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Exit the State: Decentralization and the Need for Local Social, Political, and Economic Considerations in Water Resource Allocation in Madagascar and Kenya¹

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Abstract This paper focuses on the iconoclasm of water as a plentiful resource and the near universalization of decentralizing institutions to manage it. The authors explore two agro-pastoral regions — Ambovombe District (Madagascar) and Tana River District (Kenya) — and consider institutional change, particularly the disengaging state, the lack of fiscal and administrative support throughout decentralization, community responses, and informal private markets. This paper concludes that decentralization holds the potential to increase accountability of the resource management process, improve governance and leadership accountability, and maximize the resource in a sustainable fashion. However, what we are seeing instead through the process of decentralization are the states exiting from the water governance process too rapidly and without concern for the culturally embedded social and economic norms, and the growing gap between new institutions and the needs, desires, and capacity of participants in the new systems.

Key words: Africa, Madagascar, Kenya, Water, Decentralization, Governance

Introduction

From the Industrial Revolution to the 1980s, water was thought of as a resource to capture in order to fill human needs. If we can just dam it, divert it, move it, and swallow it, then not only can we slake our thirst but we can increase our agricultural productivity and industrial capacity, while

moving our barges with increasing efficiency. This 'hard path' (Gleick, 2003) reified engineering as the answer to a natural resource need. The Green Revolution of the 1960s led, with some time lag, to recognition that engineering, and particularly dams, leads to grave environmental consequences. The knee-jerk reaction was to engineer around the impact: dams were fitted with 'fish ladders' to ensure endangered species could make it to spawning grounds, water storage facilities allowed for the harnessing of high season flows to be used in place of streaming surface water in the dry months, and the like. A realization followed that water is a finite resource. As such it is subject to the laws of resource maximization and we need to manage it with the utmost efficiency. Enter the 'soft path' (Gleick, 2003). It is possible to create utilitarian models to ensure that each drop is accounted for. It is further possible to create incentives for improved resource use. Leading the pack were economists who spent much of the 1990s discussing how we value, evaluate, and create a valuation of water (World Bank, 1993; Whittington, 1996). Water became an economic good. As with any good we want to maximize, we moved away from constant water pricing, and block or scaled pricing became popular. Higher demand in the face of diminished quantity drives water prices higher, while more efficient use and expanded supply reduces the economic burden.

The focus on management of water resources came at a time when natural resource approaches opened to the power of scale inputs. 'Community-based natural resource management' was the buzz, and the focus of scholars and practitioners alike was to find ways of integrating stakeholders across scales. From this was born the concept of 'integrated water resource management' (IWRM). IWRM theory holds the belief that the river basin is the natural water boundary, and thus should be the focal point of water management. Integrating levels of governance should extend downwards towards communities and upwards towards state water facilities. If we consider governance to be "the conscious management of regime structures with a view of enhancing the legitimacy of the public realm" (Hyden and Bratton, 1992, p.7), then good governance must consider the levels of trust, reciprocity, legitimacy, and accountability in the management structures. Managing across scales helps provide those ends. IWRM's focus is particularly enticing because of the link between natural boundaries and technical capacity. At the same time it affords macro-inputs to maintain infrastructure and inter-basin coordination needs with micro-inputs from local stakeholders with the highest vested interests.

It has now become clear that IWRM creates particularized problems. Water decision-making tends to be sector specific. Yet, there are often exogenous factors influencing the efficacy of the institutions created. Saleth and Dinar (2000) argue that such exogenous factors can be subjective, such as power-plays between actors, or objective, such as macro-political or fiscal reforms. These exogenous factors can also become endogenous. Such is the case, for instance, in Kenya where macro reforms in fiscal transfers undermine local capacity (discussed below). A recent

European Union study of 67 IWRM projects constructed between 1994 and 2006 across 530 research teams in Europe, Asia, Latin America, and Africa found that social and political conditions follow a different trajectory than technical constructs (Gyawali *et al.*, 2006). As a result, IWRM is undermined by political actors and stakeholders themselves who have constructed water resource norms from perceptions that are not consistent with resource maximization (Gyawali *et al.*, 2006). It may be possible to model the use of water for maximum utility, but the perceptions of water actors in society are a social, not a scientific, construction. In short, politics, communication, and the high-mindedness of technological modernization begin as exogenous effects but become embedded in local processes, getting in the way of optimal resource management. The authors of the European Union study conclude that IWRM only works where the populations, and the government, are constructively engaged (Gyawali *et al.*, 2006).

The alternative to such context-derived failures, as conceived by Allan (2003), is Integrated Water Resource *Allocation* and Management (IWRAM). The allocation is a social and political, not a technical, process — and thus forms a social and political variable. All stakeholders must not only have their role to play, they must be active participants in the allocation process and satisfied enough with the results so as not to slow the progress or create a conflict. This must include two things: first, ensure that IWRM is seen as primarily a political, not a physical, process (Allan, 2003, p. 11); second, river basins must not limit the management scope. Economies, whether they fit hydrological boundaries or not, cope with water resource deficits and challenges with remedies deriving from beyond the immediate watershed(s). IWRAM must think beyond the watershed (Allan, 2003).

Policy outcomes are the result of elites making deals selectively with groups that cannot be gainsaid. For example, governments rarely confront large farming communities existing on low incomes. Confrontation, involving a public policy re-allocation of water supplies from irrigation, is even rarer. In the case of water, the dominant coalition in many water-short regions is between the farming (irrigating) community, the water professionals and national political leaderships. Policy arguments are driven by immediate interests, rather than by high-minded notions of long-term collective action, based on social equity, economic efficiency or environmental consideration (Allan, 2003, p. 2).

Consistent with Allan's efforts, this paper focuses on the social and political processes inherent in the allocation process, drawing a study by the authors of two agro-pastoral regions struggling to meet their water needs in semi-arid environments: Tana River District (Kenya) and Ambovombe District (Madagascar). Both are water-stressed regions in water-stressed countries. We focus on the institutional changes that have taken place, with particular emphasis on the disengaging state, the lack of fiscal and administrative support throughout the decentralization pro-

cesses, the community responses, including local elite capture of certain local processes, and the subsequent rise of predatory (informal) private markets at the community level. The cases are similar in the decentralization of the water governance, the complex web of cross-scale interest groups in the process, the new and increasing role of the private sector in water resource delivery, and, most importantly, the advocating of water governance norms made universal through a series of international agreements. Kenya has already moved to a River Basin Management approach, and Madagascar is well on its way. But in neither case is allocation itself considered, and thus the embedded political, policy, and cultural questions are left unaddressed. This paper points out the need to approach decentralized water governance with as much caution as optimism. The application to national water policy changes, informed by international governing norms, in Tana River District, Kenya and Ambovombe-Androy, Madagascar, appears to be creating a rupture between, on the one hand, institutions requiring community-based participation and accountability mechanisms, and, on the other hand, the needs, desires, and capacity of participants in the new systems.

