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# **Irrigation Reform on Malawi's Domasi and Linkangala Smallholder Irrigation Schemes**

## **Exploring Land-Water Intersections**

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# **Irrigation Reform on Malawi's Domasi and Likangala Smallholder Irrigation Schemes: Exploring Land-Water Intersections**

## **I. Introduction**

Malawi, similar to other Southern African countries, has revised most of its environmental and agricultural policies and legislation over the last decade. Since 1999, new irrigation, land, and water policies and supporting legislation have been approved by Parliament. The thrust of much of this legislation is to privatize resources which once were under customary tenure or which were viewed as a common good. Customary land is to be titled, use of water for productive purposes will require permits, and government-run smallholder irrigation schemes are being turned over to users. These reforms promise to dramatically alter access to critical land and water resources in one of the poorest countries in the world. This research report focuses on the transfer of two government-run smallholder irrigation schemes in the Southern Region – Domasi Irrigation Scheme and Likangala Irrigation Scheme – to farmers' associations in the context of the new irrigation, land, and water policies and pending laws. The research addresses the following questions:

- Who is likely to benefit from the transfer of the irrigation schemes to farmers' associations? Will the reform broaden disadvantaged groups' access to plots or entrench privileged interests?
- How are reforms underway in the land and water sectors likely to affect irrigation reform? In what ways, if any, do these policies need to be harmonized?
- How can equitable and efficient systems of access, use, and management of the smallholder irrigation schemes be achieved in the context of the new irrigation, water, and land reforms?

## II. The Policy Context

Malawi's Local Government Policy and Law (GOM 1998 a&b) and the Poverty Reduction Strategy Paper (GOM 2002) form the broad context in which land, water, and irrigation reform are taking place. The local government reform has set in motion sweeping changes in how government will operate. Most administrative and political functions once concentrated in ministries at the national level are being transferred to the district and municipal levels under the control of District Commissioners and the District Assemblies.<sup>1</sup> The ministries slated for transfer include: Water; Health; Education; Lands; Housing; Physical Planning and Surveys; Fisheries; Forestry; Agriculture; Works and Supplies; Community Development; Commerce and Industry; Tourism; and parts of Environmental Affairs.<sup>2</sup> Line ministries will retain responsibility for policy formation, enforcement, standards, and training. To avoid the overlap and lack of coordination among ministries that previously existed at the national level, their representatives at the district level will be integrated into a single administrative entity and will serve as a secretariat to the District Assembly. Marking a significant change from the past, civil servants are to be accountable to the populations they serve, not to their parent ministries in central government. The District Development Committee and Plan are the principal means by which integrated sectoral planning is to be achieved.

The Malawi Poverty Reduction Strategy Paper (GOM 2002) also sets the context in which the irrigation, water, and land policies must be considered. It is described as the "centre of government's plans and priorities," informing all new policy and legal reforms. The four "pillars" of the policy are pro-poor economic growth, human capital development, improving the quality of life for the most vulnerable, and good governance. Poverty reduction took on added urgency as a result of the food shortages the country experienced in 2002. Between 1,000-3,000 people were estimated to have died from hunger that year as a result of the interaction of policy, political, and weather-related failures (Devereux 2002).

As land pressure and climate change intensify, Malawi is turning increasingly to irrigated agriculture as a means to increase production. Irrigated agriculture is regarded as a means to boost incomes and food security, and is considered to be a way to reduce poverty by government and donors. Malawi's new National Irrigation Policy and Development Strategy (GOM 2000) reflects this stance. It calls for the rapid phase-out of government support to the

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<sup>1</sup> The District Assembly consists of one elected member from each Ward in the local government area, Traditional Authorities and Sub-Traditional Authorities, members of Parliament, and five representatives appointed by the Assembly to represent special interest groups. TAs, members of Parliament, and representatives of special interests do not have voting powers. The title Chief Executive Officer was to replace that of District Commissioner, but a decision was recently made to keep the old designation.

<sup>2</sup> Certain functions of line ministries will not be decentralized: "line ministries will retain responsibility over the following areas: policy formulation, policy enforcement, inspectorate, establishment of standards, training, curriculum development, international representation, etc." (see section 11.2 GOM, National Decentralization Policy 1998a).

sixteen smallholder irrigation schemes, and their transfer to newly-created farmers' organizations (i.e. water user associations or other new institutional structures). The policy also advocates the expansion and intensified use of informal irrigation by small-scale farmers along streambanks, drainage lines, and in wetlands. This form of irrigation has received little previous government attention (Peters 2004; Kambewa 2004).

Transfer of government-run irrigation schemes to farmers' associations, often referred to as irrigation management transfer (IMT), has been widely promoted as a means to decentralize functions of the state, to reduce public expenditure, and to instill a sense of local ownership and responsibility in farmers. Malawi's new irrigation policy thus constitutes a significant departure from the past emphasis on costly government-supported smallholder irrigation schemes administered in an authoritarian, top-down fashion. Four conditions are usually present in successful IMT. First, IMT must improve the life situations of a significant number of scheme members; second, the irrigation system must be central to creating such improvement; third, the economic and financial cost of self-management must be an acceptably small proportion of improved income; and finally, the proposed organizational design must have – and be seen to have – low transaction costs (Shah et al. 2002:5; also see Vermillion and Sagardoy 1999, Vermillion 1997). In Malawi, although some aspects of IMT were adopted in the mid-1990s, it was not until 2000 that more fundamental measures were taken towards implementation.

The irrigation reform is being carried out in the context of other equally sweeping reforms in the environmental and agricultural sectors, most notably the new land and water policies (and impending legislation), both of which will directly affect the implementation and, in the long run, the outcomes of the irrigation policy. The new Land Policy of Malawi (GOM 2001) proposes to privatize customary land under the rubric of creating "customary estates." Titling committees are to be established at the level of Traditional Authorities (TAs) and Districts. Wetlands are to be designated as public lands under the control of TAs. Many tenure issues related to the irrigation schemes remain unaddressed, including until recently the tenure status of the schemes themselves and the plots on them. The policy's silence with regard to recognizing the widespread matrilineal inheritance practices in southern and parts of central Malawi and the lack of clarity concerning who the title holder of the customary estates or irrigation plots will be may affect irrigation reform by transferring women's land and water assets to men (Ngwira 2003).<sup>3</sup>

Features of the new National Water Policy (GOM 2004), which have implications for the irrigation sector, include the need to identify and establish institutions for water planning and conflict resolution at a scale and a cost that are realistic in the Malawian context. No sustainable funding mechanisms have been identified for the seventeen large-scale River Basin Authorities proposed in the water policy. In the Malawian context, other smaller-scale structures and processes should be considered to resolve disputes among different water users

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<sup>3</sup> See Peters (1997) for a discussion of past efforts to undermine matrilineal inheritance.

in areas where water competition is intense. Representation of smallholder agriculturalists on new water management bodies also needs to be addressed as early drafts of the water policy (GOM 1999a) suggested little role for public participation (Ferguson and Mulwafu 2001). Finally, the water policy requires all smallholders using water for productive purposes to obtain water abstraction permits. This is likely to affect the water and irrigation reforms in ways that have not yet been considered, as we explore below. Cross-sectoral coordination of the water, land, and irrigation reforms is only beginning to take place. We anticipate that this research will contribute to these discussions.

Overall, Malawi has embarked on what must be considered a radical redefinition of governance structures and rights of ownership and access to key land and water resources. These new policies and laws are informed by neoliberal development thinking with its emphasis on private sector initiatives, redefinition/reduction of the role of the state, and promotion of new decentralized, stakeholder-driven, and community-based management institutions. Will they reduce poverty?

