorghum is much more vulnerable to certain local predatory birds (Oliveira, 1976: 32 ff).

Evidently, this store of knowledge is constructed and used in the context of concrete power relations, in which those possessing it maintain predominance over the majority who are supposed to benefit from it. In addition to "common" knowledge, there is also ritualized knowledge, the construction of which is also historical (through accumulation or adaptation), and whose availability and manipulation depend on specific rules and codes. The Tawara are part of a complex of Shona peoples whose structure of knowledge is based on the belief that, after death, the spirit of particular individuals is embodied in an animal, the most preponderant being that embodied in the lion (*m'phondoro*). The embodied spirit returns to contact the community through a medium, the *mvula*, whose exclusive status is socially recognized. It is through this medium of the *m'phondoro* that the dominant spirit advises the community on difficult decisions or those of vital importance, particularly where agricultural crops are concerned and in everything connected with water. It is not by chance that the term *mvula* signifies either the spirit medium or rain.

On the north bank of the river, peoples of the Marave complex hold regular propitiatory rain ceremonies at the end of the dry season, in a cosmogonic context where nature, society, and the cult form part of an

indivisible triad. The ceremonies are performed in small village sanctuaries and in larger and more central shrines in times of serious drought. Here, the spirit may lie dormant for long periods, appearing through its medium only in situations of crisis caused by a natural calamity or by grave offences against the social order or against the cult itself (Schoffeleers, 1992: 61, 80). Rain is considered a common good that can only be obtained by a (political) territorial chief who, for that purpose, calls on the spirit medium. Thus, according to Schoffeleers (1997: 64–5), rain ceremonies include recognition of the powers of the chief and of the people's dependence on him. Only the chief and no one else can call for rain; if it does not fall, he (or one of his subjects) is to blame, and only he can remedy the problem.

In this way, a structure of knowledge (and its social organization), which is considered from the outside to be constituted by magic-religious elements of no material efficacy in terms of real action is, on the contrary, absolutely fundamental for upper Zambezi communities in their understanding of material reality and the maintenance of social order (Oliveira, 1976: 99). Also, the significance of this knowledge rests at a level, albeit relatively minimal, of efficacy, whether of objective knowledge gained from experience, or of ritualized knowledge in which the community objectively believes.<sup>24</sup>

It is also important to mention two central characteristics of this body of popular knowledge. One is its extreme diversity from region to region—corresponding, no doubt, to the adaptability resulting from the close attention invested in climatic phenomena that a material culture dependent on agriculture needs in order to reproduce itself. The second is its flexibility and adaptability in the face of change,<sup>25</sup> whether in “common” or ritualized knowledge.<sup>26</sup>

#### The confrontation between the state and communities

Without a doubt, the ability of these sets of knowledge to foresee natural calamities and to protect local communities from them is very relative. Their efficacy may have been much greater in the past, when ecological conditions were more favorable, population density was much lower, and when they could be deployed in their totality. However, in the last hundred years, various factors have contributed to limit the capacity of response of communities to natural calamities, most of them the result of the unequal confrontation of interests between the state and these communities, particularly during the period of submission to the colonial order, but also after independence in 1975.

In respect of the first, during the process of establishing its dominion, the colonial state promoted the political dismemberment of existing commu-

nities, removing their state of unity and radically altering relations of power and family ties, which regulated not only the norms of access to and management of natural resources but also structured all productive activity. In doing so, it determined not only what the communities could no longer be but also what they would have to become, in a dynamic in which dismemberment was accompanied by a double breach for rural communities: on the one hand, in respect of their land (knowing the behavior of the climate means knowing it on the basis of a specific territory and particular conditions) and, on the other, in respect of their internal organizational networks, eroding the corpus of community knowledge of the types already mentioned, empirical and ritualized knowledge.

The colonial state exerted this effect in various ways. In the first place, it implemented in a frequently violent way policies of political-administrative control and of integration of the rural labor force, which implied massive shifts of population that transferred entire villages to neighboring, but also frequently distant and unknown, territories.<sup>27</sup> Cotton concentrations, compounds for workers in the colonial agricultural undertakings, compulsory settlements in time of war or even migration to the poor suburbs on the periphery of the cities—all these processes consisted of the transfer and concentration of populations in larger units, which dismembered communities and deprived them of their most important strategic weapon in the response to climatic disaster: the relationship to the land and dispersed settlement.

