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11 Coping with History and Hydrology: how Kenya's Settlement and Land Tenure Patterns Shape Contemporary Water Rights and Gender Relations in Water

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Abstract

Like many other African countries described in this volume, Kenya has recently enacted several new policies and public-sector reforms that affect its water sector. This chapter considers those reforms in the context of the country's particular history of land tenure and settlement, a history that continues to have a profound influence on contemporary patterns of land and water management as well as on gender relations in water. The chapter focuses on the particular case of a river basin in Western Kenya, the Nyando river basin (3517 km²), that has its outlet in Lake Victoria. Over the last century, the Nyando river basin has experienced a history that has shaped spatial patterns of land tenure, settlement and water management. The plural land management systems that exist in the basin today are the product of three distinct periods of historical change: (i) the pre-colonial era that was dominated by customary landholding and land rights systems; (ii) the colonial era in which large areas of land were alienated for specific users and the majority of the Kenyan population confined to native reserve areas; and (iii) the post-colonial era that has encouraged large-scale private ownership of land by men and a small public-sector ownership of irrigation land, all against the backdrop of customary norms and the colonial pattern of settlement and land use. Both colonial and post-colonial institutions have largely disregarded women's rights to land and water resources. Although customary norms are consistent in ensuring access to water for all members of particular ethnic groups, in practice access and management of water points vary across the basin depending upon the historically defined pattern of landownership and settlement. Customary norms that secure the rights of women to water resources tend to have most impact in former native reserve areas and least impact in ethnically heterogeneous resettlement areas held under leasehold tenure. Recommendations are made on how new policies, legislation and government institutions could be more effective in promoting the water needs of rural communities in Kenya.

Keywords: legal pluralism, land tenure, water tenure, gender roles, integrated natural resources management, property rights, policy framework, community participation.

Introduction

Like many other African countries, Kenya has recently enacted new policies and legislation regarding its water resources sector. Reforms of the institutions that govern water supply and water resources management were still in progress as of 2005, with new boards and authorities coming to grips with their responsibilities. The Water Act, 2002 was founded on modern principles of integrated water resources management, empowering water user associations and basin authorities with responsibility for managing water resources and regulating water service providers for efficient, equitable and sustainable use of water.

The Water Act appears to be based on the following propositions: (i) that land and water management are quite distinct areas of administration and governance; (ii) that customary institutions have little influence over contemporary patterns of governance; (iii) that formal administrative structures for water management will be able to have a large influence over land management that affects water resources; and (iv) that private sector and large-scale non-governmental organizations (NGOs) will replace the government as the main supplier of water services. This chapter considers these propositions for the particular case of the Nyando basin in Western Kenya. While representing relatively small portions of Kenya's land and water resources, the Nyando basin displays a surprising level of diversity. Historical processes of settlement and land tenure change have resulted in contemporary differences in land and water management.

Three strands of literature influence the approach taken in this research. The first is the historical and evolutionary approach to property rights and institutional change promoted by institutional economists such as North (1990). By that theory, property rights change is a continual, path-dependent process influenced by a confluence of external and internal forces – forces based on political, social and economic power. The second strand of literature is the theory of legal pluralism promoted by legal anthropologists. In a nutshell, legal pluralism proposes that *de facto* property rights are always affected by multiple sources of legal, social and political authority, including custom-

ary and religious law, local norms and even project regulations. All of these frameworks can be the basis for claims over land, water and trees. Access to, and control over, water and other resources are thus the outcome of the interplay between these different types of claims, the negotiation processes that take place and the relative bargaining power of different claimants.

The third strand that influences this research, often associated with political ecology, is generally based on the premise that contemporary patterns of resource use and management are embedded in historical processes involving competing and cooperating social actors. Cline-Cole (2000) describes a landscape as a 'produced, lived, and represented space constructed out of the struggles, compromises and temporary settled relations of competing and cooperating social actors'. This strand of literature is firmly grounded in historical studies of the African landscape, such as those undertaken by Fairhead and Leach (1996), Cline-Cole (2000) and Ashley (2005).

This chapter draws information from the Safeguard project, 'Safeguarding the rights of the poor to critical water, land and tree resources in the Nyando River basin in Western Kenya'.¹ This chapter also synthesizes information from the Safeguard project regarding the distinct histories of land management and settlement that have unfolded across the Nyando basin and how these histories shape contemporary water rights and gender relations to water. Conclusions are drawn on the ways in which formal water management authorities can take better account of those local realities to improve water quality and water access in rural Kenya.

The chapter begins by introducing the history and hydrology of the Nyando basin, followed by a brief discussion of the methods used in the Safeguard project. It then provides an examination of the evolution of land tenure in the Nyando basin from the pre-colonial Kenya period to the present day, highlighting the changing property rights over time and space. Gender relations over water are examined at both household and community levels in the context of contemporary property rights and legal pluralism. The chapter concludes by proposing ways of integrating natural resources management at

all levels as a way of improving community participation in water management within the existing legal and institutional framework.

Overview of the Nyando River Basin Study Site

The Nyando river drains into one of the largest lakes of the world, Lake Victoria (see Fig. 11.1). The Nyando river basin covers an area of approximately 3517 km² and had a population of approximately 746,000 as of 1999 (Mungai *et al.*, 2004). At that time, the average population density was 212 persons/km² across the basin, with large areas supporting up to 750 persons/km² and other large areas with as few as 50 persons/km².

As of 1997, the incidence of poverty, as measured by food purchasing power in Kenya's poverty mapping study, was generally high in the Nyando basin, with an average poverty incidence of 58% in the Kericho district, 63% in the Nandi district and 66% in the Nyando district, compared with the national average of 53% (CBS, 2003; World Bank, 2005). Poverty

incidence is variable across space, with an estimated incidence ranging from 36 to 71% across the administrative locations of the Nyando district (see Fig. 11.2). HIV/AIDS prevalence is 28% in the Nyando district, 7% in the Nandi district and 12% in the Kericho district (Swallow, 2004). The basin is primarily inhabited by two ethnic groups – the Luo, who occupy the lowlands and part of the midlands and the Kalenjin, who occupy the highlands. Small numbers of a third ethnic group, the Ogiek, occupy parts of the forest margin at the uppermost parts of the basin. Almost the whole basin falls within the three administrative districts of Nyando, Nandi and Kericho, with small portions of the basin falling within other neighbouring districts.

The upper reaches of the basin rise as high 3000 m above sea level (m asl) and receive an annual average rainfall of between 1200 and 1600 mm/year. The highest parts of the basin are within gazetted forests of the Mau forest complex – known as one of Kenya's five 'water towers'. The uplands also support some large-scale tea plantations, smallholder subsistence and commercial agriculture. The Kano plains form the

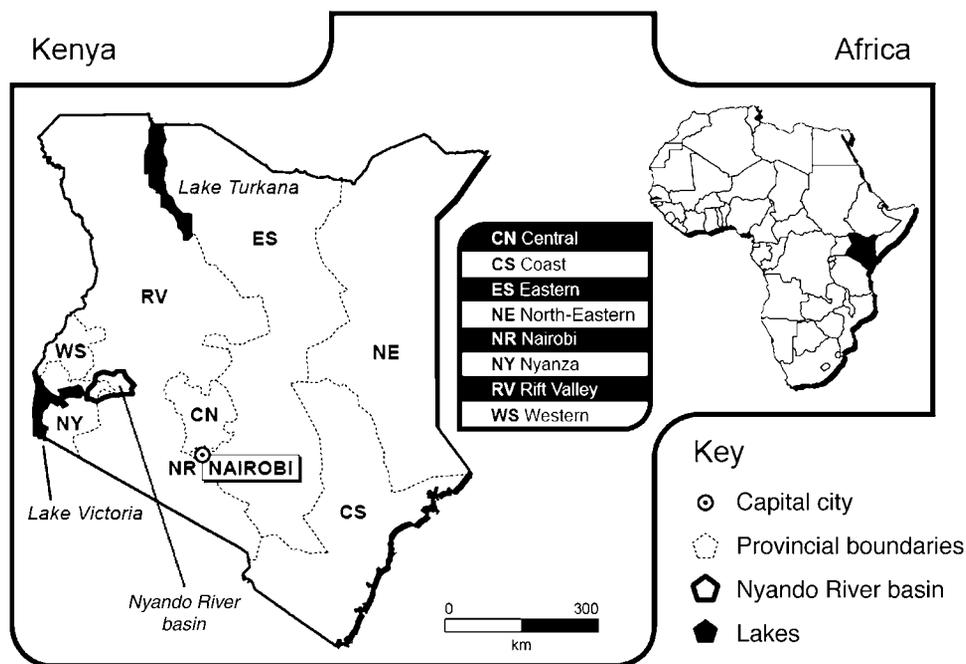


Fig. 11.1. Map of Kenya with Nyando basin.