### **III. The Research Sites and Methodology**

**A. Research Sites:** Irrigated land in Malawi includes formal irrigation schemes operated by government and private estate owners, as well as lands along streambanks, in low-lying areas of residual moisture, and in wetlands cultivated by small-scale farmers in the dry season. The formal irrigation schemes often are located in, and are surrounded by, wetlands and depend on the same water sources. An FAO report (1996) estimated that there were 76,410 hectares (ha.) of irrigated land in Malawi, of which 65% (50,000 ha.) was informal, or *dimba* cultivation, and the rest was under formal irrigation. A more recent World Bank estimate is 28,000 ha. are under “formal or semi-formal” irrigation, of which 6,500 ha. are under self-help smallholder schemes, 3,200 ha. are under government-run smallholder irrigation schemes, and 18,300 ha. are in estates. The common estimate for the potential irrigated area (not limited to wetlands) is between a quarter- and a half-million ha.

Our research focused on the Domasi and Likangala watersheds in the Lake Chilwa Basin in the Southern Region of Malawi. While the most extensive wetlands are concentrated in the floodplains of Lake Chilwa where the rivers flow into the lake, some smaller ones are found in low-lying areas in other parts of the Basin. Previous research in the Chilwa Basin documenting land use change has shown a net increase in cultivation, including a conversion of wetlands to rice production, and in settlement. Despite tree-planting associated with settlement, there was a net loss in woods and wetlands (Jamu et al. 2001).

The Lake Chilwa Basin was well-suited as a research site as it is home to six of Malawi's sixteen smallholder irrigation schemes slated to be transferred to farmers' associations.<sup>4</sup> Two government-run, smallholder irrigation schemes form the basis of our study: Domasi Irrigation Scheme located in Machinga District and Likangala Irrigation Scheme in Zomba District. Both are gravity-fed schemes. The Domasi scheme lies toward the mouth of the Domasi River before it empties into Lake Chilwa, while the Likangala scheme draws water from the Likangala River and is located upstream from the lake. Major water users along the Likangala River include the Zomba municipality, tobacco estates, smallholder farmers, the irrigation scheme, and, near the lakeshore itself, wetland cultivation, fishing, and livestock grazing (Ferguson and Mulwafu 2001; Ferguson 2002; Mulwafu and Khaila 2004). Competition over water resources is less intense along the Domasi River where there are few estates and no large city (Jamu et al. 2001). Both rivers flow into Lake Chilwa, which is a recognized RAMSAR site – a wetland of international significance. The lake is an important source of fish, is a wintering site for arctic and other birds, and offers numerous other resources as well. As competition over water among different users increases in the Lake Chilwa Basin, persistent water shortages may develop in the not-too-distant future.

The Domasi Smallholder Irrigation Scheme covers approximately 500 ha. and has 1,500 farmers. Likangala Smallholder Irrigation Scheme is the largest scheme in the Likangala Complex which comprises four smaller schemes as well – Khanda, Njala, Chiliko, and Tsegula. Our research focused on Likangala scheme itself, which is 450 ha. in size and has approximately 1,300 farmers. Plots on Likangala and Domasi irrigation schemes are 0.25 acres in size. Rice is grown on both schemes during the rainy season. During the dry season, rice, sweet potatoes, maize, pumpkins, watermelons, tomatoes, and other vegetables are produced. Some of the plots are reassigned during the dry season and are opened for temporary use by others. Despite this temporary reallocation of dry-season plots, farmers regard their rainy-season holdings as their own, to be passed on to their children and other heirs.

The Likangala and Domasi irrigation schemes differed in the condition of their physical infrastructure, degree of farmer mobilization, previous support, and present source of funding for renovation and transfer to farmers. Since its inception in 1972, Domasi Irrigation Scheme has been fairly well supported by government and by donor organizations, particularly the Taiwanese Agricultural Technical Mission and, most recently, the International Fund for Agricultural Development (IFAD). A rice mill is located at the scheme. Although still in need of renovation, its physical infrastructure is in better condition than Likangala's. Domasi is one of eight schemes included in the IFAD-funded Smallholder Flood Plains Development Program for physical renovation, farmer training, and transfer of ownership to farmers' associations. It has established a Water Users' Association (WUA), has adopted a constitution and by-laws, and is likely to be the first irrigation scheme in Malawi to be formally handed over to the farmers' association. Likangala Irrigation Scheme, in contrast,

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<sup>4</sup> See Peters (2004) and Kambewa (2004) for more information on the amount of land under formal and informal irrigation in Malawi.

has received somewhat less government and donor support since it was established in 1969. Renovation and farmer training have proceeded slowly, and it was not until August 2004 that preparations for establishing a farmers' association were set in motion and a new constitution was adopted. Likangala is relying on much-delayed Highly Indebted Poor Country funds for renovation and transfer to farmers.

Both irrigation schemes were established with the aim of developing the wetlands, as well as demonstrating to the local communities the methods and benefits of intensive cash crop production. Villages that were originally located on the customary land taken over by government to form the irrigation schemes were resettled, given irrigation plots, and in some cases received other compensation. In contrast to many other smallholder irrigation schemes established in the same time period in Malawi, neither Domasi nor Likangala experienced significant resettlement of farmers from outside the local area (Chirwa 2002). One exception was the Malawi Young Pioneers of the Banda era, who were brought in as agricultural trainers and disciplinarians. Between the late 1960s and the 1980s, the schemes were fairly well-maintained and run in a top-down fashion by government (Krogh and Mkandawire 1990). They received financial and technical support from government and donors, especially the Taiwanese Agricultural Technical Mission. However, the deepening economic and political crises of the 1980s and the withdrawal of Taiwanese support forced government to considerably reduce its role in scheme management and upkeep. During the 1990s, in particular, physical infrastructure continued to deteriorate. As Malawi made the transition from decades of authoritarian rule to a multi-party democracy in the mid-1990s, farmers often ignored cropping calendars and other rules established during the Banda presidency. Thus, since the early 1990s a decline has occurred in many of the formal authority structures governing the smallholder irrigation schemes. There is a general sense among the population that the old rules and regulations were ipso facto unfair and, like the regime that imposed them, should be rejected. In the new context of transfer of the schemes to farmers' associations, new institutional frameworks, organizations, procedures, and rules need to be agreed upon and set in place by the citizenry.

**B. Methodology:** Quantitative and qualitative methods were used to address the key research questions identified above. In 2003, we conducted a survey of 123 farmers on the Domasi and Likangala irrigation schemes to gather baseline information on access to plots, farming and marketing practices, water use, and conflicts. We interviewed 63 (51%) farmers on Domasi and 60 (49%) on Likangala. One hundred and twenty of these farmers were administered an irrigation transfer or handover survey to gather information on scheme governance, and farmers' knowledge of and participation in the transfer process.<sup>5</sup> Sixty-one (51%) of these farmers were from Domasi and 59 (49%) from Likangala. Overall, 26% of the respondents were women and 74% were men. There were slightly more women than men interviewed at Likangala (29%) than at Domasi (23%). All those interviewed in both surveys were plot owners.

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<sup>5</sup> The sample was selected by choosing blocks by head/mid/end of the main canal and then selecting villages and households within them.



Two field assistants were assigned to live on the schemes for the three-year period. In addition to engaging in participant observation and writing field notes, they carried out structured and semi-structured interviews with farmers and irrigation scheme committee members on assigned topics. The qualitative research enabled us to gather information on land-use practices (number of plots owned, renting, and borrowing), conflicts over land and water, and scheme governance issues that was either not accessible or not necessarily reliable via formal survey research.

To learn about developments in the policy arena, senior researchers conducted interviews with key policy makers at the national and local levels on a twice-yearly basis. These included interviews with officials in the Ministry of Water Development, the Department of Irrigation, and the Ministry of Lands, along with donors, including IFAD and USAID. At the local level, Irrigation Scheme Managers, committee members, Agricultural Development District officials, district authorities, and project managers of the Balaka Concern Universal office were interviewed.