The concentration of the population in larger agglomerations, located according to criteria external to the communities themselves, resulted in an induced syndrome of overpopulation, meaning that land was more scarce and access to it more difficult and distant (making more uniform, and reducing the size of, cultivation plots), making water supply more difficult, and reducing and overstocking the pastures. This phenomenon of concentration also resulted in larger numbers of victims a cyclone struck or when the level of a river rose suddenly.<sup>28</sup>

Regarding the vulnerabilities induced by the colonial order, it is also important to consider the various forms of forced labor and cultivation. The first because they systematically removed adult males from peasant families, disturbing the community at its roots and weakening its capacity for foresight in its response to climatic variabilities. The second accentuated this dynamic in a particularly perverse way, to the extent that, for example, the introduction of obligatory cotton cultivation removed in a very direct way the space and time for food crops, thus drastically reducing decentralized food reserves and paving the way for cyclical and chronic famine.<sup>29</sup> In a society still free from the model of accumulation, food reserves were important in guaranteeing security in times of insect plagues and drought. The generalized and



structural reduction of these reserves made communities clearly much more vulnerable to natural calamities, particularly the most devastating of all—drought.

The rupture brought by independence did not alter the progressive and critical disarming of rural communities in coping with crisis situations caused by natural calamities. On the contrary, it aggravated the situation by introducing new elements, particularly the development of the new state's agrarian policy, which intensified the resettlement of the population (that is, its removal and concentration) in an unprecedented manner through its planning and its systematic application to the entire country, as well as the irruption of the civil war.

The new communal villages reproduced many of the difficulties that the colonial settlements had imposed on rural communities some years before,<sup>30</sup> making them worse as a result of new impositions. Apart from the intensification of concentration,<sup>31</sup> the most important without doubt was the introduction of collective forms of production by the state. Somewhat paradoxically—since they emanated from a state that called itself popular—these forms of production, which had a political-ideological rather than an economic meaning, signified powerful and unequal competition with the already weakened peasant agriculture, since they occupied the best land (marginalizing peasant production to poorer and more distant soils) and sought to withdraw labor from family cultivation for state agricultural enterprises.<sup>32</sup> Thus, the policies of the socialist state raised the levels of concentration of rural settlement (making such concentrations more vulnerable to floods) and made family agriculture still more difficult (reducing food reserves and thus making such settlements more vulnerable to drought).

Finally, both states—colonial and socialist—fought with equal energy and intolerance the ritualized knowledge of local communities. Because it constituted an obstacle to Christian penetration, the colonial made such knowledge illegal and criminal if there was any suspicion of consolidating or enabling forms of resistance to the colonial order, or simply neutralized it through its subsumption into the colonialist space reserved for folklore and the exotic. The attitude of the socialist state was based on positivist rationalism, which stigmatized as “obscurantist”—and therefore strongly criminalized and repressed—all forms of ritual explanation of natural phenomena that were locally based and that fell outside of the state's criteria. This attitude was reinforced by the identification the socialist state made between such knowledge and so-called traditional power, which was regarded with great suspicion owing to its history of close intimacy with the power of the colonial state at the grassroots level.<sup>33</sup>

Again, the Tawara communities of the southern bank of the Upper Zambezi River exemplify how this long process of confrontation between

the logic of states and the logic of communities resulted in the critical weakening of the latter. Like many other communities, at the beginning of the twentieth century the Tawara began to migrate, particularly to southern Rhodesia, as a result of a combination of centrifugal factors within Mozambique<sup>34</sup> and of the attraction exercised by emergent agro-industries and mining in the neighboring territories. This tendency, intensified from the 1930s by Salazar's New State, transformed the region into a simple labor reserve, in which foreign interests competed with the plantation economy of the colony. Several decades later, with the beginning of the nationalist struggle for independence, the exhausted and impoverished region acquired high strategic value for its importance as a corridor for the passage of FRELIMO guerrillas to the south of the Zambezi (where the Cahora Bassa Dam was being built) and thus to the center of Mozambique, as well as a corridor for Zimbabwean guerrillas fighting the colonial order in Rhodesia. As a result, the Tawara communities were subjected to an intensive colonial program of resettlement in accordance with the strategic military precepts of counterinsurgency, but also linked to the filling of the shallow lake of the dam.

During the implementation of this program, there was great tension between the two major colonial agencies in charge. On the one hand, the Office of the Zambezi Plan (Gabinete do Plano do Zambeze—GPZ), concerned with the filling of the Cahora Bassa Dam, conducted studies with a view to resettling people whose lands would be submerged—detailed studies that included the identification of fertile areas with access to water and also cultural matters. On the other hand, given the proximity of the guerrillas, the Tete provincial government and the security and defense forces urgently needed to complete the establishment of defensible villages to impede contacts between the guerrillas and populations, and were not interested in the delays that the GPZ studies implied.<sup>35</sup> In the end, the second criterion prevailed, and the target population—between 15 and 25 thousand inhabitants—was resettled in villages whose location was decided solely on military considerations, a process that had the doubly negative effect of concentrating and marginalizing these communities, in a context of rapidly spreading, intense, and internationalized warfare.