This ‘rupture’ is indicative of a larger, teleological problem of moving from a more centralized to a more localized management structure in the water sector (Turton *et al.*, 2007). As indicated in Figure 1, subsidiarity (on the vertical axis) is showing a global trend from centralization to decentralization. The focus axis shows a trend from purely supply-sided management to increasingly demand-sided responses. The upper left

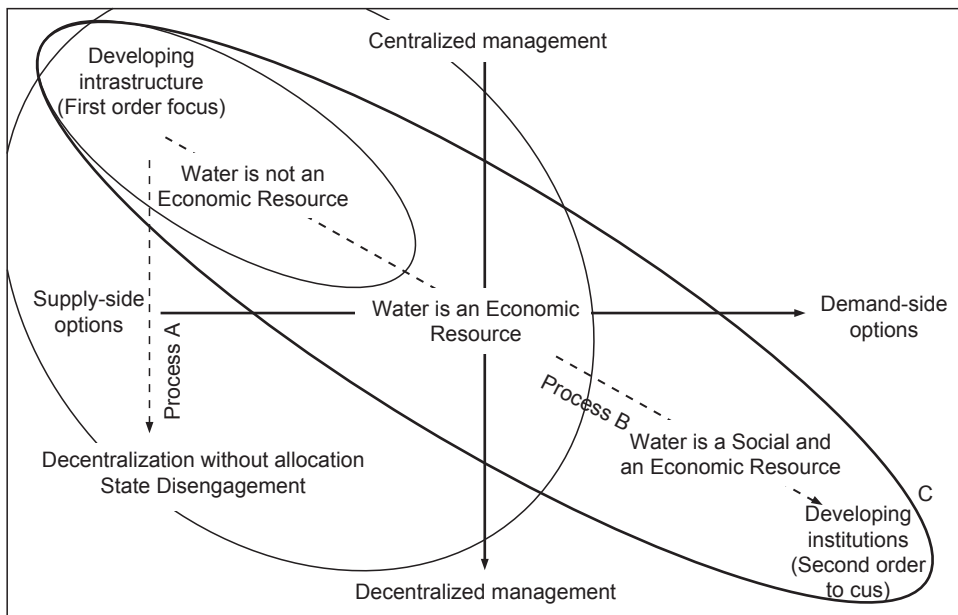


FIGURE 1. Subsidiarity, supply, and demand. *Source:* Adapted from Turton *et al.* (2007).

quadrant is about building infrastructure (Gleick's 'hard path'), whereas the lower right quadrant is about building institutions (Gleick's 'soft path') (Gleick, 2003, p. 1524). What appears to be happening is that the devolution is moving from the upper left quadrant to the lower left quadrant. The supply side, driven by state interests and state interpretations of local needs, is moving to a lower level created by the state, in some cases answerable to the state (a de-concentration), and to the exogenously determined responsibility of the local level (Process A). The challenge for Madagascar and Kenya is to move not vertically from centralized to decentralized management (disengaging the state while abandoning water-starved communities), but rather to move diagonally from the top left to the bottom right quadrants, taking into account allocation and the myriad, embedded economic and social issues inherent in the decentralization process (Process B). We thus consider herein water as an economic good by exploring the local public space for the introduction and expansion of user fees as well as water as a social good that needs to be provided with regularity. Particularly of interest herein are the newly created institutions, and their relative flexibility in meeting these growing contextual demands.

We conclude that in fact the state is moving in a strictly downward trajectory, exiting from the water governance process too rapidly and without concern for the necessary capacities and contexts of each given case. If such an approach is maintained, then local challenges and considerations may well unravel the efforts at improving water governance and leave individuals even more water-starved than in the past.

Institutional Changes in Kenya and Madagascar

Kenya has a long history of linking water management to state-driven development goals through the construction of large water facilities (dams, pipelines, etc.), to the benefit of select populations in large cities and to the hydroelectric power industry. In 1999, the State moved to de-link water from development for the first time while moving towards a basin-level approach. In contrast, while the Malagasy State held on to legal water rights at independence, it did not link water to development and was not active in the sector. Water rights became *de facto* riparian rights with limited infrastructure outside modest urban facilities. While the state clarified its rights to govern water, it simultaneously moved most management responsibilities to the local level. Thus, despite markedly different institutional histories, Kenya and Madagascar just arrived at comparable policy outcomes.

New water policies have been slowly enacted in Kenya in order to decentralize the decision-making process and to integrate water resource management across all levels. While there were abortive earlier efforts, the most critical was the Sessional Paper No. 1 of 1999 'National Policy on Water Resources Management and Development', which mandated the

decentralization of the water sector and the subsequent management of the resource across scales. This process has placed Kenya's water resource policies in a state of flux. The 2002 Water Act that followed created a river basin management system with nine new institutional types created to integrate water resource governance across levels. These include:

1. The Water Resources Management Authority (WRMA), which has the responsibility to manage, protect and conserve national water resources.
2. Six WRMA Catchment Offices, to give the WRMA a presence in different regions of the country, facilitating the policy of decentralized water resource management.
3. Six Catchment Area Advisory Committees to advise on water conservation, use and allocation.
4. A number of Water Resources Users Associations to make possible community participation in the management and development of water resources.
5. The Water Services Regulatory Board.
6. Seven Water Services Boards licensed by the Water Services Regulatory Board to be responsible for the efficient and economical provision of water services.
7. Water service providers operating under Service Provision Agreements.
8. The Water Services Trust Fund (WSTF) to finance the extension of water services to poor communities.
9. The Water Appeals Board, an independent body established to resolve disputes between holders of water rights and any other dispute arising within the water sector that cannot be resolved at a lower level.