In addition to surveys, interviews, and participant observation, we engaged policy makers, project implementers, and farmers in an interactive process whereby we presented preliminary research findings for discussion. At the local level, two workshops were held to discuss the research goals and preliminary findings. At the first one in 2002, we presented our research findings on policy reforms in the water sector and discussed our new research on irrigation with district officials, members of the newly elected District Assembly, and Members of Parliament. The second workshop in September 2004 provided a forum for researchers to present and validate their findings with farmers and scheme management officials from Domasi and Likangala Irrigation Schemes. At the national level, in August 2004 we held a workshop with senior policy makers and key non-governmental organizations (NGOs) in the water, land, and irrigation sectors to present research findings and to engage participants in discussion regarding their policy implications.

#### **IV. Key Findings**

Our study addressed the question of whether the transfer of the smallholder irrigation schemes from government to farmers' associations is broadening disadvantaged groups' access to critical land and water resources in the context of Malawi's new poverty alleviation, water, land, and irrigation reforms. Because these reforms are new and have been slow to be implemented, our findings are preliminary. Seven interrelated issues emerged from the research that are relevant to program implementers and policy makers concerned with equity issues in the transfer of Malawi's smallholder irrigation schemes. Discussions with the Director of IFAD in Malawi and with officials in the Ministry of Agriculture and Irrigation, and a review of the literature on irrigation schemes in Malawi suggest that many of the issues identified below are not unique to Likangala and Domasi, but rather are arising on other schemes as well.

**A. Formal Irrigation and Livelihoods:** Smallholder irrigation schemes play a vital role in the local economy of the Lake Chilwa Basin and the livelihood strategies of the farmers on them. The baseline survey revealed similarities and differences between the two irrigation schemes.

*Similarities:* Farmers had diverse livelihood strategies. In addition to their irrigation scheme plots, 93% of respondents reported having upland rainfed fields (*munda*), 16% had wetland gardens and 29% had streambank gardens (*dimba*). There were no significant differences between farmers on the two schemes in this regard. Further, many plot holders had sources of income in addition to farming: 40% listed casual labor (*ganyu*), 19% marketing of crops, 23% owned a small business, and 9% had other occupations.

Despite their engagement in other occupations, plots on the irrigation schemes constituted the major source of most respondents' household food supply and cash earnings. When asked to rank which of their fields produced the most food for family consumption, 84% identified irrigation scheme plots, 12% said upland rainfed plots, and the remainder (4%) said streambank or wetland gardens. Seventy-one percent stated that three-quarters or more of their food for household consumption was scheme generated, 23% said approximately one-half of their food was produced on the scheme, and only 6% reported that less than half came from scheme farming. No differences were found between the two schemes.

Most cash earnings also were irrigation scheme-generated as well. When asked to rank which fields produced the most cash income, 96% of the farmers said scheme plots. Eighty-five percent reported that three-quarters or more of their income came from the scheme, 12% stated that approximately one-half came from the scheme, and only 3% said that scheme farming constituted less than half of their income. Again, no differences were found between the two irrigation schemes.

Marketing was one of the greatest constraints farmers' faced. Low prices were reported as a problem by 75% of those on Domasi and 80% of those on Likangala schemes. This was followed by "few buyers," reported by 13% of farmers on Domasi and 5% of farmers on Likangala. Very little cooperative rice selling took place. Only 4% said they sold as a group in the dry season, and only 1.6% did so in the rainy season. The 2002-04 field notes chronicle the failed attempts at Likangala scheme to negotiate effectively with rice traders, usually from the large urban center of Blantyre, who visited the schemes to purchase rice. Try as it did, the Scheme Marketing Committee was unable to halt the involvement of Traditional Authorities in rice marketing. TAs would initially refuse to allow traders to purchase rice in villages at low prices but once they were offered bribes by the traders, many would allow selling to continue at the same low prices. Farmers themselves would sometimes undermine committee efforts to negotiate a higher price by selling to traders at night at a low price. Problems with weighing scales were common as well. The information gathered over the course of the research indicated that rice prices varied significantly by season and by rice variety, by

relative supply and demand locally and in the town and by the facts of difficult access, especially to Domasi for the relatively few large-scale buyers operating in the area.

*Differences:* The two irrigation schemes also differed in important ways. Rice was the major crop grown during the rainy season. It was also the major cash crop grown in the dry season, but more Domasi farmers (60%) said this was the case than those on Likangala (40%), where a wider range of crops was grown. The poor condition of the Likangala scheme's main canal may partially explain this difference. In the dry season, many plots, especially those near the end of the main canal, do not receive sufficient water for cultivation.

We found differences in the number of plots farmers on the two irrigation schemes held, with land concentration being higher at Domasi than at Likangala. This issue is explored more fully in section IV B below.

There were seasonal differences as well in the amount of time farmers spent working on scheme plots. While during the dry season 62% spent half or more of their time working on their plots, during the rainy season this figure rose to 87%. Farmers at Domasi spent somewhat more time working on their plots in the dry season than did those at Likangala: at Domasi, 68% reported working half or more of their time on their dry-season plots, while at Likangala the figure was 55%. Again, this lower figure at Likangala can be attributed partially to the dilapidated state of the scheme.

Differences also existed between the two schemes in use of hired labor and in hiring out farmers' own labor. A quarter (25%) of the sample worked on other farmers' irrigation plots during the dry season. There were slightly more farmers on Likangala who reported doing this (30%) than at Domasi (21%). In the rainy season, 37% of farmers worked on plots owned by others. Again slightly more farmers on Likangala (40%) reported engaging in this practice than at Domasi (35%). This suggests that Likangala plot holders were somewhat more likely to sell their own labor than were Domasi farmers.

Domasi farmers, in contrast, were more likely to hire labor. There were important differences in hiring casual labor (ganyu) by season and between the schemes. During the dry season, 30% of farmers in the overall sample reported hiring others to work for them, while during the rainy season this rose to 52%, as rice transplanting is labor intensive. In the dry season at Domasi scheme this constituted 40% of the sample, while at Likangala it was only 20%. In the rainy season, 64% of the Domasi farmers and 49% of the Likangala farmers hired workers.

In order to estimate differences in wealth among farmers, a ranking of the households' assets was undertaken. Scores ranged from 7 through 1576. Households were divided into three wealth categories. As Table 1 indicates, over two-thirds of the respondents fell in the lowest

part of the range, 26% in the middle, and 7% in the top asset group. This reflects the distribution of poverty overall in Malawi and in the Southern Region in particular. A slightly higher percentage of Domasi (36%) than Likangala farmers (28%) had asset scores at the upper end of the distribution. Education also was a resource that was unequally distributed. The average level of schooling on the Domasi scheme was 4.8 years, while it was only 3.6 years among Likangala farmers.

**Table 1. Assets Ranking of Farmers on Domasi and Likangala Irrigation Schemes**

<b>Asset Ranking</b>	<b>Domasi</b>	<b>Likangala</b>	<b>Total</b>
Low (7-524)	40 (64%)	43 (72%)	83 (68%)
Middle (525-1049)	18 (28%)	14 (23%)	32 (26%)
High (1050-1576)	5 (8%)	3 (5%)	8 (6%)
<b>Total</b>	<b>63 (100%)</b>	<b>60 (100%)</b>	<b>123 (100%)</b>

*Baseline Survey 2003*

Overall, our findings indicate that the irrigation scheme constituted farmers' major source of livelihood – including production of food for household consumption and cash earnings. However, the differences presented above suggest that Domasi plot holders were somewhat better off than those on Likangala along a number of dimensions, including number of plots owned, access to labor, and asset holdings. These findings parallel those presented in the Informal Irrigation Report (Peters 2004) and the Wetlands Report (Kambewa 2004) in that they suggest that irrigation scheme farmers are, on average, better off than Malawians who do not have access to dry-season irrigated fields. Many scheme farmers are able to plant twice a year or more and consequently are not as likely to experience food deficits as those without access to dry-season gardens. While they are not among Malawi's poorest farmers, many irrigation scheme plot holders remain vulnerable, as the asset profile reveals. During the January-March 2002 period, the height of the famine, the field assistants reported that some people on the irrigation schemes were consuming maize husks and grasses. Deaths, aggravated if not entirely caused by hunger, also occurred amongst families.

