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The Politics, Development and Problems of Small Irrigation Dams in Malawi: Experiences from Mzuzu ADD

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ABSTRACT: The paper examines the progress made regarding the development of small irrigation dams in Malawi with the view of establishing their significance in improving rural livelihoods in the country. The paper adopts a political economy theory and a qualitative research approach. Evidence from Mzuzu Agricultural Development Division (ADD), where small reservoirs acquire specific relevance, shows that despite the efforts made, the development of small dams is making little progress. The paper highlights that problems of top-down planning, high investment costs, negligence of national and local interests, over-dependency on donors, and conflicts over the use of dams – which made large-scale dams unpopular in the 1990s – continue to affect the development of small irrigation dams in Malawi. The paper argues that small irrigation dams should not be simplistically seen as a panacea to the problems of large-scale irrigation dams. Like any other projects, small dams are historically and socially constructed through interests of different actors in the local settings, and can only succeed if actors, especially those from formal institutions, develop adaptive learning towards apparent conflicting relations that develop among them in the process of implementation. In the case of Mzuzu ADD, it was the failure of the government to develop this adaptive learning to the contestations and conflicts among these actors that undermined successful implementation of small irrigation dams. The paper recommends the need to consider local circumstances, politics, interests, rights and institutions when investing in small irrigation dams.

KEYWORDS: Local context, political economy, small irrigation dams, Malawi

INTRODUCTION

In the past three decades, sub-Saharan Africa has witnessed increased public and scholarly interest in small-scale irrigation in general and small dams in particular. The growth of interest towards small-scale irrigation had to do with the increasing awareness of the failure of large-scale irrigation projects across the region. Large-scale projects were criticised for huge investment costs and their failure to deliver on their expected outcomes. Besides, large projects were found ecologically and socially disruptive to existing local economies, and often resulted in massive resettlement of people (Barnett, 1977; Adams, 1992; Postel, 1999). Concerns over the effects of large dams led to the establishment of the World Commission on Dams (WCD) which recommended the need to look for locally and environmentally appropriate and cheaper alternatives like small dams (WCD, 2000). Unlike large dams, small dams are seen to be cost-effective, manageable, equitable, and serving multiple uses such as bathing, washing, fishing, livestock drinking and dipping in addition to irrigation. The notion that 'small is beautiful' has been a guiding ideology of most donor policies on small reservoirs (Turner, 1994; Vaishnav, 1994; Postel, 1999; Keller et al., 2000; Shah et al., 2002; Swatuk, 2008).

Despite what is framed as comparative advantages, Adams (1987, 1992) argues that small-scale irrigation dams should not be simplistically considered as a panacea to the problems of large-scale

irrigation dams. Using case studies from West Africa, especially Nigeria, he observed that small-scale dams were just as unsuccessful as large projects. The cost of small dams was equally huge in regard to the volume of water stored or the area irrigated, and they hardly met the irrigation needs of the rural poor due to their small size, despite the fact that they were locally demanded for drinking, fishing and livestock watering. Like large projects, they were implemented in a top-down fashion, an aspect that contributed to the failure of large projects. He argued that small dams "have been a little more scaled down version of large projects with similar high technology irrigation systems developed through top-down planning processes dominated by government bureaucracy" (Adams, 1992). He draws attention to the need to take into consideration the local and historical context in the process of developing small dams if desirable results are expected to be achieved.

A special issue of the Proceedings of the National Academy of Sciences published in 2007 denounces the fact that an elusive focus on panaceas has dominated the search to solve water and, more generally, natural resources management issues. This collection of papers highlights the need to consider the variability of local situations (Ostrom, 2007; Ostrom et al., 2007; Perrings, 2007). Meinzen-Dick (2007), for example, shows that "effective irrigation management requires going beyond single-policy solutions to a more nuanced approach that builds on better diagnosis and adaptive learning to find solutions that fit local biophysical, social, and economic conditions". This stand is however little adhered to, as shown by the case of small reservoirs development in Malawi.