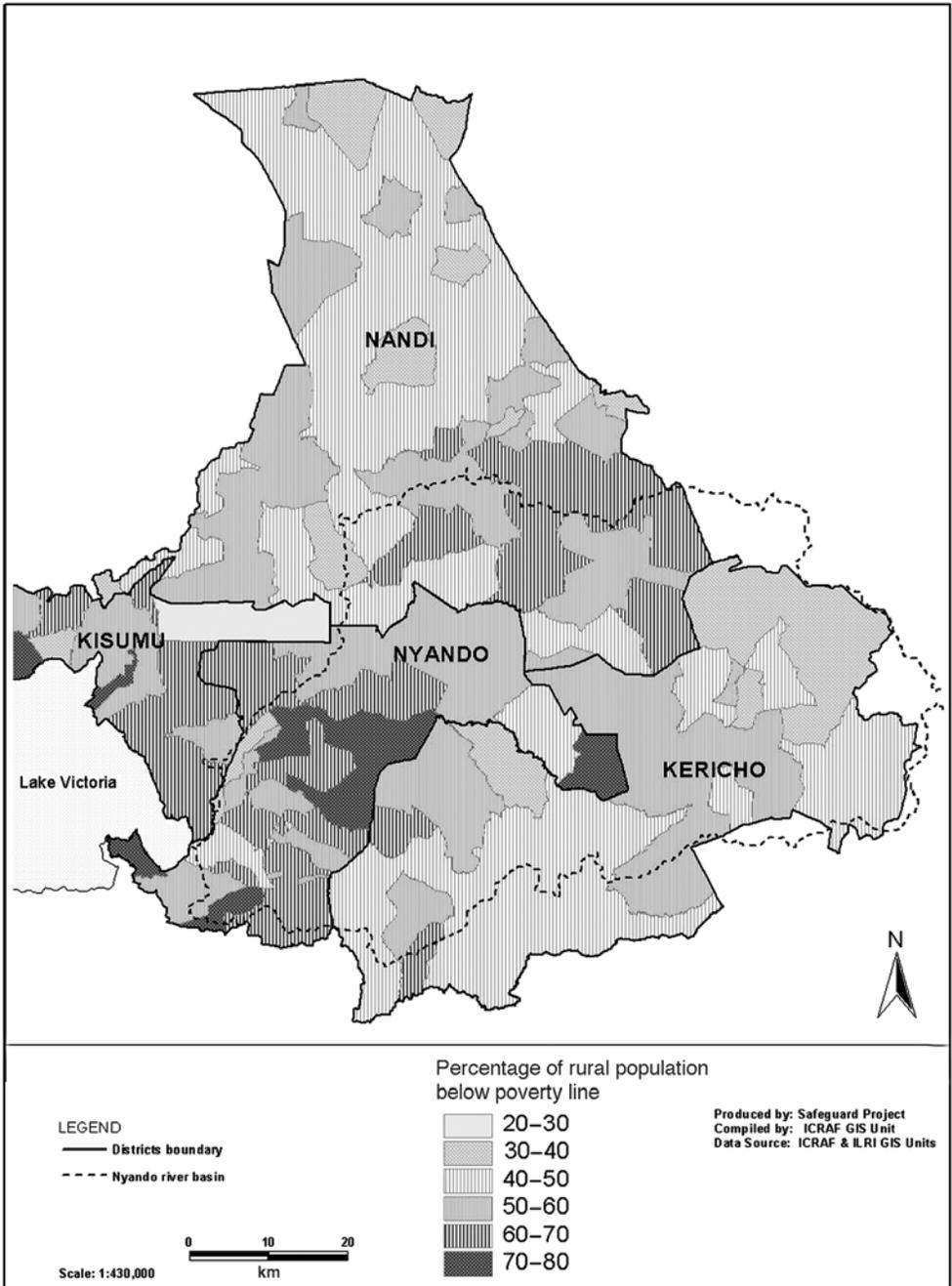


Fig. 11.2. Percentage of rural population below the poverty line in the Nyando river basin.

lowest parts of the basin, adjacent to Lake Victoria where the Nyando river discharges. The Kano plains lie between 1100 and 1300 m asl and receive an annual average rainfall of between 800

and 1200 mm/year. The Kano plains are prone to both floods and droughts. Economic activity in the lowland and midland areas ranges from small-scale subsistence agriculture to large-scale

commercial production of sugarcane. A part of the Kano plains has been developed for large-scale irrigation.

The Nyando basin is endowed with unevenly distributed surface water and groundwater. The highlands have many streams and springs, which are the main sources of water for human and livestock use. The lowlands experience less rainfall, fewer rivers and streams, and saline groundwater (Okungu, 2004). The Nyando basin experiences serious land degradation. Walsh *et al.* (2004) estimate that about 61% of the basin suffers moderate to high erosion (soil loss of 40–70 t/ha/year), while the other 39% accumulates sediment (soil accretion of 38–61 t/ha/year). Although upland areas are being eroded, the most severe consequences are felt in the lowlands, which experience serious flooding and siltation. The net erosion rate for the entire basin is estimated at 8.8 t/ha/year. The Nyando river carries very high levels of sediment and is a major source of pollution and sediment loading of Lake Victoria (Walsh *et al.*, 2004).

Research Methods

The main research method used in the Safeguard project was a set of 14 village-level studies of poverty and property rights dynamics. A multi-stage sampling procedure was used to select villages. The first stage involved the characterization of the basin into strata based on altitude, hydrology, land tenure, ethnicity and agricultural production system. The sample sites were drawn from the strata to represent the range of situations that exist in the basin. Table 12.1 of Swallow *et al.* (Chapter 12, this volume) provides additional information about each of the 14 villages. In each selected sub-location, one village containing between 50 and 100 households was selected for a participatory analysis of poverty and livelihood dynamics. The foundation of that analysis was the ‘Stages of Progress’ methodology developed by Anirudh Krishna and applied in India (Krishna, 2004; Krishna *et al.*, 2005), Kenya (Krishna *et al.*, 2003) and Uganda (Krishna *et al.*, 2004).

By systematically prompting and guiding discussions among a village representative group, the method generates a Stage of Progress ladder

for the village, which ranges from absolute poverty to relative prosperity, poverty and prosperity lines defined by those stages, and measures of the level of poverty:prosperity and poverty dynamics for each household in the village. In the Safeguard project, we added in a stronger focus on livelihood strategies pursued by households in the village, as well as the assets required for those livelihood strategies. A village resource map and calendar of historical events concerning land, water and tree assets in the village were also generated for each village.

Information on land and water use and management was collected through both focus groups and household surveys. First, an inventory of water points was compiled as part of a resource-mapping exercise that was conducted with the village representative group. Secondly, a list of 18 questions on land and water management in the village was posed to the village representative groups during a half-day discussion period. Questions focused on access, equity, control of land and water as well as on women’s rights to land, water and trees. Additional questions about irrigation management were posed, where relevant. Thirdly, a household survey was conducted with a sample of about 30 households in each village, largely focusing on land and water management. The household sample was stratified by poverty level and poverty dynamics.

Besides data from the 14 Safeguard villages, complementary information was compiled from a wide range of secondary information sources. Registry Index Maps (RIMs) were combined for the three districts to generate a set of land tenure maps for the basin. Maps were generated to depict the situation as it was in 1964, at the eve of independence, and how it was in 2004, 40 years after independence. The history of land tenure and institutional change was compiled from a variety of literature sources and government documents.

Evolution of Land Tenure Systems in the Nyando River Basin and Access to Water under Each Type of Tenure

Land in the Nyando river basin is held under different tenure systems in different parts of the basin, with each system changing over time. In

pre-colonial Kenya, all natural resources were owned communally and claims were determined by clans. In the colonial era, the Crown Lands Ordinance of 1902 gave authority to the Crown to alienate land. Any land not physically occupied by local people was considered wasteland (free land) and free for alienation to the European settlers. Local people's rights to land were defined by occupancy, while settlers were given freehold titles by the Crown.