**B. Tenure Status of the Schemes:** The smallholder irrigation schemes were classified as government or public land and are slated to remain so in the new land policy and legislation. Newly-formed farmers' associations will receive a lease for the scheme from government. Our survey and interviews indicated that many farmers, as well as irrigation scheme and government officials, did not know that the water users' associations were to receive leases for the schemes. Thirty-seven percent of the farmers thought the scheme would revert to customary land and 27%

thought it would become their own private property. Sixteen percent believed that it would remain government land, while 13% said the farmers’ association would be the owner (see Table 2). Less farmer education about the transfer process had occurred at Likangala than at Domasi, where training had taken place under the auspices of the NGO, Concern Universal.

Uncertainty about the tenure status of the schemes and the plots on them has given rise to a number of misunderstandings. First, as noted, the concept of handover suggested to nearly one-fourth of Domasi farmers and a third of Likangala farmers that the land would revert to customary control. At Likangala, this perception has opened the door to ancestral claims, including plot-grabbing by Traditional Authorities and related efforts to limit access to the scheme to farmers from surrounding villages. Second, farmers who assume that the land will revert to customary tenure rather than being leased from government by farmers’ associations are less likely to understand the need to join the association or to follow its rules. At Domasi, for example, the majority of plot holders did not understand that the newly established Water Users’ Association (WUA) was their membership organization. Instead, they thought it was the new title of the old government-sponsored Scheme Management Committee. In fact, neither the new Domasi nor Likangala constitutions clearly states that access to plots is dependent on membership in the farmers’ association, which appears to be the expectation of government and donors.

**Table 2. Farmers’ Perceptions of the Tenure Status of the Irrigation Schemes after Handover**

<b>Tenure Status</b>	<b>Domasi</b>	<b>Likangala</b>	<b>Total</b>
Government Land	8 (13%)	11 (19%)	19 (16%)
Individual Private Property	22 (36%)	11 (19%)	33 (27%)
Customary Land	14 (23%)	31 (32%)	45 (37%)
Owned by Farmers’ Organization	12 (20%)	3 (5%)	15 (13%)
Don’t Know	5 (8%)	3 (5%)	8 (7%)
<b>Total</b>	<b>61 (100%)</b>	<b>59 (100%)</b>	<b>120 (100%)</b>

*Handover Survey 2003*

**C. Citizens and Strangers – Rights of Access to Plots:** Many farmers view the handover of the schemes as reversing patterns that have developed in the last decade. Some plot holders, particularly the wealthier ones, fear that the transfer will remove their opportunities for accumulation as new plot allocation arrangements may be put in place. Others are concerned that it will open the way for more “strangers” to gain

access to plots. One of the most contentious debates relates to who will have rights to access plots in the schemes after handover. Is it people from surrounding villages, any person from Zomba or Machinga Districts, or any citizen of Malawi?

Most of those interviewed were born in the district where the scheme was located – 83% of respondents in the case of Likangala and 84% in the case of Domasi. Most of the others were born in a nearby district. On Domasi, 14% were born in Zomba District, and 2% came from Zimbabwe. On Likangala, 10% were born in the nearby districts of Machinga and Mulanje, while 6% came from other districts, and 2% were from Zimbabwe. As Table 3 indicates, differences existed between the two schemes in the number of years farmers had held plots, with turnover on Likangala being higher than at Domasi. At Likangala, 63% of respondents had farmed their plots for ten years or less, while at Domasi the figure was 37%. Domasi scheme had a much higher percentage of farmers (44%) who had been on the scheme for twenty years or more as compared to Likangala (17%).

**Table 3. Number of Years Farmers Had Worked on Domasi and Likangala Irrigation Schemes**

<b>Number of Years Worked on Scheme</b>	<b>Domasi</b>	<b>Likangala</b>	<b>Total</b>
1-10 Years	23 (37%)	38 (63%)	61 (50%)
11-20 Years	12 (19%)	12 (20%)	24 (20%)
20+ Years	28 (44%)	10 (17%)	38 (30%)
<b>Total</b>	<b>63 (100%)</b>	<b>60 (100%)</b>	<b>123 (100%)</b>

*Baseline Survey 2003*

When the schemes were established in the late 1960s and early 1970s, the land was converted from the customary to the public tenorial system. Government became the owner of the land and various governance structures were established to allocate plots and carry out other functions. Throughout the Banda era, these irrigation schemes became vital settlement sites for school dropouts and party loyalists. The Malawi Young Pioneers, the paramilitary youth wing of the Malawi Congress Party, played a significant role in training and maintaining discipline on both schemes. Until the recent adoption of new constitutions at Likangala and Domasi, any citizen of Malawi could technically ask for a plot by applying to the Scheme Management Committees. In the immediate post-Banda period, absentee farmers and plot seekers from urban areas increasingly began to obtain plots through informal renting and borrowing/lending arrangements and, in some cases, allocation from the Scheme Management Committees. This influx of “outsiders” might partially explain the higher percentage of farmers on Likangala who had held their plots for ten or fewer years as compared to Domasi. Likangala scheme is close to Zomba city, and the roads to it are better maintained than those to Domasi..

Dry-season rotation of plots was another way that those who did not normally have access to the schemes gained temporary use. On Likangala and Domasi, the Scheme Management Committees would reallocate plots each dry season, allowing those who did not normally have plots to use them. Farmers were generally supportive of this practice: 83% said it should be continued after handover. The reasons that they gave included helping people who did not have enough food, and giving access to people who did not have plots or whose lands did not receive enough water.<sup>6</sup> Although farmers were supportive of this dry-season plot rotation, many criticized the way it was carried out, claiming that the Scheme Management Committees were corrupt and often allocated plots, not to the poor, but to better-off farmers and city dwellers.

As noted above, many farmers and some officials assumed that the schemes were being handed back to Traditional Authorities or to local farmers. As a consequence, considerable ambiguity now surrounds the issue of who should have rights of access to plots, especially at Likangala scheme where this has become a heated issue. There, one village headman has encouraged farmers from his village to take over plots on Blocks B and C from other farmers. He bases his claim to these blocks by saying that these were his ancestral lands and, since the scheme is being turned back to farmers, the plots should be allocated to those from his village. There are also historical reasons for his actions. The village headman and many members of his village were exiled to Mozambique when former President Banda banned the Jehovah's Witnesses in the early 1970s. When they returned in the early 1990s, they had very little land on which to cultivate and were refused scheme plots (Nkhoma and Mulwafu 2004). Other village heads have said that if this headman is allowed to claim the scheme land as his village land, they will do the same. We found that several of them had accumulated irrigation plots and were renting them out. This practice resembles the one that has developed in the Lake Chilwa wetlands (Kambewa 2004; Peters 2004). One village headman, who claimed sections of the scheme as land for his villagers, specifically said that the reason one of his peers was not doing likewise was because he drew considerable income from the payments he received from the wetland plots he allocated.

The new Likangala constitution, adopted in 2004, states that access to plots is dependent on being from Traditional Authority Mwambo. The Domasi constitution contains a similar, if somewhat more vague, clause asserting that access is limited to citizens of Malawi who are residents of the area. This focus on local ownership reflects some of the historical tensions, described above, concerning displacement from ancestral lands, as well as concerns that plots are being unjustly allocated to outsiders. It also reflects a wider trend in natural resource management in Malawi and Southern Africa more generally – the promotion of community control of natural resources as a means to reduce state costs and promote sustainable use.