The purpose is to move the nexus of decision-making to the community level. Water ownership is still held by the state (not riparian interests), but communities determine what their water needs are and then petition the WRMA, through the catchments offices, to assist with the infrastructure development to meet those needs. Water service providers, either public or private, act under Service Provision Agreements to deliver these services, while the Water Services Regulatory Board ensures that the regulations set by the state to protect the resources are maintained. These institutions only came into effect on 1 July 2005, thus currently it is too soon to measure their success. Yet the changes are a model of the most recent global conventional wisdom on effective water governance (Third World Water Forum, 2003; Gleick, 2004; United Nations Development Programme [UNDP], 2004, 2006; World Bank, 2004b), and hold tremendous potential for the improved governance, and management, of Kenya's increasingly scant water resources.

In contrast to Kenya, Madagascar did not set out a national policy for the water sector at independence in 1960. The government's first foray into national-level water resource governance came in 1974 in a Decree

from the Military Directorate headed by General Gabriel Ramanantsoa. This decree eschewed Kenya's statist approach by empowering municipalities to impose taxes for water consumption. In short, Madagascar's water sector was not linked to its broader development objectives. The government did not assert a state right over water or to seek prior apportionment; neither did it specify riparian rights. The state was, predominantly, absent. For its scattered few development projects that required engagement with the water sector, such as hydroelectric development and targeted irrigation projects, the state asserted a right as necessary. The 1974 Decree did not fundamentally alter the mode of water sector development. To the extent that it existed, it was carried out by the government-owned corporation, the Société Malagasy des Eaux et Electricité — now Jiro sy Rano Malagasy (Malagasy Electricity and Water). Jiro sy Rano Malagasy is to this day the only national-level water service provider. As of 2006 it provided fewer than 100 000 water connections (for domestic, commercial, and industrial ends) in a country of 18 million people, and was in severe financial crisis.

Management reforms came to Madagascar in May 1995 when the Government approved the (Water) Sector Strategy and Action Plan. The goal was to define the operational objectives in the water and sanitation sector. Specifically, it established an objective of increasing the connection rate, then 29% of the country, to 79% by the year 2010. It planned on doing this by strengthening local participation in the social and economic development process. Specifically, it mandated the optimization of water management in rural and poor areas alike by placing a greater responsibility on municipal and rural local providers. The strategy relied on seven basic principles:

1. Institutional development through the increased responsibility of actors.
2. Stronger private participation in water withdrawal.
3. Decentralization.
4. Community participation and social mobilization.
5. Training and professionalization.
6. Water resource and environmental protection.
7. Information sharing and health education throughout the country.

The state level entity with ultimate responsibility for water delivery is the Ministry of Energy and Mines. It must coordinate with the relatively new Ministry of Water and Forest responsible for surface water management and the Ministry of Health responsible for assuring potable water. The Ministry of Energy and Mines is organized into four departments relevant to water. The critical one herein is the Alimentation en Eau dans le Sud (AES), which operates exclusively in the south of the country. It has undertaken two primary projects, both funded by Japan International Cooperation Agency. The first project was a water pipeline from the Menanadra River near Beloha to the mining-rich Tsihombe District. The

second project has been a system of water truck delivery from the Mandrare River (in Amboasary District) to Ambovombe-Androy District. The AES is the only public water supply interest in the region, with the exception of scattered urban and semi-urban Jiro sy Rano Malagasy holdings.

In 1998 Madagascar wrote its first comprehensive, Water Code, the primary point of which is that water should be universal, well managed, and not a free good. It states that water is necessarily in the public domain (and thus the state reserves the right to abrogate riparian rights), but must be managed and conserved by assessing a value. The management, distribution, organization, and financing can be public or private, but it must include a cost-recovery mechanism and must involve local participation.

The decentralization inherent in the Water Code meant that from 1998 to 2004 *communes* (second to lowest administrative level) assumed primary responsibility for water decision-making, including management and fee collection. In September 2004 President Marc Ravalomanana shifted the decentralization plan to focus on 22 'Regions' (*prefects*) as the primary level responsible for development planning. However, it did not shift the focus of Madagascar's water sector, which is still intended to follow a decentralized, cost-recovery-oriented path. Communes retained the responsibility of maintaining horizontal control on spending decisions and accounting practices. They are responsible for the management of infrastructure delivery systems including water, and also for engaging local populations in the planning and monitoring of local development plans.

Lack of support and the fiscal gap

If Kenya and Madagascar can be said to have arrived at comparable institutional arrangements, managing water resources across scales, it can also be said that the challenges they face are comparable. Water reforms are costly, and high levels of poverty in rural areas in particular raise the question of how to finance them. Kenya has a limited history of fiscal transfers, relying instead on local income generation. Madagascar has a highly centralized economy. Until recently it has stressed the need for fiscal transfers as opposed to relying on local income generation but it has little history of providing those transfers. In both countries there is limited capacity developed at the local level to manage water resources or even participate in resource decision-making, even if, in Kenya at least, the responsibilities of local participants and the institutional chain of communication is legally clear. In both cases, the plan is for the private sector to play a significant role in financing water sector renewal, but the mechanisms have not been clearly articulated and the environment has not been made attractive to investment. Thus both countries are assuming tremendous risks by disengaging primary state functions without a clear indication of how the resource will be managed in practice or who will pay for it.

Kenya

Kenya attempted a national decentralization strategy through the District focus for Rural Development in the early 1980s. These early attempts were unsuccessful, however, due to the failure of the government to provide decision-making autonomy at the lower level. Structures for development implementation were created at the lower level, but the grip on decision-making remained centered in Nairobi, thus undermining decentralization. The latest efforts at national decentralization are much more in keeping with international development strategy. Fiscal transfers, outside school teacher funding and occasional strategic assistance for severe poverty, have been extremely limited. Local governments have relied almost entirely on property taxes, payroll taxes, and business taxes. With an increasing national tax base (owing to a political environment more friendly to foreign business), this is changing. The Ministry of Local Government has begun working on institutional capacity reforms intended to more effectively manage their revenues through citizen participation. One of the key mechanisms, established in 2000, is the Local Authority Transfer Fund (LATF). The goal of the LATF is to rationalize the financial relationship between central and local governments by providing local authorities with an incentive to improve service delivery and financial management. The LATF transfers 5% of revenues to local authorities (Devas, 2002; Oyugi, 2005). For many rural local authorities this is a significant fiscal infusion despite the relatively low transfer rate. There has not, however, been a sufficient benefit to the decentralized water institutions. The LATF transfers go to the local authorities who collect service fees for water provisions but are not responsible for funding water source development, maintenance, or delivery. Funding for water projects under the new system go through the WRMA or the WSTF. They have a parallel, deconcentrated governance structure from the state level to the sub-basin level. In order for benefits to be felt in the water sector from fiscal transfers, funds must be transferred from the WRMA or WSTF central offices down to the basins, and through the District Water Office into the hands of community groups.