Two parallel landholding systems thus developed. When settlers wanted to gain control over land that was occupied by locals they had to negotiate the right of occupancy with local people. The settlers advocated for grouping the Africans in defined reserves far removed from any lands deemed to be suitable for European settlement. The Crown Lands Ordinance of 1915 allowed the Governor to create Native reserves and provided for the settlers to be given agricultural leases of 999 years. Following the Kenya Land Commission (Carter Commission) of 1934, the Native Lands Trust Ordinance of 1938 re-designated Native Reserves as Native Land and removed them from the Crown Lands Ordinance. This created a set of laws to govern native lands and another set to govern crown land. Even after independence both sets of laws were still in force, which in part explains the current state of confusion in land administration in Kenya.

The Native Land Trust Board under the Chief Native Commissioner held native land in trust for the communities. Local people lost all their rights to lands outside of the native lands. The Crown Lands Ordinance was amended to define the highlands, which were administered by a separate Highland Board. Both boards and their boundaries were set up by 1939 and remained the same up to the time of independence in 1964 (Juma and Ojwang, 1996). The highlands are commonly referred to as the white highlands. They were often the most productive parts of the country and developed cash economies, whereas the native lands were often the less productive and developed subsistence economies. These patterns persist to date. Figure 11.3 is an attempt to illustrate the evolution of land tenure in the Nyando river basin.

This study identified seven ways in which land is currently held in the Nyando basin: (i) trust land – not titled; (ii) government land – not

titled; (iii) adjudicated land – freehold titles on completion of adjudication; (iv) settlement schemes – freehold titles on discharge from the Settlement Fund Trustee (SFT); (v) large-scale farms with leasehold titles; (vi) land-buying companies – freehold title on subdivision to small units; and (vii) forest land – reserved on gazette. The landholding types in (iii), (iv), (v), (vi) and (vii) all fall under the category, labelled as 'private land' by Mumma (Chapter 10, this volume). This study has generated a map of land tenure for 1964 (see Fig. 11.4) – when the country achieved independence – and one of land tenure for 2004 (see Fig. 11.5) for purposes of analysing changes in land tenure. Using the two maps it is possible to examine the changes that have occurred over the last 40 years and how these changes explain contemporary water rights and gender relations. The remainder of this section describes land and water management under each land tenure type currently existing in the Nyando basin.

Management of land and water in trust lands

Public land in the *native lands* is held in trust for the people by the local authorities and is referred to as trust land. Before adjudication, all land in the native areas was trust land. In the Nyando basin there are three county councils (Nandi, Kipsigis and Nyando), as well as several municipal and town councils. All trust land that is not identified and gazetted for a specific use is held in trust by these local authorities. However, a survey of the three county councils established that most trust land in the basin had already been alienated. What remains under the jurisdiction of the county councils today are schools, cattle dips, dispensaries and some wetlands in the floodplains adjacent to Lake Victoria.

Water and other resources found on trust lands are mostly open to all people who live within the local community. People from outwith the local community may be allowed access to those resources, although locals are given priority, especially if the commodity is scarce. Access to natural water sources such as streams and springs is generally more open than access to constructed water facilities.

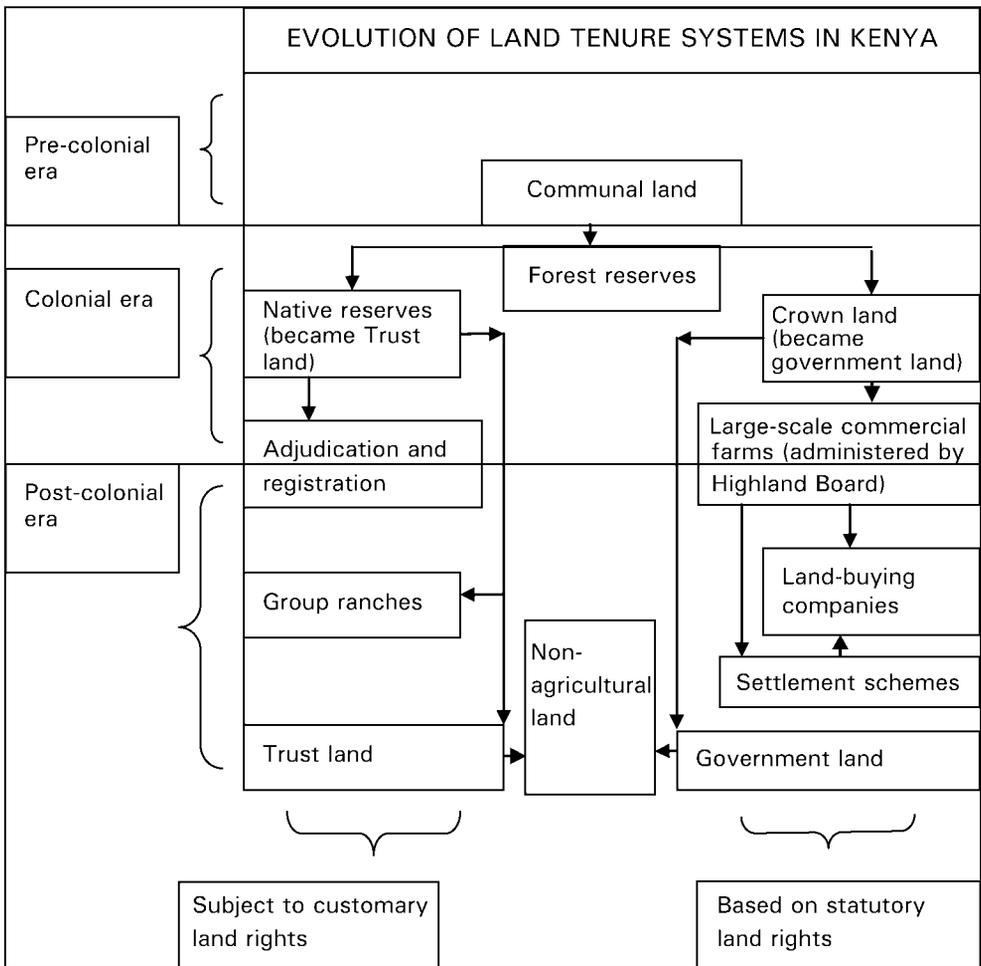


Fig. 11.3. Evolution of land tenure in the Nyando river basin (from authors' conceptualization based on extensive literature reviews).

Management of land and water in government lands

At independence, all crown land was converted to government land and was administered by the Commissioner of Lands on behalf of the President. All government land that is not alienated is still held in the same way. No one has any right to use or occupy such land unless granted a lease by the government, although it is common to find unofficial users of these lands. In the Nyando basin, government land is found only in the urban centres such as Kericho and Muhoroni and in the riparian reserves that

abut streams, rivers and wetlands. Access to water resources on government land tends to be poorly regulated. Local authorities would ideally be the custodian of such land, but they rarely take up that responsibility, so riparian reserves remain designated as government land. The lack of enforcement of regulation of riparian areas on government land means that these are the places where high-density slums tend to be located all across Kenya. In the Nyando basin, similar trends are already becoming evident in towns like Muhoroni and Ahero. A very negative impact of the de facto open access to riparian reserves is that the