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<sup>6</sup> The small percentage of those who thought the practice should be discontinued mentioned the following reasons: they ended up exchanging a good plot for a bad one; the practice caused conflicts; and those who used plots on a temporary basis often did not take care of them.

Community ownership is often understood in the narrow sense of those born in the area, an interpretation that does not take into account past movements of people into the Lake Chilwa Basin or the increasing mobility of the population today in search of work and land. Further, it may bolster the claims of headmen trying to regain ancestral lands. Stewardship of irrigation schemes or other resources based on ancestry and concepts of “indigenous” ownership may be a hindrance to development in a population that is increasingly mobile.

Women’s access to plots and voice in management decisions have not been addressed directly in farmer training to date, although the new irrigation policy includes strong statements supporting women’s equal participation in irrigated agriculture. The Domasi and Likangala schemes are located in an area of matrilineal inheritance, and many women have plots on the scheme. At Domasi, for example, Concern Universal estimated that of the 1,500 registered plot holders, 47% were women. Asked whether women should be allowed to register plots in their own names, an overwhelming 95% of the respondents at Domasi said that they should, while 88% affirmed the same at Likangala. At Likangala, where the 2004 constitution limits the number of plots a family can hold to four, it is not yet clear what will happen to plots registered in a woman’s name when the husband also has plots and the total number exceeds four. Joint registration of plots in the spouses’ names should be considered but presently is not allowed on either scheme.

At both Likangala and Domasi, few women served on committees. For example, only after exhortation by Rural Development Project (RDP) officials were three women out of eleven members elected to the new Scheme Management Committee at Likangala in July 2004. At Domasi, four women served on the twelve-member Executive Committee of the WUA. Field observations of scheme committee meetings since 2000 indicated that few women who were elected to committees actually participated at meetings. Women were most active in block-level committees organized to manage and repair secondary and tertiary canals.

**D. Landholding Size :** When the irrigation scheme lands were originally parceled out to farmers in the late 1960s and early 1970s, they received two to four plots, each one constituting 0.25 acre. The baseline survey revealed that the average number of plots held by respondents in 2003 was greater on Domasi than on Likangala scheme. The Domasi mean was 3.9, while on Likangala it was 2.7. Overall 18% of the total sample reported farming five plots or more. Those with five plots or more constituted 8% of Likangala and 17% of Domasi farmers (see Table 4).

**Table 4. Number of Plots Held by Farmers on Domasi and Likangala Irrigation Schemes**

Number of Plots Held	Domasi	Likangala	Total
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1-2 Plots	30 (48%)	37 (62%)	67 (55%)
3-4 Plots	16 (25%)	18 (30%)	34 (28%)
5-16 Plots	17 (27%)	5 (8%)	22 (18%)
Total	63 (100%)	60 (100%)	123 (100%)

*Baseline Survey 2003*

These differences in landholding size were also apparent when plot use by season of the year was considered. At Likangala, the average number of plots farmed in the rainy season was 2.8 while in the dry season it was only 0.8. At Domasi, the mean number of plots farmed in the rainy season was 3.8 in contrast to 1.7 in the dry season.

This baseline survey information underestimates the actual degree of plot concentration that exists on the two irrigation schemes. Accurate information on the number of plots owned or used by scheme farmers was difficult to gather in a survey due to the sensitivity of this information in the current context of change. Most farmers were unwilling to admit to ownership of more than four plots or to renting or lending plots, as these practices were thought to be against the rules. No accurate updated list of plot holders and the number of plots registered in their names existed at Likangala and Domasi schemes. Thus, the actual degree of land concentration is hard to measure. However, information gathered through qualitative approaches permitted us to address this issue and to identify the processes involved in plot concentration. This information suggests that over the years, and especially during the 1990s, scheme land has become more concentrated in the hands of the better-off farmers, especially those in positions of authority, often through renting and borrowing.

Today it is not unusual for wealthier farmers to own or farm more than four plots, especially during dry-season cultivation. For example, even using the available survey information, 61% of those in the two highest asset classes at Domasi admitted to farming five plots or more, while at Likangala the figure was 29%. Many newly-elected members of committees at Likangala and Domasi schemes have more than four plots. For example, some officials on the Domasi WUA Executive Committee own over ten plots, while some of the officials on the new Likangala Scheme Management Committee own twelve plots or more. Further, these are usually plots with the best access to water. Plot ownership at the household level is actually much greater than these figures suggest, as spouses and children often have plots registered in their names as well. In addition, qualitative research revealed that some farmers and scheme officials made use of fake names to gain additional plots.

The new 2004 Likangala constitution states that families (*banja*) – including the husband, wife, and children – may own no more than four plots in total. It is too early in the handover process there to determine whether committee members farming four or more plots will be willing to enforce these limits or to carry out plot redistribution. In many cases, however, the very people who have been given authority to enforce new regulations are the ones known for

violating them. At Domasi, on the other hand, the constitution is vague on the issue of the number of plots that can be farmed, stating only that WUA members have a right to “a profitable landholding size according to agreed criteria for land allocation.” Efforts to promote plot redistribution by Concern Universal were stymied for the time being, as they constituted a challenge to those in power.

Accurate information on renting and borrowing is equally hard to obtain. For example, in the baseline survey, no farmers admitted to renting plots to others. Three said they rented plots from others in the dry season and eleven in the rainy season. Six admitted to loaning plots to others in the dry season and four in the rainy season. Field observations suggested that renting and borrowing are widely practiced on the Likangala and Domasi schemes and further concentrate plot use. For some farmers, the regulation that land not cultivated for two years reverts to the Scheme Management Committee spurs renting as a means to deal with hardships of various kinds. Those who are unable to cultivate their plots because they lack inputs, do not have sufficient labor, or are sick, often rent to better-off farmers and end up working as laborers on their own or others’ fields. During the dry season when plots are reallocated, people from town may gain access to them via allocation from the Scheme Management Committee or by renting from other farmers.

The 2004 Likangala constitution declares that renting of plots is illegal and constitutes one of the reasons why a plot holder can be expelled from the scheme. It may be difficult to halt this practice for at least two reasons – its widespread occurrence and the fact that it meets the needs of both wealthy and poor farmers. The Domasi constitution actually makes no mention of renting or borrowing, perhaps because of these same reasons.

In summary, farmers have used a variety of mechanisms to gain access to more than four plots, including serving on scheme management bodies or having close connections to those who do, plot ownership by spouses and children, renting and borrowing, and, in some cases, use of falsified names. All these practices work against broadening access to plots which, as pointed out above, are a premium livelihood resource. While the 2004 Likangala constitution seeks to broaden access to plots by limiting the number a family can own and by barring renting, at this point it remains to be seen if plot redistribution will occur.<sup>7</sup>

**E. Rehabilitation and Farmer Capacity Building:** A critical aspect of rehabilitation of the irrigation schemes is capacity building. Farmer training in scheme maintenance and management is an integral part of the rehabilitation process. Our findings indicate that capacity building has not been effectively synchronized with rehabilitation. In the case of Domasi, Concern Universal was contracted to train farmers at a time when rehabilitation of the scheme was already at an advanced stage. At Likangala, farmers have been mobilized to

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<sup>7</sup> It is also possible that once the Likangala farmers become more aware of these clauses in their new constitution, they will try to amend it.

supply labor for rehabilitation, but there has been little discussion to date of incorporating capacity building as part of this process.