Malawi is one of the countries that have embraced small irrigation dams as an alternative to large dam irrigation projects in southern Africa (Malawi Government, 2000, 2002). The idea was first conceived by the colonial government in the early 1950s, and over 750 small earth dams were constructed across the country (Malawi Government, 2002). After independence, it was only in the mid-1990s that small reservoirs re-attracted some level of attention. A great deal of donor support went into the construction and rehabilitation of small irrigation dams and associated schemes even though the priority of the government seemed to go to river diversion schemes which benefitted more farmers than water reservoirs (Nkhoma, 2005; Veldwisch et al., 2009). Some recent studies on irrigation in Malawi have also recommended the adoption of small reservoirs to solve the problems of erratic rainfall and long dry seasons which are leaving most of the rivers dry (Ferguson and Mulwafu, 2007; Njoloma et al., 2009; Mamba and Maweru, 2011).

The paper aims at understanding how the recent interest in small dams is sustained given the historically low importance given to small reservoirs since independence. Specifically, I assess progress made in terms of small-irrigation dam development by using a case study of Mzuzu Agricultural Development Division (ADD) in northern Malawi, where a good number of small irrigation dams were constructed between 1950 and 2010. The paper observes that, despite the efforts made, the development of small irrigation dams seems to be making little progress in the country. In Mzuzu ADD, for example, over 200 small irrigation dams were constructed since independence and of these only six are functional, irrigating a total of 64.5 ha cultivated by 466 rural smallholder farmers only. This paper highlights some of the underlying problems that are undermining the development of small irrigation dams in the country.

In order to understand the social, economic, political and ideological context in which small dams are developed in the country, the study adopted a qualitative case study approach. Opinions, perceptions and ideologies of respondents from the case study of Mzuzu ADD were captured using open-ended questions as well as a review of existing literature. Mzuzu ADD proves particularly suited to understand in depth the incentives, interests and institutions that hinder or encourage the development of small irrigation dams. This ADD has a long history regarding small dams as some were reported as early as the 1890s (McCracken, 2000). Besides, and perhaps, due to this long history, it has seen the construction of more dams than any other ADD in the country.

SMALL DAMS IN MALAWI: UNDERSTANDING POLITICS OF DEVELOPMENT

In order to understand the underlying problems affecting the development of small irrigation dams in Malawi, the paper adopts an approach grounded in the field of political economy. This strand of literature dates back to the 1960s when scholars began to search for explanations for the failure of technical interventions inspired by growth-based theories and policies (Mellor, 1967; Edwards, 1999; Synder, 2005; Cabral and Scoones, 2006). Political economy analyses the interaction between politics, policy and economics in society. It focuses on the distribution and contestation of power, wealth and resources by different stakeholders. The main thrust of political economy is to unveil the underlying incentives, institutions and ideas that shape political action and development outcomes (DfID, 2009; Chinsinga, 2009; Adam and Dercon, 2009; Tidemand, 2010; da Corta, 2010).

Two issues are critical in understanding development processes from the political economy perspective. First, development projects are underpinned by a complex interplay between multiple stakeholders that have conflicting and competing interests and incentives. Within this context of multiple political players are donors whose incentives and interests have serious implications for development outcomes (DfID, 2009; Tidemand, 2010). Development projects can be seen as implemented with the guidance of imported policies or norms whose assumptions are incongruent with the realities of the areas in which they are meant to stimulate development (Landell-Mills et al., 2007). Second, development outcomes are shaped by the interface between formal and informal institutions. According to Chinsinga (2009), informal institutions are un-codified political, social and cultural norms which operate outside the officially sanctioned system or formal institutions. Competitive and substitutive modes of interaction between formal and informal institutions may render formal institutions irrelevant (Helmke and Levitsky, 2004; Chinsinga, 2009). The growing tension between formal rules and informal power relations often makes the implementation of sound policy difficult at the local level (Scoones, 2005; Lund, 2006; Ferguson and Mulwafu, 2007; Chinsinga, 2009). Political economy, therefore, draws attention to the importance of the local context in understanding the success or failure of development projects. It is a useful analytical framework to understand how water projects that are meant to benefit the poor emerge, endure or collapse in local settings.