As part of the 2002 National Water Services Strategy, the Ministry of Water and Irrigation recognizes that there is an economic challenge at hand. The ten-year goal is to increase urban supply coverage from 68% to 84%, and rural water supply coverage from 49% to 74%. In the rural sector, this includes the modest goal of connecting 15% of rural homes to water supply while raising rural sewerage from 2.4% to 8.7% of the population. The Ministry estimates that it will need to invest KSH 235 billion (US\$3.3 billion) between 2005 and 2015. In rural areas, the lion's share of this estimated total — KSH 96 billion (US\$1.4 billion) — is the development of infrastructure for water supply. In order to meet this goal, the government has set out an investment program that includes the commercialization of water service provisions (to improve user-fee collection), promote private sector participation in urban areas, promote syndicates in small town and

large-scale rural areas, promote private sector participation in small rural piped schemes operated by communities, establish micro-credit programs for community provider development, and increase billing efficiency while raising tariffs (Republic of Kenya, 2004).

There is great potential for this strategy. However, in Kenya's plan there are at least four sticking points that must be resolved if this effort is to succeed. First, neither the environment nor the incentives appear to be in place or have set the pace for the move towards reform. As pointed out by Price Waterhouse Coopers (Ludlow and Onyango, 2005), for private sector provider schemes to work the infrastructure must be viable, there must be uniform political will, a legal, institutional and regulatory framework conducive to private sector providers and government implementation capacity, and Kenya's image needs to be revamped to appear attractive.

Second, Kenya's move towards water commodification needs to be linked to rural realities. Before localized or privatized water interests can succeed in poor countries there must first be significant public investment (Winpenny, 2003), although even then there are other structural factors leading to a spotty record (Moore and Urquhart, 2004).

Third, not present in Kenya's formulation are significant fiscal transfers. Local funds and investment will be a requisite part of the funding schema, yet rural areas account for 51% of the assessed need. The divide between urban and rural fiscal transfers is over 30% in Kenya (Sahn and Stifel, 2002). While lower than Madagascar's 45%, this value is still significant. Annual incomes in Nairobi average KSH 72,446 (US\$1018), nearly four times that of a rural area such as Tana River District with income averaging KSH 18,684 (US\$262). The UNDP's Human Poverty Index follows a similar pattern, with a score of 25.9 for Nairobi and 49.2 for Tana River District (UNDP, 2005a). According to latest available data, there were only 4719 wage-earning jobs in Tana River District, enough for about 5.8% of the population aged 18–64 years. Total earnings for the district were KSH 1326 million (US\$18.94 million) or about KSH 7367 (US\$105) per capita (Republic of Kenya, 2006, p.274). This may be sufficient for most end-users to afford water delivery per unit, but not a sufficient base from which to extract enough funds for significant infrastructure investment. This is a problem considering "the existing water facilities in the district are not enough to adequately provide for domestic, livestock and industrial use and therefore need to be augmented" (Republic of Kenya, 2001, p.43).

Finally, the urban–rural divide aggravates the development of rural water supply when the sectoral equalization measure is removed. There are two such mechanisms: the state can transfer resources to the rural areas to fund local initiatives for water resource development, or it can invest the capital raised in urban areas into rural areas through state projects. The new water strategy does neither of these things. Thus, whereas Kenya finally appears to be getting its sectoral management plan

in order, it appears to have undermined the necessary 'hard' investments, and this is the challenge. The Kenyan Millennium Development Goals Assessment (Republic of Kenya, 2005) argues that the problem identified in Tana River District is universal in Kenya. There is significant investment necessary just to renew decaying water infrastructure. Moreover, the most important feature in Kenya meeting its water goals is an increase in *per-capita* water storage, which is not a 'soft' problem. Such large-scale infrastructure investments are exactly the sort that are the most difficult to achieve at the local level. In the rural sector it is a near impossibility, as even collective revenues generally fall significantly short of capital improvement costs. In short, while local management of resources is possible, local infrastructure development is a problem where significant fiscal transfer is absent. Given its challenged funding regime, it appears Kenya runs the risk of transferring fiscal shortcomings to rural areas where economic capacity is significantly lower than in urban areas. While this is a broadly applicable concern, this problem is very acute in the Tana River District where water resource scarcity is not recent but has a long history of leading to armed conflict between agricultural and pastoral communities.

Madagascar

In Madagascar, the challenge is somewhat greater. According to the Millennium Development Goals Assessment (Programme des Nations Unies pour le Développement, 2004), in 2001 only 11.7% of Madagascar's rural sector had regular access to potable water. The goal is to increase this to 53.8% by 2015. Some 77% of the country relies on agriculture for a living, making water a tremendous concern (UNDP, 2002). Without a central planning facility, even a flawed one, the infrastructure development is significantly lagging behind that of Kenya.