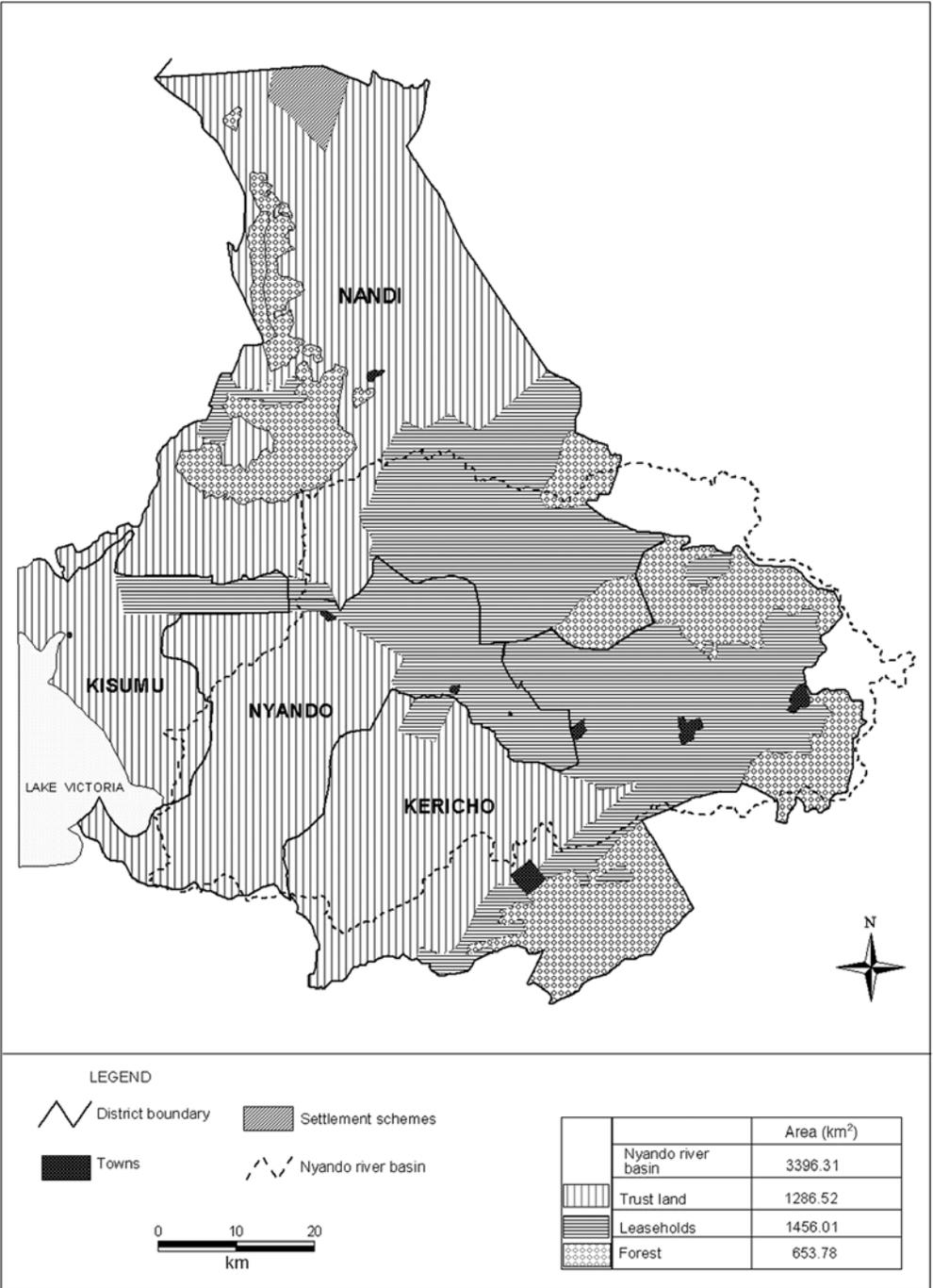


Fig. 11.4. Land tenure in the Nyando river basin in 1964.

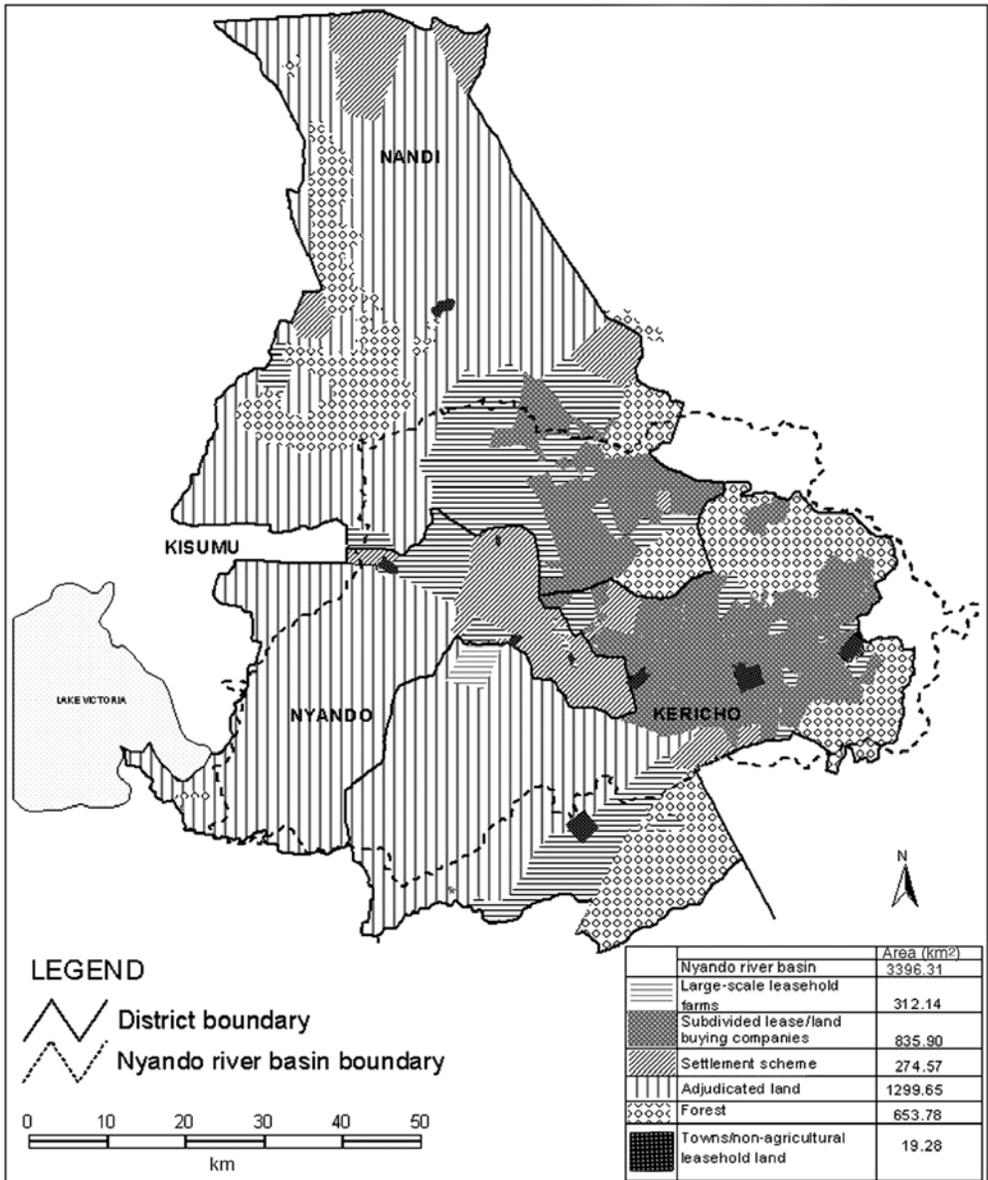


Fig. 11.5. Land tenure in the Nyando river basin in 2004.

rivers in towns are recipients of refuse from both people and industries. In Nairobi, it is reported that 34% of urban vegetable producers divert untreated sewerage from trunk sewers on to their riverine gardens (Cornish and Kielen, 2004).

Management of land and water in adjudicated land

Land adjudication is the process through which land in the native reserves is surveyed and registered as freehold. This process started in

1956 in some parts of central Kenya, but was widely implemented only after independence in 1964. The process of adjudication was slow because it had an inbuilt mechanism for hearing and determining disputes and, in many instances, included land consolidation. On completion of adjudication a freehold interest is registered and a title deed issued. The process of adjudication was prompted by the Swynnerton Plan of 1955, as the colonial government looked for ways of improving agricultural production in native lands. The Swynnerton Plan recommended that agricultural production could be enhanced if titles were issued to the Africans for the land they cultivated. The government was to provide loans for improving agriculture, using the titles as security.

Adjudication sections are carved out along ethnic lines and thus tend to be homogeneous in terms of ethnicity. As a result, property rights to adjudicated lands are heavily influenced by culture. In the two dominant ethnic groups found in the basin, land is controlled by men and managed through male-dominated councils of elders. Both the Luo and Kipsigis communities practice polygamy. Land is inherited from fathers through the mothers. Each married woman is allowed to cultivate specific pieces of land which are referred to as her land, although the women are rarely if ever registered as the title-holders of that land. When her sons grow up, the woman gives each of them a piece of land from the portion she has been cultivating. Sons are allowed to transfer the land and can acquire a title deed. Most women will only get land registered in their names if their husbands die while their children are still legal minors. An examination of the adjudication registers in the Ketitui sub-location (Village 3), which is Kalenjin-speaking, showed that 8% of the land was registered in the names of women while 92% was registered in the names of men. In the Agoro East sub-location (Village 12), a Luo-speaking community, the register indicated that of the registered parcels of land 12 and 88% were in the names of women and men, respectively.