The communities formed by the tens of thousands of people dislocated by the filling of the Cahora Bassa Dam were not interlocutors in this process, which occurred in 1974 and caused profound ecological alteration in the region. This alteration created an entirely new context, requiring a radical adaptation of the body of empirical knowledge.<sup>36</sup> Formerly, the regime of the river was “alive”; drought and flood followed one another in a pattern of relative regularity that successive generations of riverside communities learned to recognize and in their own way interpret and forecast. This



was now followed by a dam and lake with a "dead" regime, without a regular pattern, in which the variations had no relation to the annual seasons, and in which the policy of maintenance of the water level had nothing to do with the inhabitants, but only with the needs of producing electricity. Consequently, there took place a progressive "unlearning" of behavior, particularly in relation to the small and periodic floods and to the community emergency precautions against unusual floods.<sup>37</sup> This erosion of empirical knowledge was accompanied by a corresponding erosion of ritualized knowledge, no doubt prefigured by Cahora Bassa's submergence of Kanyemba's grave in Malima, seriously affecting the cultic ceremonies and their practical impact on the forecasting of the weather.<sup>38</sup>

Finally, this process of degeneration of the capacity of the community to respond to natural calamities reached its highest point with the intensification of civil war, which spread to practically the entire country from the first half of the 1980s and lasted for more than a decade. It resulted in the most gigantic process of demographic dislocation seen in Mozambique, affecting about 40 per cent of the population, who became refugees inside the country—in cities or safer regions—or in neighboring countries, thus completing the estrangement of communities from their lands. As a result of the destructuring thus caused, popular knowledge (which does not long survive removal from context and absence of practice) was even further eroded and rural communities lost almost completely the capacity to act as interlocutors in national actions in response to natural calamities.

As a result of a transition process brought about by a combination of factors—international pressure, the ending of the civil war and also the critique within the former socialist state—the state radically changed in nature and policies, drastically reducing the domains of its intervention (as it began to privatize large sectors of its operations) and abandoning its former social vocation. Now it sought to assume a new vocation as a facilitator of the market, in a word, it assumed a new neoliberal character. In the countryside, this new order created a situation still far from stable, whose main dynamics are unequal competition for the occupation of land between commercial interests and rural communities, which are attempting to re-establish themselves after the immense upheaval of dislocation caused by the war.

Among the strategies of response to natural calamities, the present state dismantled the DPCCN, an apparatus that, owing to centralization, had grown beyond the "manageable" and was not only ineffective and costly but also riddled with corruption. In its place, in 1999, the INGC was created. This is an institution created from a combination of internal consensus<sup>39</sup> and the intervention of external agents (United Nations agencies, bilateral cooperation agencies such as USAID, and also non-governmental organizations).

However, this internal consensus was obtained within the state itself or sectors close to it. It was a consensus in which there was certainly no space at all for the tangible participation of rural communities. As a result, the INGC emerged as a structure that, far from seeking an original strategy for response to natural calamities based on partnerships between the state and the various organizations of civil society with rural communities, favors rather the combination of international management techniques in disaster situations—to the detriment of prevention—and residual elements of the previous strategy, that is, reliance on management still far too centralized.

Certainly, great steps have been taken in recent years in the development of regional cooperation relevant to systems of prevention, particularly with respect to meteorology and hydrometrics. However, the significance of such advances, translated into very frequent, detailed, and reliable forecasting, has been offset by the fragility of the Mozambican meteorological service, which is relatively marginal in the structure of the state apparatus, and which consequently lacks personnel and the means of participation in those systems.<sup>40</sup>

The difficulties that forecasting has in achieving a central place in strategy shows the lack of local assimilation of present-day perspectives: while forecasting requires relatively high levels of planned investment, with no direct return in financial terms, the management of disaster situations can be supported by a much easier international (and national—within civil society) recruitment of resources, since their greater visibility arouses humanitarian sentiments and a much stronger sense of urgency.<sup>41</sup>

#### TOWARD A NEW PARADIGM IN THE STRATEGY OF RESPONSE TO NATURAL CALAMITIES

Recent history has shown a consistent increase in the intensity and frequency of natural calamities in Mozambique, with a corresponding increase of loss of life and destruction of goods, to the point that it has seriously affected the country's economic, social, and cultural growth. There are two main causes of this situation: on the one hand, climatic alterations that are occurring at a global level and particularly in southern Africa; on the other, the marked weakening of the capacity of response of Mozambicans, particularly those living in the countryside, as a result of the negative effects of colonial and post-colonial policies.