The difference in governance between the two countries is that in Madagascar there has been a national decentralization program in place for over a decade (laws 94-001–94-008 and law 95-005) and it is not designed in parallel to a water decentralization scheme. The responsibility of development is being devolved from the central government to the region level, with many functions, including water provisions, decentralized to the commune level. Thus, if a community requires an investment in the water sector, institutional support, training, and so on, then it must ask the region for assistance. Unfortunately, while Madagascar's governance may be concurrently deconcentrating to the region level and decentralizing to the commune level, its fiscal structure remains one of the most centralized in the world. In contrast to Kenya, there is little history of local tax assessment. While the Ministry of Decentralizations sees this as a local governance problem that it is working to rectify, there is a scarcity of capital to collect through local taxation. One of the issues is that there is a significantly higher percentage of the population that is rural,

and throughout much of rural Madagascar historically there has not been land titling. There are new initiatives in place to introduce land titling, but to date the rural sector lacks the income generation from land value assessments. There is also a limited formal business sector in rural Madagascar to tax. As a result, only about 1% of revenue collected in Madagascar is local, and local government is almost completely dependent upon capital transfers. VAT, corporate income and foreign trade taxes alone account for approximately 78% of total tax revenues. Deconcentrated expenditures (which generally go to the region for health and education) amount to approximately 10% of total revenues. For the Ministry of Energy and Mines, responsible for the water sector, only 3.56% is devolved. Decentralized expenditure (which generally goes to the commune) is only about 3–4%. Thus, with 1% local revenue collection, intra-governmental capital transfers amount to about 2–3% of Malagasy revenues (World Bank, 2004a). This amounts to an average of US\$1.54 *per capita* in urban communes and US\$0.86 in rural communes. In each of Ambovombe-Androy's 17 communes under study herein, the total comes to US\$9800 or about US\$0.55 *per capita*. Transfer expenditures available to the water sector at the commune level are thus a fraction of these figures, when available at all. Insufficient revenues are being transferred to the local level and a fiscal gap has emerged, undermining local capacity.

Community responses to governance across scales and elite capture in Kenya: the case of Tana River District²

Beyond the fiscal gap, Kenya is faced with the challenge of creating a bureaucratically effective water management system in rural areas where poverty is high and development is low. There have been two major problems: first, the relationship between the levels of governance have not made for effective management; and, second, where advances have been made, inter-community and even intra-community tensions have arisen as the result of elite capture. In Kenya, the 'bottom up' of a community-based, decentralized system has actually been created from the 'top down', with little local, especially rural, input. It therefore becomes necessary to communicate rules and norms down the levels of governance from the Directorate to the community, and to communicate community needs up the levels of governance from the community to the Directorate. This sets up a neo-clientalist, as opposed to integrated power, relationship — a fact that led to the collapse of earlier decentralization attempts.

The job of assisting communities in assessing their water needs, and communicating those needs to the WRMA or the WSTF regional offices, must fall to the District Water Office. For such a system to work, the District Water Officers in rural areas must stay informed of changes in rules and norms via regular trips to Nairobi. The district staff must then circulate this information in rural areas. The District Water Officers and staff must then assist the community in their formal bids for funding. Unfortunately,

in a district like Tana River, regional water offices and communities are both ill-equipped to manage the job at hand. First, there are only water offices in the towns of Hola, Galole, and Garsen for the whole of a very large geographic area (see Appendix A). Second, there is not a budget for the staff to circulate or to maintain the (one) Land Rover. Third, road infrastructure is extremely poor throughout the district, making access a challenge. Fourth, the only public transit is along the national highway, which is many kilometers from a lot of communities. Fifth, and most egregious, the process of applying for funds appears not to have been written with communities in mind. Tana River District has a significant education challenge. The population is divided ethnically between Pokomo farmers, who have access to the Tana River, and Orma pastoralists who do not have access to the river. Most schools are in Pokomo towns. Available data indicate that there are few schools compared with the population of 181 000 (1999) spread out over 38 446 km²; there are 103 primary schools, ten secondary schools, and two youth polytechnics (Republic of Kenya, 2001, p. 40), and these are underutilized. Those individuals that do make it to secondary school regularly perform very poorly on national examinations. As a result, literacy rates are low. Spoken *Swahili* is prevalent in the subdistricts near the coast, but few Pokomo or Orma speak English. The process for assistance with water infrastructure investment, training, management and any other financially bound resource requires the completion of an application to the WSTF, which is in English only. As designed, the questions are also well above the capacity of most communities and would require the community to invest in a consultant. Finally, with the bulk of funds coming from local, rather than national, sources, the money trickling down is scant. Communities appear to feel the weight of responsibility without the power of the purse.

Where there have been successful investments in local, rural water infrastructure they have often suffered from elite capture. For example, in reaction to increased conflict in the 1990s, voluntary organizations, including notably the Catholic Diocese, began working with the Arid Lands Office and the Ministry of Water and Irrigation to build 25 inexpensive earth pans (on average, 20 000 cm of storage) and, less commonly, boreholes for Orma communities in the Tana River District. This is consistent with both the tenet of the strategy that calls for increased water storage and the tenet looking to increase water harvesting. It is also a stellar opportunity to introduce a response to water demand that can be effectively community managed. It could require community participation in the construction of the pan followed by the creation of community-level management structures including fee structures for pan maintenance. The technical expertise requisite for the earth pan comes in capturing the season flows from surface laggers (small streams of run-off from arid soils with low retention rates) and creating an effective filtering system by natural design. It is a relatively simple project with high success rates in construction. Earth pans in the south of the district, where there are more

rains, tend to maintain water year round. In the North, however, they are often dry for much of the year.

In general, communities were fast and successful at setting up water users' groups with a managerial committee. As argued in one Orma focus group:

[First Respondent] We really appreciate the idea to construct the dam here because it has saved us time and effort we used to spend to get water from distant sources. We have tried to maintain it and nowadays we don't have many cases of water-related diseases. We have rules that govern how we use the water. We have tried to ensure that the place is clean and healthy but it is not an easy exercise. We have fenced the dam and employed a watchman to keep livestock at bay. [Second Respondent] Livestock do not have direct access to the water source; instead, the owner gets water and quenches the animals away from the source. There is a pump and whoever wants to use the water gets it from the tap point [*sic*; Third Respondent]. We have a chairman, secretary, treasurer and members. There are also caretakers, who open and close the water point. Currently it's done by the women. (Research notes, R. R. Marcus, July 2005)

Notable in this quote is the focus on livestock. At inception the earth pans were intended by the Kenyan Arid Lands office, the Ministry, and the Diocese for domestic consumption only — livestock were disallowed. However, it quickly became clear that such a separation could not successfully be imposed on the communities. The Diocese took the lead in assisting communities to formulate strategies for maintaining the health of the water source. This is the reason for the clear articulation in virtually every focus group that livestock access costs, and livestock access must be at access points away from the edge of the pan. With these rule reforms in place, the pans became popular within communities.