Land adjudication is followed by a survey to establish the boundaries and the area of a parcel of land for the purposes of registration. The land adjudication process in the Nyando

basin did not make any allowances for riparian reserves, but instead used the rivers as boundaries between individual plots. This had the effect of privatizing riparian reserves. Anyone whose land did not reach the river did not gain access to the riparian reserve. Since the river was drawn as a thin, straight line it was part of the two pieces of land on either side. Public access to the river was at the bridge where the road and the river meet. All adjudicated land is former ancestral land and is subject to customary norms. The customary norms of both the Luo and Kipsigis dictate that no one should be denied water. A Kalenjin proverb summarizes this by saying: 'Even the hyena [the least respected of the animals] has a right to water'. Because of this customary norm, people will let others pass through their private property to access river water even where there is no demarcated road. The lack of fencing, which is characteristic of adjudicated land in the Nyando river basin, makes it possible to create and use short cuts across individual lands.

When the river water is harnessed for a piped water supply, two methods can be used to secure passage through private land. The safest and most secure is to obtain an easement or a way leave, which will allow the pipes to pass officially through private property without interference from the registered owner. This is provided for in the Way Leaves Act, Cap. 292. The other alternative, which is more often used, is to seek verbal permission from the owners of the land through which the pipes will pass. Because water projects serve many people and because the customary laws dictate that no one should be denied water, this approach works, but it is not secure. In the event of any of the landowners falling out with the rest of the group, then he or she can cause a lot of trouble to other members.

Springs as water sources were also not accounted for in the adjudication process. As a result, all springs in the adjudication areas fall on private land. There are rarely public roads leading to the springs, so people use the roads passing closest to the springs and, where the roads end, they create trails passing through private land. By Luo and Kipsigis custom, no one denies other members of the community water from the springs. However, access to the springs is in fact becoming more restricted over

time as land is subdivided and more fences are erected. Many water projects around springs have not yet entered into any legal or written agreement with the landowners on which the springs are found. This study established that most water projects around springs in the basin rely on customary laws to secure rights to the springs, sometimes backed up by a 'No objection' form signed by the landowner (Were *et al.*, 2006).

Management of land and water in government settlement schemes

At the time of independence, the new Government of Kenya set up settlement schemes as a way of transferring land in the white highlands from European settlers to African farmers. This was done in several ways. One of these was through the Settlement Trust Fund (STF) paying off the white farmer, planning and subdividing the land and then settling African farmers on it. The STF allocated the land on loan and registered a charge with the Permanent Secretary in the Ministry of Lands. When a farmer paid off the cost of the land to the Settlement Trust Fund, he obtained a certificate of discharge from the Permanent Secretary in the Ministry of Lands and registered a freehold interest in his favour. The STF also provided farmers with loans for working capital. The five settlement schemes (Koru, Oduwo, Muhoroni, Songhor and Tamu) in the Nyando district fall in the mid-altitude part of the basin and were set up to promote rain-fed sugarcane farming. Three sugar factories – Miwani, Chemelil and Muhoroni – were constructed to process the sugarcane produced in these settlement schemes. The cash economy that had been started by the white farmers was continued. In the Kericho and Nandi districts there are fewer settlement schemes and they promoted mixed farming (dairy, tea and food crops).

Settlement schemes were a creation of the government and, although a lot of planning was carried out in other aspects of land use (e.g. steep hillside areas), they did not take care of the riparian reserve. This oversight can be blamed in part on the legislation under which the land was registered, which did not state clearly the width of the riparian reserve. As a

result, the river was used as a boundary between farms, which again had the effect of allocating the riparian reserve as private land. The government involved professional land use planners who took care of springs, dams and swamps as sources of water. They were identified, surveyed and reserved as Special Plots to be held in trust by the local authority for the community. The land reserved was substantial and allowed for catchment protection and conservation. However, due to lack of a focused land policy and enforcement, some of these special plots have recently been allocated to individuals. Other special plots have become *de facto* open access plots.

The people who settled in the schemes usually did not have their origin in the same community, so they lack the cohesion that comes with a common heritage. Most settlers moved to the area with the hope of making a better life for themselves, so that economic factors are foremost in their dealings. Statutory rights protect individual rights that promote accumulation, as opposed to customary rights that advocate the communal use of resources. There is better enforcement of statutory rights than in the native lands where people choose not to prosecute their close kin even when the livestock of these kin destroys their crops. As a result, statutory rights are more powerful but customary rights still exist.

Management of land and water in large-scale leasehold commercial farms

Large-scale farms are found only in the former white highlands and are operated as commercial enterprises. All large-scale farms hold 999-year leases from the government. Most large-scale farms in the higher altitudes are tea plantations, while in the mid-altitude areas they are sugarcane plantations. Multinational companies such as Unilever operate most of the tea plantations, but most of the sugarcane plantations are locally owned. There are a number of factories located within the region to process both sugarcane and tea. The large-scale farms employ large numbers of labourers, many of whom are provided with housing within the farms. There are people who have lived on the plantations all their lives and have come to feel

entitled to land on the plantations. Several large-scale farms, including eight tea estates, have excised portions of their land to settle these long-term farm workers, popularly known as squatters. The land claims of long-term farm workers pose a serious challenge to large-scale farms. Where these claims have been ignored, the squatter populations have been known to take the law into their hands and invaded the farms. This was the case in one of our sample communities, i.e. Kapkuong (Village 8).

The operations of the large-scale farms are strictly guided by the statutory laws. Water resources on the large-scale farms are accessed only by persons authorized by the farm owners. Environmental management on most large-scale commercial farms is exemplary, and their water sources are well protected. Riparian areas are conserved and the natural vegetation left intact. Most have employed environmental officials in response to increasing concerns about environmental protection and the long-term sustainability of their operations. Large-scale commercial farms in the Kericho district have assisted the District Administrative Office in detecting illegal use of forest resources.

Land and water management in subdivided, large-scale farms purchased by land-buying companies

Land-buying companies emerged as an important phenomenon after Kenya's independence, as a way of transferring landownership from white settlers to interested Africans. Commercial land-buying companies emerged in part because the government was unable to purchase all the land from the white settlers who wanted to sell. The government therefore allowed the white settlers to negotiate sales agreements with anyone who was willing and able to make an outright purchase. Very few Africans were in a position to do this, so they came together to form land-buying companies or cooperatives. The members contributed money for the purchase of land and were allocated land in proportion to their share of the contribution.

There were no rules restricting membership in the land-buying companies and this led to problems. Some companies had so many

members that they were unable to be accountable to all the members, and these members lost their money. At other times, they were allocated very small parcels of land. They also did not pay much attention to topography, land use suitability or the provision of public utilities such as water points, roads, schools and clinics. As a result, people were allocated land on very steep slopes, swamps, river banks and hilltops. Most of the land in the upper reaches of the Nyando river basin was bought by land-buying companies (see Fig. 11.4). On subdivision, the land was converted to freehold and each member of the land-buying company was issued with a freehold title.

Yet, many land-buying companies have not issued their members with their title deeds, e.g. the Kotetni farm in Chilchila division of the Kericho district, purchased in 1968. People were allowed to settle in the land before they completed the process of subdivision and issuance of title. Meantime, the members were issued with share certificates as evidence that they had a right to a share of the land. These certificates were inadequate because they indicated only that a member owned shares but did not specify the location of the land allocated to him or her. Companies have taken a very long time to process the documents, and sometimes the final survey results did not tally with the actual position of the plots where members had already settled. Corruption and lack of accountability were rife in the workings of the land-buying companies. In some instances, the President had to intervene in the issuance of the title deeds to be issued. Such appeals are common and are reported in the daily newspapers.

The processes of subdividing the large-scale farms were spearheaded by the private sector. The private firms wanted to allocate as much land as possible to their members, so they did not spare any land in the riparian reserves. All springs are also located on private land, with no public access routes. Shareholders in land-buying companies often come from different places and thus have different cultural norms regarding land and water management. People have therefore tended to rely more on written laws than on cultural norms. Most plots of cultivated land are fenced, making it more difficult for people to access water sources. Private property rights are very strong, and barbed-

wire fences were put up to keep away trespassers and discourage free ranging of livestock. Springs are all located on private land, with no provision for public access.