Rehabilitation of canals, headworks, roads, and other facilities on both schemes has proceeded slowly due to numerous factors. These include delays in funds and supplies, inputs going missing, problems with local contractors, heavy rains that destroyed newly renovated structures, farmers' reluctance to provide labor, and numerous other complications. Delays have been greatest at Likangala, which is dependent on government funding for renovations. At Domasi, the targeted date of rehabilitation and handover has changed twice – initially it was scheduled for December 30, 2002, and then for September 30, 2003. By mid-2004, government officials recognized that rehabilitation and handover would not be a single event to be completed by a specified date, but rather a phased process likely to take considerably more time than anticipated. Current thinking is that physical structures will be transferred to farmers as renovations are completed.

Many farmers regarded rehabilitation as a government responsibility and were reluctant to take ownership of the scheme until it had been completely refurbished. This suggests that farmers themselves, not only Executive or Scheme Management Committee members, should be involved in rehabilitation decision-making processes from the onset. Since not all renovation problems can be addressed at once, meetings are needed where farmers, together with specialists, identify and prioritize the most salient ones. Table 5 provides information on what farmers wanted rehabilitated prior to scheme transfer. It shows that, while the majority of plot holders on both schemes wanted the main canal renovated, other problems identified tended to be specific to each scheme.

**Table 5. Irrigation Scheme Rehabilitation – Farmers’ Highest Priorities**

<b>Want Rehabilitated - Highest Priority</b>	<b>Domasi</b>	<b>Likangala</b>	<b>Total</b>
Headworks	6 (10%)	4 (7%)	10 (8%)
Pump	2 (3%)	0	2 (2%)
Main Canal	30 (49%)	46 (78%)	76 (63%)
Secondary and Tertiary Canals	4 (7%)	2 (3%)	6 (5%)
Roads and Paths	5 (8%)	0	5 (4%)
Leveling of High Ground	9 (15%)	1 (2%)	10 (8%)
The Whole Scheme	0	3 (5%)	3 (3%)
Other	5 (8%)	3 (5%)	8 (7%)
<b>Total</b>	<b>61 (100%)</b>	<b>59 (100%)</b>	<b>120 (100%)</b>

*Handover Survey 2003*

Farmers’ involvement in decision making, not only labor, can instill a greater sense of responsibility for the rehabilitation process and can help build the skills needed to manage the scheme in the future. When asked, 87% of farmers (92% on Domasi and 81% on Likangala) said they had taken part in the physical rehabilitation of the scheme, but only 41% (52% on Domasi and 29% on Likangala) said they had ever attended a meeting in preparation for rehabilitation and handover. Indeed, many of those at Likangala opposed the transfer as they were afraid that they would inherit a dilapidated main canal and other structures they could not afford to fix. Many did not see how they could succeed in running the scheme when the government, with all its resources, had failed.

Many of the problems identified by farmers related to physical collapse of the scheme structures (headworks, canals, etc.) have social origins. Rehabilitation is not likely to be effective or long-lasting unless these underlying social issues are addressed. Concern Universal and Liwonde ADD have been responsible for farmer empowerment and training at Domasi scheme. This process is not yet fully underway at Likangala scheme, but Zomba RDP might benefit from insights that Concern Universal has gained from the Domasi experience. At Domasi, until recently almost all attention focused on training newly-elected committees to carry out their functions. Indeed, only 13% of the farmers in the overall sample said they had received some training on handover issues. Twelve of the fifteen farmers who said they had received training were from Domasi and all were members of scheme committees. This indicates that the “Training of the Trainers” model that was used was ineffective, as little training of farmers themselves has taken place.

In 2003, our surveys revealed that farmers at Domasi scheme, where handover was well advanced, had little understanding of what it involved and reported having little voice in decisions concerning it. At general meetings of the water users' association, field assistants reported that farmers were spoken to rather than engaged in conversations. Decisions were taken by a small group of committee members, government and scheme officials and were announced at general meetings. Such concentration of knowledge and authority in the hands of committees means that farmers will be poorly equipped to exercise their rights and obligations in the new governance structures.

Much the same is occurring at Likangala scheme, where a meeting on problem identification and constitution building occurred in early July 2004 involving village headmen and other Traditional Authorities, scheme committee members, RDP officials, and a small number of farmers. At this meeting, Zomba RDP officials, in effect, imposed a new constitution on those in attendance in the name of "participation" and "consultation." A week later the constitution was presented for ratification at a general farmers' meeting attended by less than twenty farmers not holding elected or appointed office. Few scheme farmers knew that there was a draft constitution or that a meeting was going to take place to discuss it, let alone the provisions contained in the document itself. At the ratification meeting, the constitution was read to the farmers and they were asked to endorse it. Barely a week later, another meeting was held to elect a new Scheme Management Committee. Top-down actions of this sort, although often employing the language of participation and consultation, are reminiscent of the Banda era and will not result in widespread understanding of or support for new rules and committees.

**Table 6. Farmers' Knowledge About Transfer of the Irrigation Schemes – Governance Responsibilities**

Questions	Yes	No
After handover will government be responsible for:		
Establishing irrigation policy?	35%	65%
Providing extension services?	62%	38%
Carrying out operation and maintenance of the scheme?	21%	79%
Resolving conflicts over plots?	42%	58%
After handover will the farmers' association be responsible for:		
Providing extension services?	10%	90%
Managing water allocation and use?	53%	47%
Carrying out operation and maintenance of the scheme?	68%	32%
Resolving conflicts over plots?	84%	14%

*Handover Survey 2003*

While consultation with farmers is important, critical issues related to governance responsibilities and to land and water rights and assets still remain to be clarified. As Table 6 indicates, there was considerable disagreement over who would be responsible for what when the schemes were transferred to farmers' associations.

Table 7 suggests that even more uncertainty prevailed when farmers were asked questions regarding when handover would take place and their rights to land once the schemes were transferred to their associations.

**Table 7. Farmers' Knowledge About Transfer of the Irrigation Scheme – Rights to Plots**

Questions	Yes	No	Don't Know
When will transfer of the schemes to farmers' organizations take place?			98%
Will borrowing or lending of plots be allowed after transfer?	33%	56%	11%
Will renting of plots be allowed after transfer?	37%	55%	8%
Will buying and selling of land be allowed after transfer?	8%	84%	8%
Will there be a limit on the number of plots a farmer can have after transfer?	32%	53%	15%
Will dry-season plot rotation continue after transfer?	48%	40%	12%

*Handover Survey 2003*

In other critical areas there was confusion as well. As noted in Table 2, concerning the tenure status of the schemes after transfer, 38% of the total sample believed the schemes would revert to customary land. While 80% knew the irrigation scheme held a water abstraction permit, there was considerable disagreement over what would happen to it after handover. Fifteen percent thought the government would continue to hold the permit, 18% thought it would belong to the farmers' association, 12% thought that individual farmers would have to get permits, 26% said the permit holder would be the Scheme Management Committee or the WUA Executive Committee, 7% mentioned Traditional Authorities, and 22% did not know.

These critical issues concerning governance and land and water rights are as important to address, debate, and clarify as is the physical rehabilitation of the schemes themselves. While one of the goals of the transfer of the irrigation schemes to farmers is to promote greater

“ownership,” at this point it appears that farmers’ rights to plots are more uncertain today than they were in the past. Women’s rights to plots are even more precarious since it is unclear in whose names the plots will be registered and who can inherit them.

**F. Inheritance:** Do scheme farmers have rights to leave plots to children and other relatives upon their death? Under what conditions? Farmers at Domasi and Likangala schemes have been accustomed to leaving their plots to their spouses, children, and other relatives. In the opinion of many Likangala farmers, only when the plot holder is unmarried and has no offspring do the plots revert to the Scheme Management Committee for redistribution, and then usually half go to relatives of the deceased and the remainder to non-family members. However, the new Likangala constitution states that upon the death of the holder, the plots are to revert to the Scheme Management Committee, which may redistribute them to the deceased’s relatives or to others as they see fit. In the past, the Scheme Management Committee has sometimes used the occasion of the death of the farmer to obtain plots and reallocate them, often to powerful, influential people – including members of the committee itself. Given these past practices, the clause in the new constitution declaring that plots are to be returned to the Scheme Management Committee for reallocation upon the death of the plot holder has already generated opposition.