Although originating in states apparently of contrary or radically different orientations (the colonial as opposed to the socialist state, or the latter as against the present neoliberal state), these policies have a common denominator based on the principle of extreme centralization, in which the state assesses and seeks to resolve problems, while the majority of the population fulfils the role of spectator and executor of the proposed lines of action.<sup>42</sup>

Centralization presupposes that the state is itself capable of confronting and resolving problems, which, in the case of the response to natural calamities, recent events have shown to be increasingly doubtful. In fact, despite the efforts to improve policies of state response (namely, the creation of the INGC as a result of the analysis of the errors of the DPCCN) and the greater effort at coordination, the floods of 2000 and 2001 have revealed the serious weaknesses of the state in this area. Indeed, it could not have been otherwise, considering that much more stable and older states, more powerful and better endowed with human and material resources, have also shown themselves incapable of handling catastrophes of these dimensions.

On the contrary, the improvement of the capacity for response can only emerge from an entirely new perspective, based on balanced principles of decentralization (as opposed to the tradition of centralization) and of prevention (as opposed to the tradition of concentrating on the capacity to react). The present government program dedicates two pages to the process of decentralization (Governo de Moçambique, 2000a: 91–3), in which decentralization appears confused with the construction of the state apparatus at the local level. Yet it is necessary to consider the concept at a broader level, which includes not only the construction of the state, at a local level and on the basis of local forces, but also the involvement of social sectors and forces outside the state.

In the first place, this is because such involvement creates conditions for the strengthening of a perspective of prevention, which does not depend simply on the mobilization of the formal knowledge circulating in official channels, but also relies on knowledge produced outside officialdom, including popular knowledge. This implies that the state has to create space for the integration of the former (produced by its own organs or channeled through regional or international networks) with the results produced in research centers, private universities, and other sectors, as well as with popular knowledge.<sup>43</sup> The incorporation of the latter, besides ensuring popular participation in prevention, complements formal academic knowledge, which, in the field of forecasting, is far from being infallible or absolute, and thus needs to move away from a positivist and exclusivist posture so as to be able to welcome new perspectives and interpretations.

But there is a further dimension to the importance of popular knowledge. Where it exists, its efficacy is based not only on the capacity to read and decode empirically the signs of nature and their social transmission, but also on the fact that, apart from daily experience, its re-utilization confers on it a very high level of credibility in the eyes of the community, which makes it a powerful element of popular mobilization for actions of prevention of calamity situations.

A mobilized community is not merely a repository of warnings of the imminence of calamity situations, but an entity that reacts as a subject in contexts requiring prevention, searching out refuge when it knows there are floods, or increasing food stocks in the face of approaching drought. The new position that communities should occupy in the strategy for responding to natural calamities implies the establishment of advance warning mechanisms and the management of crisis situations at the local level, including the establishment of local civil defense, controlled locally and coordinated vertically with provincial and national authorities. Such mechanisms, including systems for monitoring floods and the most secure escape routes, enable communities to carry out a more active role. They can thus become more effective partners of the state, perceiving warnings of imminent calamities issued from the center with greater clarity and, conversely, managing the stations installed locally to feed the meteorological forecasting system.<sup>44</sup>

The errors of the past show that population settlement imposed from above according to criteria and interests outside the target communities brings profoundly negative results. Apart from this, removing populations from richer and better watered areas in the name of security in the face of flood situations is impractical. The valley bottoms and other lowlands, economically more productive and capable of supporting concentrations of population, cannot be permanently abandoned owing to the episodic threat of floods. However, civil engineering construction guaranteeing the security of the population in these areas is also insupportable, owing to the dimensions required. The only solution, therefore, lies in an effective system of forewarning with full local participation.