Trust relations among people living in the subdivided large-scale farms are generally low. People who live in the region have moved in only since independence in 1964, and have come from all parts of Kenya. Lingering tensions between the ethnic groups occupying this area have been heightened by political manipulations, resulting in the well-known tribal clashes of 1992, 1994 and 1997. In a community with such diverse origins and a history of distrust, statutory laws are stronger than customary laws.

The region has experienced dramatic land use changes in the last 40 years as the land has been converted from large-scale farming to intense smallholder cultivation. Over the same time period, the population of the area has increased as people move in to occupy the subdivided farms. The Nyaribari 'A' village in the Bartera sub-location (Village 2) was formerly the Lelu farm (LR.1442/2), which was previously owned and managed by one farmer. The Lelu farm was purchased by the Nyagacho land-buying company that subdivided it and settled its members. Today, the Lelu farm makes up the Bartera sub-location with a population of 2810 people, 526 households and a density of 273 persons/km² (Republic of Kenya, 2000b). The impacts of these changes on the environment are seen in the emerging environmental problems, such as deforestation and landslides. The area has also experienced high rates of erosion (Walsh *et al.*, 2004).

Management of land and water in forest reserves

The Crown Lands Ordinance that established the native reserves was the same measure that made provision for the establishment of forest reserves through gazette notices. Once land has been gazetted as a Forest Reserve it cannot be put to any other use unless it is de-gazetted through another gazette notice. The forests in the Nyando basin include the Tinderet Forest, the North Tinderet Forest, the Londiani Forests and the West Mau Forest. The gazettement of forest

reserves displaced the forest dwellers such as people of the Ogiek ethnic group. Many Ogiek people remain landless or illegally reside on the fringes of the forest land. Such was the case of our sample village in Ng'atipkong sub-location (Village 5). The government prohibits entry into the forest, yet the Ogiek way of life is to use the forest resources for their subsistence. Chronic tension between the Forest Department, the local administration and the Ogiek communities becomes more heated when the government chooses to implement tighter restrictions on forest use.

Water sources in the forest are not easily accessible, due to the government policy that aims to keep people away from the forests. Forests are guarded by forest guards, who often harass the local people whom they suspect of encroaching upon the forest. However, the forests are the source of many permanent springs. The Kaminjeiwa village in Kedowa sub-location (Village 1) is a forest frontier community, and here the most permanent and the cleanest sources of water are within the forest. The people use these sources although they suffer constant harassment from the forest guards. The Ngendui village in Ngatipkong sub-location (Village 5) sits on the edge of a gazetted forest. In this village, the livestock and people draw water from the same point. Crops are cultivated up to the eye of the spring and, despite being on forestland, almost all the trees have been cut down. People living in that area are not provided with government agricultural extension services because they are considered to be squatters. The new Forest Bill passed in 2005 holds some prospect for more effective co-management of forest resources by the government and local community groups.

Gender Roles in Community Water Relations

Household water relations

In rural Kenya, water interactions occur at both the household and community level. At the household level, water interactions concern water demand, supply and allocation. How much water is needed? Who fetches it? What is it used for? This study confirmed that, in

Nyando, as in many parts of Africa, it is women who fetch water for the whole household. Of the household respondents in the Safeguard study 77% indicated that women are the most important collectors of water. Of the households surveyed, 18% had water within their homesteads, 70% obtained their water from other sources within their villages and 12% had to go beyond the village to fetch water. Men herd and take livestock to collective water points, while women carry water to livestock (especially dairy cows) kept within the compounds. In the lower basin, drinking water is collected from rivers in the early morning before water is contaminated by people and livestock upstream.

It is common to find most members of the family going to bathe in the river to save women from having to carry water to the homestead. There are separate designated bathing spots for men and women along the rivers. Men tend to bathe downstream and women upstream, since men usually go along with their livestock, which disturb water for downstream users. Women carry laundry to the river to save them from carrying water back to their homesteads and, when they go to bathe in the river, they carry water back. The 1999 population census (see Fig. 11.6) indicates that most people in the basin obtain their domestic water supply from rivers.

Women have primary responsibility for providing water for domestic needs in the Nyando basin. Table 11.1 lists the first, second and third most important collectors of domestic water: clearly, wives and children are the main collectors of water for the 150 households involved in the Safeguard household survey. Fewer than 10% of respondents indicated that husbands ever collected water.

Community organizations involving water

Community water interactions go beyond individual households. Organizations involving water are often spearheaded by men, although the impetus for organization is often provided by women. Why? Although women are given responsibility for providing their households with water, they are handicapped when it comes to organizing water supplies, because water is found on land, or passes over land,

controlled by men. Therefore, it is the men who can make decisions about what can or cannot happen on the land. At a glance, the men appear to take leadership of the projects while the women just enjoy the benefits of improved water supply. However, further probing reveals that the women work behind the scenes and make many contributions to the instigation and implementation of water projects through providing labour, food and even money (Were *et al.*, 2006). Communities in the lower Nyando organize around water in irrigation areas and the irrigation committees are male-dominated.

Piped water supplies

A water supply refers to the supply of water from a system that has been improved and involves reticulation and improved water quality. Water supplies tap water from rivers, springs and bore holes. Water supplies in the Nyando basin have been implemented by the Ministry of Water and Irrigation, local community groups, the National Water Corporation and Pipeline Company (NWCPC), a variety of NGOs, private companies and public schools. An unpublished assessment undertaken for the Lake Victoria South Service Board indicates that, in the Kericho district, the Ministry of Water and Irrigation operates 48% of the water supplies. These are mostly fixed pump-water supplies, with high costs of implementation and maintenance.

Community groups own 28% of the water supplies, most of which are low-cost, gravity-fed projects. The public schools own 14%, the private companies 7% and the NWCPC 3%. In the Nyando district, the community groups manage 39% of piped water supplies, private companies 26%, the Ministry of Water and Irrigation 19%, public schools 13% and the NWCPC 3%. In the Nandi district, the community groups manage 20% of water supplies, private companies 33%, public schools 21%, the Ministry of Water and Irrigation 11% and the NWCPC 3%. Some households can afford to have piped water in the homesteads, while most of them purchase water from communal stand points or community kiosks, where they are charged per unit of water used. Community kiosks are managed by women's groups or other private vendors.

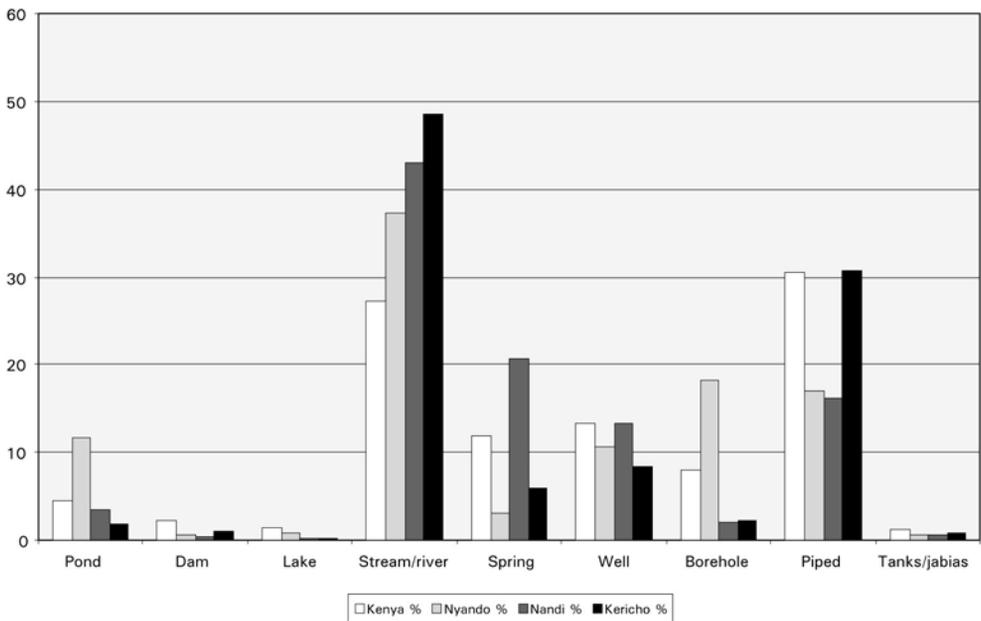


Fig. 11.6. Main sources of domestic water for households in the Nyando river basin (from Republic of Kenya, 2000b).

Table 11.1. Most important collectors of household water (from authors' analysis of data from Safeguard project (see text)).