The Domasi constitution says that plots can be left to a specified next of kin who must be identified on the plot holder’s WUA membership card. The Executive Committee has the power to approve or reject this choice as it has the authority to determine if the next of kin meets membership criteria. The implication is that inheritance will be limited to one family member in good standing with the WUA. This clause may also generate opposition since it contradicts what has become local inheritance practice.

The issue of inheritance raises the question of plot fragmentation. Given the small plot sizes (1/4 acre), are the schemes intended to meet the needs of future generations? One village headman at Likangala scheme has used the lack of land for the future generations as a means of staking claims to irrigation plots and expelling others. Should plots on these irrigation schemes be inherited as if they were family land? This issue needs further discussion with farmers and policy makers in light of the limited number of plots, their small size, and the historical experiences of schemes. The absence of clearly-defined and understood rules and procedures of inheritance is likely to exacerbate misunderstandings and conflicts. Further, even when rules are clear, traditional practices may override them.

**G. Structures of Authority:** Although the schemes are government land and Traditional Authorities (TAs) are not supposed to be involved in land allocation or dispute settlement on them, over the years, as government has withdrawn from the schemes, TAs have gained greater voice, especially in solving disputes. The Domasi and Likangala constitutions state that chiefs are not to take part in plot allocation or dispute resolution on the irrigation schemes. However, this appears to be at odds with the new local government law and

decentralization policy, which give TAs identified roles in local administration (see section II above).

Confusion exists especially concerning the roles of the Traditional Authorities in solving disputes that arise between farmers on and off the schemes. When asked who solves such disputes, 57% of farmers said the WUA Executive Committee or the Scheme Management Committee, and 38% said chiefs, while 5% didn't know.<sup>8</sup> This confusion is exemplified by the failure to resolve the issue of plot grabbing by a village headman on Likangala scheme. In this case, the Scheme Management Committee was unable to resolve the issue and turned to the TA, who in turn consulted the District Commissioner (DC). After conferring with the TA, the DC decided that the land should be returned to the registered plot owners after harvest. But surprisingly, he did not announce his decision himself – instead he asked the TA to do so, thereby legitimating the TA's authority. It remains to be seen if this has put an end to the issue. The larger point is that, because decentralization and many other processes of reform are occurring at the same time, lines of authority are often unclear to farmers and sometimes even to officials. This raises opportunities for multiple interpretations of rights and competing claims to land, water, and other resources.

Although the water, irrigation, and environmental laws themselves are being harmonized to resolve areas of ambiguity and conflicting roles among them, there are still questions about how the new structures they are putting in place will function on the ground. One of these questions involves the creation of river basin or Catchment Management Authorities (CMA) as proposed in the new water policy and pending law. Malawi has been divided into seventeen large catchment areas which are drawn according to hydrological criteria and, in many cases, cross political-administrative boundaries. Two or more Districts may fall within one CMA. While the catchment approach makes environmental sense, it creates another administrative structure that has to be negotiated and financially supported. It is unclear how Catchment Councils will work with District Councils and other political administrative units (Derman, Ferguson and Gonese 2000).

In fact, this has been a significant issue in Zimbabwe, where the same organizational structure was put into place. There CMAs include representatives of districts, local representatives of various ministries, and major water users such as commercial farmers, smallholders, mining and urban water user representatives. For district authorities and smallholders alike, the transaction costs of participating in these meetings are high, and they often lack funds to attend. Water users also have to travel long distances to Catchment Authority offices to pay fees or obtain services (Nicol and Mtisi 2003; Derman, Ferguson, and Gonese 2000).<sup>9</sup> In other words, what makes environmental sense presents administrative challenges. In Malawi,

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<sup>8</sup> At Domasi, 64% of farmers thought these disputes were settled by the WUA Executive Committee and 28% identified chiefs, while at Likangala the comparable percentages were 49% and 48%.

<sup>9</sup> See Van Koppen et al. (2004) for a similar discussion focusing on Tanzania.



significant financial problems exist as well, as sustainable sources of funding for the CMAs have yet to be identified. One way around these challenges, at least for the immediate future in Malawi, is to start with the formation of smaller watershed councils or land-water committees in districts where water conflicts are likely to occur in the near future – such as the Lake Chilwa Basin.<sup>10</sup>

Finally, and equally importantly, the new policies and laws in Malawi's natural resource sector all call for communities or user groups to organize themselves in committees to assume responsibilities for natural resource management. The transfer of the irrigation schemes to newly organized water users' and other farmers' associations is only one example of a much wider process (Khaila, Mvula, and Kadzandira 1999). Although this appears to be a good strategy considered on a sector-by-sector basis, looked at from the local-level or village perspective, the results can be problematic. Many villages have a school committee, two or three borehole committees (for each borehole), a natural resource committee, a beach village committee, and others as well. Very poor, often overworked people are being asked to take on significant responsibilities for resource management, and they are being expected to do so in the midst of the HIV/AIDS epidemic, which in many cases has depleted their labor and other resources (Mbaya 2002; Shah et al. 2002; Drimie 2002).

Our previous research on access to potable water in the research sites indicates that this user group strategy often works to the disadvantage of poor women, many of whom are unable to meet requirements needed to be a member of the group and thus continue to rely on rivers, shallow wells, and other usually polluted sources of water (Ferguson In Press). In essence, these user groups constitute a form of privatization of what was once thought to be a public good. It is too early to tell if similar equity issues will arise with the transfer of the smallholder irrigation schemes to farmers' associations, but there are reasons for concern, as discussed below.

## **V. Discussion and Conclusions**

Malawi has embarked on what constitutes a radical redefinition of governance structures and rights of ownership and access to key land and water resources. These new policies and laws draw on neoliberal development thinking with its emphasis on private sector initiatives, redefinition and reduction of the role of the state, and promotion of new decentralized, stakeholder-driven, and community-based management institutions. The new irrigation reform and legislation embody all these characteristics.

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<sup>10</sup> Another example of an unresolved issue stemming from uncoordinated policies concerns the use of the term Water Users' Association. The Irrigation Department uses water user association to refer to farmers' associations on irrigation schemes. However, the same term is used in the Water Policy and law to refer to an interest or lobby group of people organized to promote integrated water resource management.

The study addressed the question of whether the transfer of the smallholder irrigation schemes from government to farmers' organizations is broadening disadvantaged groups' access to critical land and water resources in the context of Malawi's new poverty alleviation, water, land, and irrigation policies. Because these reforms are new and have been slow to be implemented, our findings can only be preliminary. In this report, we have focused on key issues that emerged from the study that are likely to be of concern to policy makers and program implementers, as well as academics.

Our findings suggest that many critical questions remain to be addressed concerning equity, poverty alleviation, and strategies for pro-poor economic growth in the transfer of the smallholder irrigation schemes from government to farmers' associations. Unresolved issues include the following: Should plots on the schemes be redistributed to assure wider access to them as an equity and poverty alleviation measure? Should a household's other landholdings, particularly valuable wetland and streambank gardens, be taken into account if reallocation of plots on irrigation schemes were to take place? Should redistribution of scheme plots continue during the dry season as one means to broaden access? Or is pro-poor economic growth best served by permitting greater plot concentration? At this point, it appears that the Domasi WUA Executive Committee and the new Likangala Scheme Management Committee have adopted different positions on equity and poverty alleviation issues – with the Domasi Executive Committee focusing on productivity and permitting greater concentration of plots and the Likangala Scheme Management Committee opting for more equitable distribution of them. Most recent indications suggest that many plot holders on the two schemes are not fully aware of and may not support these directions.