It is also true that coordination does not only mean the exercise of good neighborliness or the interchange of information between departments at the highest level of the state apparatus. It includes, rather, the search for coherent functioning, which means, on the part of the state, the highest efficacy combined with an open and integrative vision. Thus, for example, the definition of agrarian policies and of land settlement must take into account, and seek to counter, the process that historically has made communities more vulnerable to calamity situations. Similarly, as the constitution stipulates that the security of citizens is part of defense policy and the concept of security can legitimately be extended to include all forms of threat—including the non-military—the mission of the armed forces should explicitly include the availability of its medical, logistical and engineering wings for the protection of the people in times of calamity, in coordination with the civil defense forces.<sup>45</sup>

The principles of decentralization and coordination constitute a great challenge to the nature of the existing state. This means that the state will

have to abdicate important elements of its power of decision and restrict the range of its intervention, while correspondingly reinforcing the level of local power and intervention. At present, the neoliberal state seems to be doing so, not in favor of the majority of the population (which does not guarantee tangible returns except, potentially, in higher levels of legitimacy), but only when the space it concedes comes to be occupied by market forces. This means also that the state, although acceding to the elaboration of circumstantial management policies of crisis situations, will hardly be disposed to increase its level of coordination to the point of, for example, altering its agrarian policies so that communities can be protected from commercial interests that expel them from the best lands to marginal areas where they are more vulnerable to calamities.

The strengthening of local power presupposes the search for cohesive partnerships among local forces that, from below, can pressure the higher levels of the state in favor of these changes. It introduces a dimension that is much beyond the question of the search for a new strategy of response to natural calamities. There is perhaps here—in the tension and dialogue between communities, civil society, and the basic structures of the state—the beginning of the uphill path to what Sousa Santos (1998: 34) calls “the State as new social movement” (*Estado-novíssimo-movimento-social*), a construct that envisages the building of a state in which the present stress on the elitist accumulation of wealth and the lack of concern for the future will be substituted by preoccupations of solidarity, social welfare, and security for all Mozambicans, a security that will enable it to foresee with operational planning (to attenuate its effects) and manage with coherence and efficiency the so very often catastrophic results of natural calamities.

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## Notes

- 1 The construction of these global questions is recent and originates in the West. It is based on the principle that countries are not independent units in matters of the environment but are dependent on actions undertaken by others, thus giving rise to the concept of an interrelated world system, which forms the basis of what Sachs (1995: 35) calls the "ecocratic" discourse of the 1990s. In his view, this discourse has its cognitive basis in the theory of ecosystems and points towards new levels of administrative monitoring and control. The inability to reconsider the logic of competitive productivism has reduced ecology to a technical matter, a set of management strategies to increase the efficiency of resource use and to control risks.
- 2 Natural phenomena such as El Niño, La Niña, and global warming have contributed to this intensification. The influence that the first two may have on the Indian Ocean and the eastern coast of Africa has not yet been clarified definitively. The La Niña phenomenon apparently radically alters the "normal behavior" of tropical cyclones. Normally, these arise in the Indian Ocean and slowly move to the west toward Madagascar. Most bear to the south before reaching the island, while the rest move to the north, feeding Kenya's rainfall regime. Under La Niña's influence, the cyclones are impelled more to the west, passing through Madagascar to reach the Mozambican coast. Thus, the previous average of one cyclone every three years has suddenly changed to several cyclones a year. This alteration is exacerbated by global warming, which increases the area for the formation of cyclones in the Indian Ocean and, through increased air temperature, causes the cyclones to carry more water: the higher surface water temperature causes more numerous and stronger storms. See Borges Coelho and Littlejohn, 2000; Christie and Hanlon, 2001.