In contrast to many such community efforts, community elites fight to be on such committees as with it comes opportunity. Pricing is generally modest for the community, generally between KSH 10 (US\$0.14) and KSH 40 (US\$0.57) per month, with surcharges for those with a large number of livestock. However, Orma from outside the community (generally traveling north to south) pay excessive use rates — as high as KSH 1000 (US\$14) per day (payment can generally be made in livestock or cash). In addition, the water elicits funds through penalties:

Say if somebody opens water without permission he or she is fined. And the fine varies. Non-community members are charged 1000 shillings and residents are charged 500 shillings. Those found washing in the prohibited areas are charged up to 1500 shillings. (Chairman of a local water committee; research notes, R. R. Marcus, July 2005)

The pans are both a source of great revenue and conflict. Now that some of the earth pans are starting to age and require dredging, it is clear that many of the committees banked only a small amount of those funds. The remainder goes to the committee members. As a result, it was rapidly the case in a number of examples that the earth pans became a social mechanism. The committees are comprised of community members who have moved into an elite status by virtue of their family heritage, personal wealth, or charismatic leadership abilities. The committees collect the fees for water use. The funds that are not banked are sometimes held by individuals, but are more commonly put into livestock that are integrated into the herds of those elites. In some cases these livestock are counted separately, as one might consider water bank funds. In other cases, the livestock becomes the personal property of the herd owners. In both cases the enlarged herd serves to enhance the herd owners' social position. Thus, water fees have empowered elites who could, via their position as a member of the water committee, capture the power of the region's most important resource for their personal gain. This is potentially further imperiling, as it can set up a contest between community members for the lucrative water committee positions. Where the funds for maintenance do not exist, it becomes necessary for communities to once again ask for assistance. The voluntary associations and the state bureaus responsible for the construction of the earth pans are then faced with the decision of having to provide more funds — effectively admitting that the scheme failed for reasons of community management, not design or resource — or let the pan collapse. The lesson is that while prioritizing management is of course critical, it is equally important to ensure the viability of the institutional capacity, the membership, and the accountability mechanisms.

The local challenge: perceptions and the rise of predatory private markets in Ambovombe-Androy, Madagascar

Ambovombe-Androy is a poor district of 17 communes in Madagascar's extreme south (see Appendix B). As it is predominantly encompassed in a hydrologically closed basin and receives only about 300 mm of rain per year, obtaining water is, by far, the most important concern of the citizenry.³ The average person consumes an average of just over five liters of water per day, about 10% of the commonly marked water poverty line, and about 1% of consumption in western countries. In the rainy season (about four months), most of Ambovombe's water needs are met by community-level water storage facilities. For the rest of the year the population must rely upon three sources: boreholes and water catchments, the AES project (which trucks water from the Mandrare River), and informal water markets. All of these are insufficient, forcing regularized discussion by communities and leaders on how to improve the water supply.

As discussed, at the core of many of Madagascar's institutional changes is the deconcentration of development planning to the regions and the decentralization of management in many sectors, including water, to the commune level. The intention of such efforts is to put formal horizontal control on spending decisions and accounting practices. Expenditure should occur at the lowest level of government that can effectively capture costs and benefits to public service. The state should internalize externalities across jurisdictions and carry out expenditures that involve stabilization, distribution, or standards. The lack of fiscal transfer is an indication that the state is not living up to its end of the bargain. However, if the commune is to effectively capture costs and benefits, then it must also be held accountable by the population. The Chief of Region is appointed by the Ministry of Decentralization, so there is no accountability to the population. The Mayor of the commune is elected, but, it appears, the population does not always take ownership of his position, authority, or level of government.

Institutional boundaries in an integrated management system should be social, with communities delineating rights and jurisdictions (Williams, 1998; Murphree, 2000; Barrow and Murphree, 2001). Yet in Ambovombe, the 'community' is identified, depending on the issue, as the *fokontany* (the smallest administrative unit in the Malagasy system) level, not the commune level, an average of 90% of the time (R. R. Marcus survey, May–June 2005).

Like Kenya, local governments have not received to date the fiscal transfers necessary for water infrastructure development, but there are a limited number of public boreholes and water catchments developed by international donors and non-government organizations. 'Community'-based water resource management committees have been constructed at the commune level to manage these facilities. Yet even these minimal efforts are often not owned, trusted, or held accountable by the population. Where the water committees are part of the commune leadership, they are often seen as corrupt. Where they are constructed parallel to the commune leadership, they are seen as a competitive source of power that undermines *commune* authority. In the case of Ambovombe-Androy, communes hardly appear prepared for increased fiscal transfers for water or any other function if and when they should come.

The second source of water is the AES. This is a deconcentrated system within the Ministry of Energy and Mines. The process set up is that each *fokontany* is to ask its commune for water. The Ambovombe communes tender a request for water to the AES. Yet, the AES source for water is to truck it from Mandrare River. The system is cost-inefficient, and, as of 2005, can deliver only 72 000 liters per day or about one-quarter liter *per capita*.

The lack of regularized resource supply leads to a third option for obtaining water: opportunistic, often predatory, private borehole owners. In April or May, at the end of the rainy season, private water may cost 50

ariary (US\$0.03) per 150-liter bucket (US\$2/cm). By September, those same providers may charge upwards of 500 ariary (US\$0.28) per bucket (US\$18.66/cm). If we consider that the average income in Ambovombe is less than US\$0.27 per household per day but that rural water delivery in Kenya averages approximately US\$0.35/cm, and that the city of Los Angeles USA with a median household income of US\$100.51 per day (US Census, 2000) pays an average of US\$0.77/cm (Los Angeles Department of Water and Power, 2006), then it is clear that comparably semi-arid environments have markedly different interpretations of water pricing.