The study suggests that a number of forces are at work both on the schemes and off them that may increase plot concentration. Overall, irrigation plots have grown in value in recent years as a result of a number of factors. As population growth has given rise to greater land pressure, the value of lands on which two or more crops a year can be grown has escalated. The increasing irregularity in the local climate, characterized by droughts and floods, may also contribute to the importance of scheme plots. The growing market for rice and off season vegetables in urban and peri-urban areas has increased the worth of these lands as well. More recently new agricultural programs, including the promotion of treadle pumps and the Targeted Inputs Program, have made access to these lands more lucrative.

Factors operating on the schemes themselves also may contribute to plot concentration. WUA membership and annual plot fees are presently very low. At Domasi, each farmer is required to pay a MK100 membership fee and a MK50 plot fee per year.<sup>11</sup> At Likangala, the fee is MK150 per plot per year. It is likely that the costs of maintaining the schemes will rise significantly in the near future. In the first place, the draft Water Law states that the irrigation schemes must have water abstraction permits. The cost of the water permit itself may more than triple in price in the near future, an expense that will be passed along to the farmers

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<sup>11</sup> In July 2004 US\$1.00 was equivalent to MK106.

(Mott MacDonald 2003). Irrigation schemes will be expected to purchase and install water gauges and other water use monitoring devices. Records of water use will have to be produced yearly at the time water permit fees are paid. Second, it is not clear who will pay for future major repairs to canals and headworks on the irrigation schemes – the government or the farmers’ associations? Third, personnel may have to be hired to carry out at least some of the responsibilities presently assigned to elected scheme committees and sub-committees, as some of these are nearly full-time tasks and others require specialized knowledge. Fee collection itself is likely to be challenging as well as time consuming. All this will add to the costs of maintaining the schemes and may result in substantially higher membership, plot and water fees, which will affect farmers differentially. Poorer farmers may not be able to cope with these increasing costs, particularly if the scheme marketing and credit facilities are not substantially improved. In sum, these are enormous adjustments that many farmers we interviewed did not feel ready or financially able to undertake as the refrain “if government failed, how are we to succeed?” indicates.

Another key finding that emerged from the research is the great uncertainty among officials and farmers alike that characterizes the irrigation, land, and water reforms. Many key provisions of these reforms remain unclear at this time. For example, Domasi Irrigation Scheme was last slated for official transfer to the Water Users’ Association in September 2003. Yet, at that time farmers had no clear understanding of what their rights to land or water resources would be once transfer was accomplished. No agreement existed among farmers concerning key issues of membership requirements in the Water Users’ Association, tenure status of the scheme, whether plots could be bought, sold, rented, borrowed, or inherited, and if there would be a limit on the number of plots allowed farmers. At this point in time, rather than being more secure, farmers’ rights to plots are more uncertain than they were in the past.

Women’s rights are particularly precarious. As noted above, both irrigation schemes are located in an area of matrilineal inheritance, and many women are plot holders. The new land policy and law state that customary lands are to be registered as “customary estates.” While the final details of the implementation of the land policy and legislation are still to be worked out, the current intent is to ignore customary forms of inheritance, whether matrilineal or patrilineal, and to allow landholders to designate their own heirs. Landholders will be able to register land either as individuals or families (conjugal unit) or as larger kin-based groups, but it is unclear whose name/names will be recorded on titles. If farmers have upland, rainy season fields in addition to irrigation schemes plots, as is the case with most of the Domasi and Likangala smallholders, will the customary estate include both types of property? At Likangala it is not yet clear what will happen to plots registered in a woman’s name when the husband also has plots and the number exceeds the total of four permitted for families by the new constitution. At minimum, to avoid women losing the land assets they currently control, registration of family land should require the names of both spouses and kin-based land should require names of all siblings.

Ambiguity also surrounds the issue of who will be responsible for many critical activities once the schemes are transferred to farmers' associations, including who will fund major repairs, make policy, provide extension services, and resolve disputes. Officials on the irrigation schemes and in government departments themselves often did not know the answers to these questions. Clearly, fuller discussions of these issues at national as well as local levels and with irrigation scheme farmers themselves need to occur as preparations for handover proceed. Farmers need to engage in deliberations over what their rights and responsibilities will be and they need to have a clear understanding of them when the schemes are actually transferred to their associations. Women's views and opinions as well as men's must be sought. To date, it appears that it is largely women's labor that has been recruited (to repair canals) rather than their participation and voice in new governance structures or meetings.

Features of the new water policy which have implications for the irrigation sector include the need to identify and establish institutions for water planning and conflict resolution at a scale and a cost that is realistic in the Malawian context. No sustainable funding mechanisms have yet been identified for the seventeen large-scale river basin or catchment authorities proposed in the water policy. Governance structures at a smaller, watershed scale are needed, which would allow for water use planning and resolution of disputes in areas where water competition is intense. In our research area, as the irrigation schemes are renovated and capture more water, competition over this resource is likely to intensify as surrounding wetland and streambank garden users all rely on the same water sources (see Kambewa 2004 and Peters 2004). Competition between the irrigation schemes and other upstream and downstream users has already developed, especially along the Likangala River (Mulwafu and Khaila 2004; Ferguson 2002). One possibility to explore is to integrate water management into the new land management groups proposed in the land policy (Peters 2004).

While the water policy and draft law, similar to others in the Southern African region, recognize people's right to water for "domestic" purposes, in its present form Malawi's draft law requires all those who use water for productive purposes to acquire a water use permit. The high levels of poverty plus the high transaction costs involved in collecting fees from millions of smallholders suggest that other options should be explored. The Government of Malawi may want to consider legally recognizing a smallholder right to water for productive as well as domestic purposes. This legal recognition would take into account the importance that water plays in livelihood strategies and would grant smallholders a voice in deliberations over water use and dispute settlement without, at this point in time, having to register and collect fees from all of them – an impossible task. Registration and collection of water permit and use fees can best be concentrated on more easily identified and reached estate owners and other large water users (ECOM, Water Boards, etc.) with abilities to pay.

Finally, consideration should be given to broadening the scope of the new water user associations. Experiences from elsewhere in the world with irrigation transfer suggest it is most successful on schemes that have relatively small numbers of plot holders with larger plot sizes who depend on the schemes for most of their livelihood and where the costs of scheme management are a small proportion of income. Fewer numbers of better-off farmers are

easier to organize and monitor, and they are more likely to be willing and able to shoulder the costs of running the schemes. While Domasi and Likangala farmers do rely on the schemes as their major source of livelihood, few of these other conditions prevail. Thus, even if the ambiguities surrounding farmers' rights and governance structures were resolved and the vestiges of favoritism and corruption described above were eliminated, many challenges to successful irrigation management transfer would remain.

Shah et al. (2002) have argued that if irrigation management transfer in Africa is to be more than a means of "getting irrigation off the back of governments," it must be part of a broader strategy to remove capital, input, and marketing constraints and to enhance economic returns to smallholder farming. Domasi and Likangala farmers identified low prices and inability to negotiate effectively with buyers as one of their greatest problems. To date, however, the farmers' associations at Domasi and Likangala have focused on physical repair and management of the schemes, and have not addressed these broader production and marketing issues. Many of the findings presented in this report point in the direction of increasing costs in running the schemes once they are transferred to farmers, and growing plot concentration in the hands of wealthier farmers. If farmers' organizations addressing these wider production and marketing constraints were formed, it might yet be possible for poor farmers – who still form the majority of Domasi and Likangala plot holders – to significantly improve their livelihoods and for pro-poor economic growth to take place. Such organizations could include not only irrigation scheme farmers but also other smallholders from the surrounding wetland areas who face similar constraints.

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