- 3 The formal option in favor of socialism was made two years later, in the 1977 FRELIMO Third Congress, which transformed the movement into a Marxist-Leninist party.
- 4 The nationalist struggle for independence had proceeded mainly from the outside (Tanzania and Zambia), owing to the extreme social control and repression imposed by the colonial state inside the country. Exceptions were the so-called liberated areas where guerrilla forces succeeded in establishing a presence and authority. Thus, when the colonial order collapsed following the coup of 25 April 1974, resulting in the sudden victory of the nationalists, the latter occupied the country, but had little confidence in the population until then living under colonial rule, whom they considered to be much under the influence of "enemy" values.
- 5 For the regional context in this period, see, for example, Minter, 1998. For the manner in which it was perceived by the new authorities and details of their military concerns, see Borges Coelho and Macaringue, 1999.
- 6 The inclusion of the national emergency apparatus in the cooperation sector, which would become a "tradition," was a clear sign of the fact that, in the absence of internal means, all forms of intervention depended principally on the mobilisation of foreign assistance.
- 7 According to Hanlon, "the unit value (or price per ton) of exports fell by 20 percent in just two years [ . . . ]. Thus, export earnings fell from a peak of \$281 million dollars in 1981 to \$132 million dollars in 1983" (1991: 23-4).
- 8 Hanlon (1991: 50, 61) considers the years 1981 to 1985 crucial to the degeneration of food security in Mozambique, and states that the position of the country in the list of countries receiving international aid rose from 51st in 1981 to 27th in 1985 (it became 12th in 1988). According to Raikes (1988: 189), Mozambique received 7.6 per cent of total international aid in cereals to tropical Africa in 1976, a percentage which rose to 10 per cent in 1983, and 13 per cent in 1986.
- 9 As an official of the US State Department explained in Washington some years later to Hanlon, "we made clear to the government of Mozambique that our food aid is political. There are always conditions on aid, although they are often not explicit [ . . . ]. To get better relations with us, Mozambique had to demonstrate a willingness to change its economic policies" (1991: 43).
- 10 See Abrahamsson and Nilsson, 1993: 92-93 and *passim*. According to the authors, the arrival of CARE in Mozambique was accompanied by rumors to the effect that the organization had close relations with United States information and security services. In a short time, CARE found itself in a privileged position in respect of information-gathering about the war situation at a district and even local level, as well as the planning of emergency operations, population movement, etc. Meanwhile, the strength of the American influence in the national food distribution system resulted in tensions with other donors, particularly the Nordic countries and United Nations agencies. The agreement was also the focus of intense debate in the US Congress, since it gave a still significant role to state agencies and thus did not conform to the usual patterns of non-governmental food distribution.
- 11 Silvano Langa, personal interview, 11 January 2000.
- 12 The monopoly role of the state in the development strategy was clear, for example, in the resolutions of the First National Seminar on Agriculture held in 1975: "The state will guarantee the acquisition of surpluses from collectively organized peasants; it is therefore advisable that the state take control of wholesale commerce. [ . . . ] Consequently, bank credits to commercial intermediaries such as shopkeepers, companies or industrial agents, will be restricted if not suspended. The state will be the only supplier to industry. Manufactured products will revert to the state, which, in turn, will supply these to the commercial networks." See Borges Coelho, 1993: 329.
- 13 According to Wuyts, "in the four years since the [Third] Congress, 3,000 tractors and 300 combined harvesters were imported amongst other machinery [ . . . ]. However, in the same period, not a single hoe was imported, despite the fact that the production of household hoes had fallen by more than a half" (1989: 60).
- 14 From this period (more precisely, in the aftermath of the decisions of the 8th Session of the FRELIMO Central Committee, held in February 1976), the state sought to promote the creation of villages with collective production and social life throughout the country. In 1982, five years after the beginning of the program, there were 1360 such villages, to which 1.8 million people had been transferred (about 20 per cent of the rural population), and the expectation was that the whole rural population would be placed in such villages by 1985. On this question, see Borges Coelho, 1993: 345, 361, and *passim*. On the policy of