	Most important		Second most important		Third most important	
	Frequency	%	Frequency	%	Frequency	%
Valid						
Wife	107	71.3	14	9.3	3	2.0
Husband	4	2.7	6	4.0	4	2.7
All children	20	13.3	53	35.3	7	4.7
Male children	7	4.7	23	15.3	20	13.3
Female children	7	4.7	12	8.0	8	5.3
Relatives	4	2.7	8	5.3	1	0.7
Total	149	99.3	116	77.3	43	28.7
Missing from system	1	0.7	34	22.7	107	71.3
Total	150	100.0	150	100.0	150	100.0

Boreholes

There are no community-initiated water supplies tapping water from boreholes in the basin because of the high costs incurred in drilling and pumping the water. On average, the cost of sinking a borehole is about US\$10,000 (A. Adongo, Kisumu, 2005, personal communication). Community-

initiated water supplies tap water from springs and rivers.

Rivers

Communities organize around river water in areas where there is irrigation. In the irrigation area, water is used for production of rice and horticultural

tural crops. The irrigation schemes are organized into scheme committees. There are a few women in the committees, but the majority of committee members are men. In the five Safeguard villages where irrigation is practised, only the rice-growing communities have water management committees: Ahero (Village 9), Jimo middle (Village 13) and Acheho (Village 14).

Springs

Springs are common in the upper and middle reaches of the basin. Spring protection is one area where communities organize around water. In some instances the spring is just protected and the people come and fetch water, but there are also instances in which springs are protected and piped. When the spring water is piped, only members who have contributed towards the effort benefit by getting individual connections to the water supply. There are no communal standpipes or water kiosks from which such water is sold.

A spring census carried out in the part of Kericho district that is within the Nyando basin yielded an inventory of 143 springs, 17% of which were protected but not piped and 17% of which were protected and piped. Community groups took the lead for about half of the protected and protected-and-piped projects (D. Buntdotich, unpublished data, 2005). In only one of these community-based schemes was it evident that women took the lead in instigating and implementing the project.

Water pans

Water pans are a common source of water in the lower Nyando basin. Many water pans have been constructed through community initiatives. Construction involves digging up land to enable harvesting of surface run-off. A few water pans have also been constructed by individuals. Community water pans tend to be managed by the village elders and other village leaders, with maintenance done on a voluntary basis by the community. Some water pans were constructed by government agencies under donor-aided projects, such as the Winam Gulf Project, or through food-for-work projects. Water pans are used by the community mainly to water livestock and irrigate vegetable

gardens. During water-scarce times, water from the pans is also used for cooking and drinking, although they tend to be heavily polluted by livestock. This can be a potential source of conflict between men and women, with men responsible for watering livestock and women responsible for household water supplies.

Shallow wells

Shallow wells are a common source of water in the lower Nyando basin. Shallow wells are usually hand-dug to a depth of 70–100 feet (21.5–30.8 m), and are fitted with a hand-pump. Some are financed by donors, while others are financed and constructed by individuals. Only a few are initiated by the community. The cost of a 70-foot-deep, hand-dug, shallow well ranges from Ksh25,000 to 30,000 (approximately US\$345–415), excluding the cost of the pump (M. Vardhan, Kisumu, 2005, personal communication).

In the case of donor-supported shallow wells, there is always an element of cost-sharing between the community and the donor. The community contributes local materials and food for the masons, while all other materials and payments are borne by the donor. The day-to-day management and operation are taken over by the community group on completion of construction. In most cases, women groups are responsible for management of the shallow wells through a committee. Members of the women's group pay a monthly flat rate to draw water from the well, whereas the non-members pay per unit of water collected. Water from shallow wells is used for drinking, cooking, washing, watering livestock and vegetable plots. A common problem with donor-assisted shallow wells is that the wells are located on private land, without the support of signed land-easement agreements with the landowners.

Rainwater

Rainwater harvesting in the basin is carried out at both the individual and group level. Several NGOs provide technical assistance to roof catchment projects. However, the household seeking such a project has to contribute financial and material inputs. The cost of erecting storage facilities for the water is too high for the

majority of the people in the basin. A larger number of the people engage in a simpler method where rainwater is collected into pots and pans. This has a lower cost, but it provides less storage and does not make optimal use of the roof catchments.

Summary of Results

Property rights and legal pluralism in the Nyando basin

The analysis presented in this chapter has established that there are multiple sources of authority governing access to water in the Nyando basin, most of which are in fact related to the governance of the land where water points are located. Ambiguity and institutional overlap of land and water management lead to solutions that are context-specific, subject to re-negotiation and latent conflict.

Property rights in the Nyando basin change across the landscape. Large parts of the upper part of the catchment are in large-scale farms or have been subdivided by land-buying companies to people who are socially disconnected. Where there are no common customary norms among the residents of an area, statutory sources of authority tend to be more important. The statutory land laws tend to privilege individual use, thereby weakening the access of others to key water sources located on private land. In gazetted forests and areas that are designated as riparian reserves under state authority, lack of effective enforcement means that these are effectively open-access areas but, rather than providing a better water service, this often leads to degradation of the water sources through pollution or depletion, because no one takes responsibility to protect the water sources.

Most of the lower parts of the basin are former native reserve lands where people are more tightly connected by customary norms, and statutory laws are applied less frequently. Sharing is strongly encouraged, weakening the potential for wealth accumulation and infra-structural investment. No one is expected always to be rich, which is summed up in a Luo saying: *inind diere inind tung*. Loosely translated, this means that, today you sleep between the others and you are kept warm and safe, but

tomorrow you will sleep on the edge where no one will shield you from the vagaries of life.

The institution of the chief and the village elder is a point where customary law and statutory law merge. The chief in the rural setting is usually a local person who is well versed in the customs of local people. He works with village elders who know the customs as well as the situations of individual families. Many issues are resolved at the level of the chief and village elders. Where it has to go beyond them to the courts of law, then cultural rights are represented by the chief. In this way non-statutory laws blend with statutory laws. This approach is commonly applied for the settlement of land cases. It could play a greater role in resolving water management cases.

Constraints to community water development

One of the Millennium Development Goals is 'reducing by half the proportion of people without sustainable access to safe drinking water'. Water development in rural Kenya faces constraints in meeting this goal, especially amongst the poorest in the community because of the 'user pays principle'. The poorest are so poor that they are unable to pay for water. The history of the basin has created geo-spatial patterns of wealth and poverty, with pockets of very poor communities. In areas with high incidence of poverty, such as the former native lands in the lower Nyando (see Fig. 11.5), the communities have less capacity to contribute financially to community water development: they rely heavily on donor-funded water development.

Landownership and settlement patterns influence community management of water. People find it difficult to access water pans or rivers whose banks are owned as private property. They have to negotiate for the use of land to locate water facilities because in many cases no land was set aside. Within some communities there is little social cohesion. This is especially so where people have moved into an area from diverse origins, e.g. land-buying companies and settlement schemes. Where there is community cohesion, development of community projects is easier, but it may be useful for such groups to obtain written agreements from those whose land is affected, so that statutory law can rein-

force the agreements in case of local conflicts.

Although women have primary responsibility for water management, they are constrained in instigating infrastructural investments because these investments will invariably affect some areas of land which tend to be controlled by men. Gender relations therefore have a profound effect on water management. At the minimum, men need to be convinced that the water management activities of their wives will provide benefits in terms of increased water availability and improved household income.

Implications for Kenya's Water Sector Reforms

This study has established that Kenya's historical processes of settlement and land tenure differentiation have created a plurality of land and water property rights across the Nyando basin. There is therefore a need to explore ways through which policy formation processes can be made more meaningful to local communities affected by different combinations of land and water rights. One way of doing this is by improving community involvement in water resources management within the existing legal and policy framework. An integrated approach to water resources management would link community water development to other natural resource policies, strategies and legislation and enhance the performance of community organizations (see also Mumma, Chapter, 10 this volume).

The Water Act, 2002 (Republic of Kenya, 2002) creates the Water Resources Management Authority (WRMA) for management of water resources and the Water Service Regulatory Board (WSRB) to regulate the provision of water and sewerage service. These institutions implement and inform policy. A diagrammatic representation of the institutions created by the Water Act, 2002 is found in Mumma, Chapter 10, this volume. The regional offices created by the Water Act, 2002 should link their work with relevant government institutions that also affect water management. Coordinated action by government agencies on a common local platform would create a forum for effectively linking up with local communities

to ensure that their interests and issues are addressed and their capacities enhanced. Table 11.2 indicates some key government ministries involved in natural resources management with direct impact on water resources management. Integration of institutions found in the last column can be an ideal point for creating a forum where the government agencies meet local communities.