Unlike in wealthy cities such as Los Angeles, the infrastructure investment in Ambovombe-Androy has not been significant enough to stabilize water supply and cost. There is a substantial literature that describes how increased infrastructure decreases water prices by regularizing supply and eliminating the room for predatory private markets to operate (Bhatia and Falkenmark, 1993). The Japan International Cooperation Agency recently completed a study of a new drinking water supply system. While the final conclusions of the report are still pending, it appears it will support the finding that water supplies in Ambovombe are insufficient and it will consider either a continuation of the existing water pipeline from Tsihombe or a new gravity-fed pipe to transfer water from Manavy to Ambovombe and from Ambovombe to Antanarika (African Development Bank, 2005). While this is an important first step, there are some significant challenges. First, this would only address drinking water needs, and not agro-pastoral production needs. If there is not a clear distinction at the local level, the pipe can be seen as unsatisfactory to locals concerned with their livelihoods. It could possibly even lead to local governance challenges, as managers would have significant incentive to sell water for production use, particularly the watering of livestock. Second, while the pipeline would provide regularized drinking water supply year round depending on consumers' willingness to pay, it would probably only be available within the central Ambovombe communes. Third, even presuming the State, in this case the Ministry of Energy and Mines, is infused by donors with the capital to construct the pipeline, and it achieves its goal, it does not abrogate commune responsibilities. These will include standpipe management by user associations, operation and maintenance of facilities, wastewater and drainage, and, most importantly, fee collection and financial management. Given the aforementioned challenges to 'community' identity, capacity development and popular accountability could prove a challenge. Furthermore, as the standpipes will probably be situated only in the central communes, residents of other communes will have to travel to town to purchase water and could be subject to the same sort of elite predation we find in Orma communities. Beyond the difference between community identity exogenously created for management ends and existing culturally-based community identities, they will be out of their voting jurisdiction and thus would not hold an accountability measure.

Conclusion

Although Kenya's bloated state organizations overbuilt infrastructure to the cost of the many and to the benefit of the few, while Madagascar's public water sector has remained limited in scale and scope, the results are similar. Only 49% of Kenya's rural citizens and 11.7% of Madagascar's rural citizens have regular access to clean water (UNDP, 2004). The decision by both governments in the 1990s to reform their water sectors has opened up new promise. There is a global convergence on the priorities for water sector governance, and both of these governments have embarked on this path that has proved rewarding from Singapore to Chile. Kenya and Madagascar have started down the path of IWRM. Dovetailing with decentralization programs, the citizenry have new opportunities to express their needs and manage their resources in a sector that, despite its critical role to the survival of life, has had been neglected for generations. They undertake these projects with hope, brought about by new governments and by parallel steps towards deeper democracy (including elections in Madagascar in 2001 and Kenya in 2002) as well as the increased interest of, and funding by, international donors.

Notwithstanding the potential, there are challenges to integrating water management across scales in Kenya and Madagascar. The largest problem in both countries is 'where does the money come from?' In neither case has the fiscal gap and lack of local resources been sufficiently addressed. In both cases there are also significant institutional concerns. There is reason for concern that states are treating 'integration' or 'multi-level' governance as an opportunity to disengage from providing necessary leadership, which poses a problem for infrastructure support as well as for the development of legal, juridical, and regulatory frameworks. It also poses a problem for ensuring the placement of mechanisms to ensure that communication across scales is fluid. This begs the question 'who is the Leviathan', as water needs transect resource zones and end users compete over a commons of multiple jurisdictions.

The cases of Tana River District, Kenya and Ambovombe-Androy, Madagascar do not point back to the rise of voracious states seeking to build water infrastructure managed for the few at the expense of the many. They do, however, point to a need to approach decentralized water governance with a sober negotiation between state and local rights, responsibilities, and capacities. Both countries have placed a strong reliance for funding on the private sector, but without creating a proper environment and without considering the important differences between privatization and public-private partnerships, let alone the nature of diverse potential public-private relationships. More importantly, there is an institutional crisis looming. There are myriad relationships between institutions at every level of governance, and even more so across levels of governance. The communities that are intended to take part in the management of water resources, hitherto marginalized from the nexus of the decision-making process, create their own relationships with institutions across

scales and are, ultimately, germane to their success. If Kenya and Madagascar are to successfully integrate water governance in rural areas, then there needs to be a more nuanced state–local relationship characterized by an open dialog and the regular fulfilling of the responsibilities by each level of actor. Short of this, universalism can be dangerous. It leads to the perpetuation of norms that do not necessarily fit. Rather than embracing rationalized, internationally intellectualized institutions before disengaging, states must embrace the culturally embedded local norms.

Notes

- 1 An earlier version of this paper was submitted as an unpublished report to the UNDP Human Development Report Office in support of the *Human Development Report 2006*.
- 2 The fieldwork for this study was conducted in Madagascar by Richard Marcus in 2001/02, 2004, and 2005 with the generous support of Yale University and The University of Alabama in Huntsville, and conducted in Kenya by Richard Marcus and Joseph Onjala in 2005, 2006 and 2007 with the support of The University of Alabama in Huntsville and California State University, Long Beach. The research question came out of an earlier southern Madagascar study of environmental institutions by Richard Marcus. In winter 2001, Richard conducted focus groups and local interviews in both Androy and Anosy communities, following which the question was framed. Research in 2004 included local interviews with Ambovombe mayors, the district officer, and local water officials, interviews with ministry officials and donors in Antananarivo, and 12 focus groups in Ambovombe-Androy. Research in 2005 included a survey ($n=521$) of households (random, stratified by commune and *fokontany*), and focus groups in all but two communes. Access challenges, combined with the reticence of local leadership, required the removal of two of the 17 communes from the survey. The fiscal data were collected by the Ministry of Energy and Mines, Ministry of Decentralization, and the World Bank, so they include all communes. Research in Kenya was conducted in 2005 and 2006. The research in 2005 included interviews in Nairobi with each new water sector director, ministry officials, and the Arid Lands Department of the president's office. In Tana River District, interviews were conducted with the District Officer, District Water Officer, District Statistician, Arid Lands office, Bura and Hola Irrigation Project Directorates, local non-governmental organizations, and local leaders. Focus groups were conducted in 11 communities in Bura, Galole, and Madogo, ensuring coverage of both Pokomo and Orma communities. In 2006 a new round of interviews in Nairobi led to an update of the changes. A humanitarian crisis created by unusually heavy rains forestalled the intended community survey, to be conducted in 2007. A number of organizations in Madagascar and Kenya have been instrumental in this work. Of particular note are Azafady and Objectif Sud in Madagascar, and the African Research and Resource Forum and the University of Nairobi Institute for Development Studies in Kenya.
- 3 Unless otherwise indicated, all Madagascar statistics come from a survey conducted by R. R. Marcus in May–June 2005. The survey was a random sample of the district with 521 respondents stratified by commune and *fokontany*. A parallel Kenya survey was conducted by R. R. Marcus and J. Onjala in July–August 2007.