- communal villages as a means of reinforcing political-administrative control on the part of the new regime, see Brito, 1991.
- 15 See Borges Coelho, 1993: 333, 379, and *passim*. Particularly eloquent is the fact that CIPCENAC (Inter-Provincial Commission for Natural Calamities and Communal Villages), created to respond to the Zambezi floods, associates natural calamities with communal villages in its very title. CIPCENAC was coordinated by the National Commission for Communal Villages (Comissão Nacional das Aldeias Comunitárias—CNAC), instituted to direct the installation of communal villages, and was headed by Lopes Tembe, deputy director of CNAC.
  - 16 According to J. Macaringue (personal interview, 10 January 2000), the DPCCN began with a fleet of six lorries, which by 1992 had increased to 410, making it by far the largest single carrier in the country. Christie and Hanlon (2001) mention that the DPCCN had a staff of 3,000 and fleet of 400 vehicles in 1996.
  - 17 In fact, the regional détente lasted less than initially foreseen, owing to the spreading of the Great Lakes conflict into southern Africa, where it led to the beginnings of the emergence of two main blocs and tension between them, apart from several instances of bilateral tension, mainly in disputes over natural resources. Internally, war was replaced by confrontations of a different order.
  - 18 Regional cooperation in this area is already much advanced and is based on bodies such as the Southern African Climate Outlook Forum (SARCOF) and the Drought Monitoring Centre (DMC). Mozambique also has links with the Regional Centre for Tropical Cyclones in Réunion. Several regional cooperation programs in the ambit of the SADC Protocol on Systems of Common Water Courses, signed in 1995, are in operation, particularly that relating to the Zambezi (ZACPLAN), which in itself includes ten major projects. On this see Chenje and Johnson (1994, 1996).
  - 19 The main forecasting body is the National System for Early Warning on Food Security (Sistema Nacional de Aviso Prévio para a Segurança Alimentar—SNAPSA), which involves the National Directorate of Agriculture (Direcção Nacional de Agricultura) and the National Institute for Agronomic Research (Instituto Nacional de Investigação Agronómica—INIA), both in the Ministry of Agriculture and Fisheries, and the National Meteorology Institute (Instituto Nacional de Meteorologia—INAM). SNAPSA has two main components, viz., agricultural statistics and agro-meteorological information. The National Directorate of Agriculture, as coordinator of SNAPSA, is represented on the INGC's technical committee. Other bodies taking part in forecasting are the Ministries of Environmental Coordination (Ministério da Coordenação da Acção Ambiental—MICOA), Health, Finance, and Commerce and Transport.
  - 20 The lack of resources of INAM is significant in this respect. Its staff is composed of twelve officials in the Department of Weather Forecasting, who have bachelor's degrees from Eduardo Mondlane University. The director and the head of the monitoring network have BA (Honors) degrees; the heads of the Computer and Training Departments also have bachelor's degrees. INAM is also beset with a serious lack of equipment (Mussa Mustafa, personal interview, 15 December 1999).
  - 21 This was in part as a result of the structural weakness of communities, as we shall see below, but mostly because of the nature of the state itself.
  - 22 In this text, rural communities are taken to be population units in the countryside that depend on domestic agriculture as their main occupation, and on herding, fishing, hunting, and gathering as secondary activities. They are generally connected to the market and their economy is frequently complemented by male wage labor in neighboring countries, in the cities, or in local agro-industry. They vary between the small family village and larger units, such as the old communal villages.
  - 23 In 1991, family agriculture was responsible for the production of 100 per cent of the groundnuts, 100 per cent of the sorghum, 98.5 per cent of the beans, 96.9 per cent of the cassava, 92.9 per cent of the maize, 40.3 per cent of the rice, etc., a contribution even more overwhelming than in colonial times owing to the collapse of the commercial and settler farming sectors after independence. For developments on this matter, see Wuyts, 1978.
  - 24 Evidently, the distinction between empirical and ritual knowledge is not rigid, mainly because the latter is based to a considerable extent on the former.
  - 25 This characteristic is often ignored by anthropology, which tends to "fix" societies in order to describe and analyze them.
  - 26 In relation to the first, we may refer, for example, to the evolution of forms of mutual help and community cooperation with the introduction of money (for more on this, see Medeiros, 1991: 182–84), or the adoption of systems of ridge cultivation to offset the decrease in yields due to the diminution of cultivatable space in colonial villages. Among the second, we can include the various forms of syncretism that contradict the idea of the "purity" of traditional cults. An example of the *m'phondoro*, referred to above, occurred in 1820 in the case of Friar Pedro da Santíssima Trindade, a missionary of the Church of Our Lady of the Rosary in Zumbo, who was transformed after his death into a lion and re-baptized as Gomanhundo, and came to be regularly consulted by the community through a medium.
  - 27 A classic example was the transfer of thousands of people from the old district of Angonia, in northeast Tete (whose population was considered well disciplined), to work in the sugar plantations of Sena Sugar Estates, in Zambézia, in the 1930s.
  - 28 In Tete, for example, with the introduction of colonial villages at the end of the 1960s, a pattern of settlement of about fifty people per village was substituted in only five years by one of 1000 per village. Some years later, FRELIMO's rural policy resulted in the establishment of communal villages with an average population of 3000 inhabitants.
  - 29 The dimension of this process is clear, for example, in the fact that, while in 1937 only 80,000 peasants in a total of four million grew cotton, three years later this number had grown 900 per cent to 720,000, without including, according to Isaacman (1992: 498), "the large, though indeterminate, number of children and elders who, although not formally registered, aided their parents or families." This situation was aggravated by numerous other factors, such as the marginalization of food crops to poorer soils or the introduction of less labor intensive food crops (to leave more time for cotton cultivation), such as cassava, which were manifestly much poorer in nutri-