Resource conservation and protection by community organizations

The Environmental Management and Coordination Act (EMCA) of 1999 (Republic of Kenya, 2000a) established the National Environment Management Authority (NEMA) as the principal instrument of the government for implementation of policies related to the environment. Every 5 years, NEMA must produce a National Environmental Action Plan (NEAP), Provincial Environment Action Plans (PEAP) and District Environment Action Plans (DEAPs). The preparation of a DEAP is designed to be a participatory process that can be a forum for the governmental agencies and the local communities to come together to analyse natural resources (including water) and develop a workable plan of action for sustainable use, protection and conservation. One of the concerns of downstream communities in the Nyando basin is that rivers are polluted by upstream users, particularly by industries such as the sugarcane factories. The Environmental Management and Coordination Act (Section 42) addresses the protection and conservation of the environment, with specific reference to rivers, lakes and wetlands.

Environmental restoration orders (Section 108), Environmental easements and Environmental conservation orders (Section 112) can be used to prevent pollution of rivers and hold polluters accountable for the damages they generate. The Agriculture Act supports the Environmental Management and Coordination Act by providing for land preservation orders. Local community groups can be made more aware of these tools and of their rights by the government agencies within the participatory processes.

Table 11.2. A framework for integrating Kenya's statutory natural resources management institutions (from authors' conceptualization based on literature review and field study).

Statutes	Implementing ministry	National institution	Regional representatives	National policy tools	Regional policy tools
Water Act, 2002	Ministry of Water and Irrigation	Water Resource Management Authority Water Service Regulatory Board	Water Service Boards Catchment Area Advisory Committees	National Water Services Strategy National Water Resources Strategy	Catchment Management Strategy
Environmental Management and Coordination Act of 1999	Ministry of Environment and Natural Resources	National Environmental Management Authority	District Environment Coordinators	National State of the Environment Report National Environment Action Plan	District State of Environment Report District Environment Action Plan Environmental Easements
Agriculture Act Cap 318	Ministry of Agriculture	Forest Department	District Agricultural Officers Agricultural Extension Workers		Conservation Orders
Local Government Act Cap 265	Ministry of Local Government		Municipal Councils County Councils	Council Committees	Local Development Plans Environment Committees
Physical Planning Act of 1996	Ministry of Lands and Housing Ministry of Planning and National Development	Department of Physical Planning	Physical Planning Officers District Development Officers	National Liaison Committees National Development Plans (Economic Plans) District Focus for Rural Development Strategy	Physical Development Plans (Land Use Plans) District Liaison Committees District Development Plans (Economic Plans) District Development Committees (DDCs)

Improving physical access to water resources and water facilities

Kenya's current policies and organizational set-up mandate many organizations to be involved in improving physical access to water resources and water facilities. Under the Water Act, 2002,

the Water Resource Management Authority is mandated to mobilize communities to identify their needs related to water resources management – including infrastructural requirements, areas that should be set aside for conservation of water sources and access roads. Those needs should be integrated into participatory processes

of preparing Physical Development Plans by the Department of Physical Planning (Republic of Kenya, 1996) which, on approval, become the official documents that guide development in a particular area. The Land Acquisition Act can be used to provide for compulsory acquisition of land needed for public utilities, and the Water Service Trust Fund should compensate the displaced owners of that land. The National Environment Management Authority should make sure that water management plans are integrated into the District Environmental Action Plans, which are then integrated into the National Environmental Action Plans.

In order to be in line with the national budgeting requirements, it is necessary to transmit these needs to the national offices. The next step would then involve the government line ministries mandated to implement the specifics included in the plan. The Ministry of Roads is empowered to begin the process of compulsory land acquisition for the proposed roads; the Water Service Board or Water Service Trust Fund would avail the money for the compensation; the Ministry of Water and Irrigation will institute the process of compulsory acquisition of the land around the proposed water points; while the Ministry of Environment would institute the process of registering environmental easement on behalf of the Water Resources Management Authority and the community.

Such concerted effort by multiple government agencies is a possible objective for the government agencies implicated in water development. However, current experience also shows that many of these state agencies lack the resources to effectively reach most rural communities. They also lack incentive to work effectively across agencies. Government involvement must therefore be seen as a supplement to, rather than a substitute for, community involvement over the long term.

Financial empowerment of community organizations

The financial constraints of rural communities have been addressed by the Water Act, 2002 through the establishment of the Water Trust Fund (WTF). Its mandate is to give financial assistance to the rural communities in improv-

ing community capacity to participate in the development of water supplies. Groups that want to supply water must register with the Water Service Board (WSB) as Water Service Providers (WSP). Any group that needs to be eligible to obtain funding from the WTF must have a legal identity. This is obtained through registration with the Registrar of Societies or the Registrar of Companies at the Attorney General Chambers.

Studies carried out in the Nyando river basin have found out that there are many community groups involved in water supply and management, but none of them is registered with the Attorney General. Most of these are registered with the District Social Development Officer (DSDO) as Community-based Organizations (CBOs). This situation disqualifies all the CBOs from being funded. The Water Service Boards must find a way of ensuring that they do not lock out all community groups. A simplified system of registration, preferably at the district level, is a high priority.

Ultimately, there is considerable scope for government agencies to facilitate improved access to water, but they are unlikely to be able to fully replace customary authorities and community organizations in managing water. It is both more realistic and more effective to recognize the need to coordinate with both land management and the local social organization to build viable institutions for continued water services.

Conclusions

The introduction to this chapter suggested that Kenya's Water Act, 2002 was based on four implicit assumptions. The analysis presented in this chapter for the Nyando river basin implies the need for some rethinking of those assumptions. The first assumption was that land and water management are quite distinct areas of administration and governance. Contrary to that assumption, we find that use, access and governance of water points, riparian areas and fragile parts of the catchment depend largely on land tenure. These interactions between land and water need to be given explicit consideration in policies and strategies affecting land, environment and water.

The second implicit assumption of the Water Act, 2002 was that customary institutions have little influence over contemporary patterns of governance. Like several other case studies presented in this volume, and echoing Mumma's analysis of the Kenya context (Mumma, Chapter 10, this volume), we find that the customary institutions of the Luo and Kipsigis people continue to hold sway in the Nyando basin, guaranteeing community access to water on the one hand, while reducing private investment in water point infrastructure on the other.

The third implicit assumption of the Water Act, 2002 was that formal administrative structures for water management would be able to have considerable influence over land management affecting water resources. The analysis presented in this chapter shows that formal administrative structures may have more sway in the resettlement areas than in former native reserve areas. At the local level the main face of the government is the chief – administrative structures for water management will need to garner the support and active involvement of the chief in order to have any real effect.

Finally, the Water Act, 2002 was based on the implicit assumption that private and large-scale NGOs would replace the government as the main supplier of water services. Data and analysis presented in this chapter suggest that informal community groups rather than the government were the main suppliers of water services in rural Kenya before the policy change; they are likely to play even more central roles with the policy change. More explicit attention should be paid to the needs and constraints of such groups.

In addition to providing a useful analysis of water and land management in Western Kenya, this chapter has also demonstrated the merits of the analytical approach that was taken. The underlying approach drew upon three strands of literature: the legal anthropology approach to legal pluralism, the evolution approach to

property rights change and the political ecology approach to interpretation of landscape dynamics.

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Endnote

- ¹ The Safeguard project, which was a component of a larger project on 'Breaking the vicious cycle: managing the water resources of East and Southern Africa for poverty reduction and productivity enhancement', was funded through the Comprehensive Assessment of Water Management in Agriculture. The main objective of 'Breaking the vicious cycle' was to bring together and synthesize information on the links between water resources, poverty and productivity in Africa. Other components of 'Breaking the vicious cycle' were the African Water Laws Symposium, South Africa, January 2005 and a regional review of the dynamics of water resources and poverty in the Lake Victoria basin, by the Africa Centre for Technology Studies. The Safeguard project has been a collaborative project between Maseno University, the World Agroforestry Centre (ICRAF) and the International Food Policy Research Institute (IFPRI), and is entitled 'Safeguarding the rights of the poor to critical water land and tree resources in the Nyando River basin'. Additional financial support for the Safeguard project was also provided by the European Union, through the World Agroforestry Centre.

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