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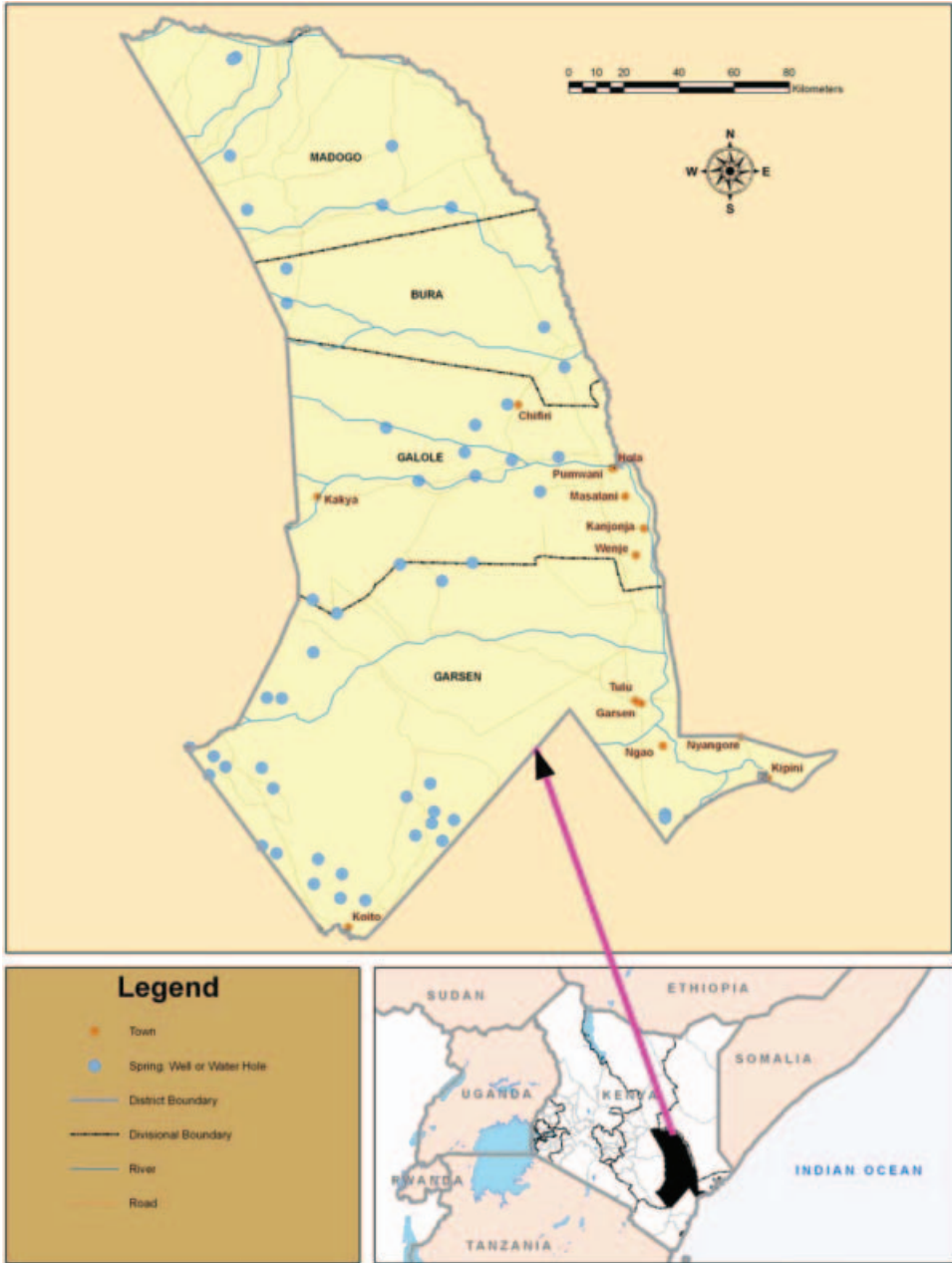
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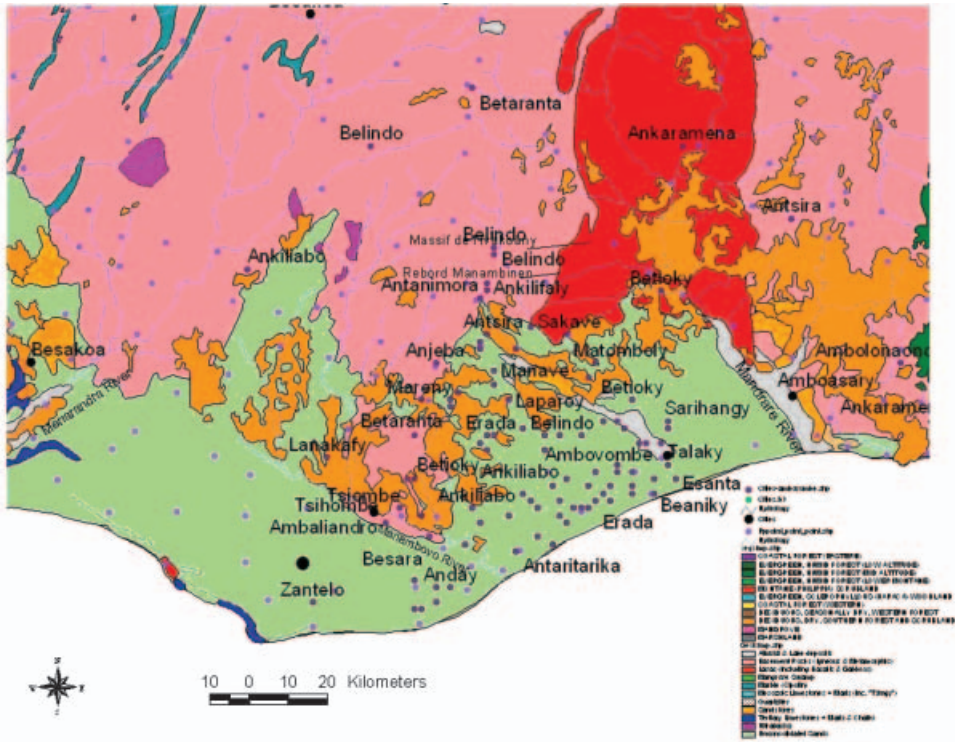
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Appendix A. Tana River District, Kenya



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Appendix B. Ambovombe-Androy District, Madagascar



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