- tional terms. For the example of Mogovolas, in Nampula province, where an official report of the 1950s recognized that the policy of forced cultivation had resulted in the desertification of the entire district and in the famine and migration of thousands of its inhabitants, see Borges Coelho, 1987: 7–8.
- 30 Curiously, much FRELIMO propaganda during the armed struggle for national independence was based on the promise of doing away with the “concentration camps”—the colonial settlements—as soon as they came to power.
  - 31 The communal villages, with an average of 3000 inhabitants (some had as many as 20,000), had the highest level of concentration attempted in the Mozambican countryside.
  - 32 I have already referred to the exiguity of state investment in forms of collective production in the countryside in the first years of independence. Results were also exiguous. On the extremely negative impact of collective production on family cultivation in the communal villages, see, among others, Casal (1988) and Borges Coelho (1993). A further pressure not referred to here in detail consisted of a kind of political-ideological discrediting of family agriculture, at least until the self-critique made by FRELIMO at its 4th Congress, in 1982.
  - 33 After the euphoria of affirming African values that followed independence, the socialist state began to criminalize and repress these forms of knowledge, which were considered counter-revolutionary precisely because they were based on an organizational structure outside the direct control of the party and the state.
  - 34 In 1907, the Governor of Tete referred eloquently to one of these factors that made people from this region move out: “All this region is very poor in money or in any commodity that might produce it, and if it is relatively wealthy in foodstuffs, these have no market in which they might be sold. If the peasants go every year in large numbers to the mines in Rhodesia, it is simply to acquire the money to pay taxes, because, there being no market for foodstuffs, nor means of employing them in agricultural or other labor, the landholders find themselves obliged to collect taxes in money.” See Borges Coelho, 1993: 95.
  - 35 The government accused the GPZ of seeking to create “luxurious” conditions for the populations and of having a technocratic vision unrelated to the strategic urgency of the situation. The GPZ, on its side, was guided by theoretical precepts outlined in the international literature on the treatment of communities dislocated by this type of large engineering project. On this subject, see Borges Coelho, 1993: 251–257.
  - 36 A concrete example of the changes provoked by the dam was the profound alteration in the classification of types of soils according to their fertility and suitability to the different cultures, namely the *gombe* (those directly irrigated by the Zambezi) and the *kunja* (those in the interior, used for dryland agriculture). The former, which were the most sought after, were submerged.
  - 37 On the perverse collateral effect of dams, see Carmo Vaz, 1999. The day-to-day management of the Cahora Bassa Dam has been the object of recent controversy, with accusations that the floods of 2001 could have been minimized by a regime of water level control that had criteria other than the production of electricity exclusively, that is, one also based on the security of the river populations. In the course of a journalistic debate, the absence of flood simulations—considered a normal procedure in the management of large dams and even provided for in law for South African dams, for example—was also criticized. See *Mail and Guardian*, 9–15 and 16–22 March, and 30 March–5 April 2001.
  - 38 On the submergence, see Vellez Grilo, 1972: 70 ff.
  - 39 Silvano Langa, personal interview, 11 January 2000. According to Langa, from 1995 there was a wide process of consultation among state departments on the nature and shape of the future institution.
  - 40 For example, imaging from the METEOSAT satellite used by INAM in the monitoring and determination of the trajectory of cyclones has very weak temporal refreshing (every six hours) owing to the lack of the specific hardware required to enable clearer and faithful reception (every thirty minutes), and forewarning of up to two days. As is well known, much flooding is the result of the torrential rain caused by cyclones. In addition, a strong limitation on the climatic forecasting capabilities of INAM is the weak quality of information that feeds their models—it comes from only twenty-two stations in the entire country. See *Governo de Moçambique*, 2000b: 42–43.
  - 41 Obviously, in absolute terms, the management of unforeseen disasters implies much higher real costs than those involved in the management of disasters minimized by adequate prevention. In the abstract, this difference is always greater than the value of investment in prevention.
  - 42 In the colonial state this was due to its very nature; in the socialist state, centralization derived from the need of political-administrative control and from the strategy of the state as the motor of development. The present neoliberal state is still coping with the contradiction between decentralizing an important part of its power to market forces and maintaining centralized political power, in the context of a highly specific and dichotomous political struggle.
  - 43 The research considered here is not limited to meteorology and agro-meteorology, but includes also historical and anthropological studies, particularly with respect to the recovery of popular knowledge and the social and political contexts in which it was and is produced.
  - 44 Of the 836 stations that constituted the weather monitoring network in 1975 (whether synoptic stations or agro-meteorological, climatological, and rain-fall measuring posts), there remain today only about fifty. Obviously, once reinstalled, their maintenance by state functionaries will be unaffordable and will therefore depend on local resources.
  - 45 Borges Coelho and Macaringue, 1999: 23. The weak capability for intervention of the new armed forces in the floods affecting Inhambane province was evident. In contrast, the role of the South African armed forces on these two occasions was crucial. The present government program refers both to the creation of civil defense services and to the reinforcement of this role of the armed forces. See *Governo de Moçambique*, 2000a: 96, 100.