Delving further into the complexity of implementing policy and development projects, Mosse (2004) argues that the things often associated with 'good policy' are the ones which, in practice, make it un-implementable. He argues that development policy is technically expressed but politically shaped by interests and priorities of different stakeholders including the implementing agencies. He observes that "a significant part of development practice involves the reproduction and stabilisation of policy models secured upon social networks that constitute interpretive communities for projects and programmes" (Mosse, 2004). The design and implementation of a project is therefore a continuous process and accounts for the users' ability to adapt the project to local conditions. More specifically, many scholars have shown that irrigation projects are socially and politically constructed (Vincent, 2001; Mollinga and Bolding, 2004; Mollinga, 2008; Veldwisch et al., 2009; Lankford and Hepworth, 2010).

Many studies have aimed at understanding the political economy of irrigation development in Malawi. The earliest of these studies was done by Alufeo Chilivumbo in the 1970s. He argued that irrigation projects were politically charged to promote Dr Banda's political ideology of unity, loyalty, obedience and discipline (Chilivumbo, 1971, 1978).[1] To promote inter-ethnic cooperation and nationhood, farmers from different parts of the country were brought into irrigation schemes (Malawi Government, 2000). At that time, irrigation farmers were exposed to the discipline of intensive production, and the presence of the Malawi Young Pioneers (MYP) was meant to monitor farmers' adherence to the political ideology of the time. Later, in the mid-1990s, irrigation management transfer reforms were promoted; their widely recognized failure was attributed to the failure to articulate

[1] Unity, loyalty, obedience and discipline were the four cornerstones that made Dr Banda's (the first president of the country) political ideology between 1964 and 1994.

history and local context in their formulation and implementation (Nkhoma and Mulwafu, 2004; Ferguson and Mulwafu, 2007). For example, according to Veldwisch et al. (2009), the Bwanje valley irrigation scheme was imposed on the rural communities by the Japanese with a set of foreign dispositions regarding design, technology and management which were at loggerheads with the political and cultural landscape of the valley. As a result, the local inhabitants became resistant to the development, and the scheme could not yield the intended results. A more recent study by Nkhoma attributes the general failure of irrigation projects in Malawi to the adoption by development planners and practitioners of 'green revolution' principles. He observed that most of the projects were developed without due regard to local politics and circumstances in addition to the pursuance of a top-down approach to planning and implementation (Nkhoma, 2011).

Inspired by this analytical framework, the paper interrogates the approach that has governed small reservoir development in Malawi. It argues that the focus on small reservoirs in Malawi is sustained by the existence of multiple actors who have an interest in supporting a discourse over the importance and potential of small reservoirs. What the paper attempts to do is to unravel this 'coalition' of interest, and assess its implication on the development of small reservoirs in Mzuzu ADD. The paper notably argues that small reservoir development hangs on imported concepts and approaches and does not give enough attention to the local context or to national priorities that favour smallholder river diversion schemes over large surface areas.

GEOGRAPHICAL, ECONOMICAL AND ECOLOGICAL CONTEXT

Malawi is a landlocked country of southern Africa. It has a total area of 118,480 km^2 of which 24,000 km^2 are covered by waters of such lakes as Malawi, Chirwa, Malombe and Chiuta. In addition, it has a network of perennial rivers, the largest of which are Shire, south and north Rukuru, Dwangwa, Bua, Linthipe, Songwe and Rivirivi. The rivers as well as the lake shores have littoral flood plains and wetlands with great potential for irrigation development. Over the years, the population of Malawi has been growing at an average of 2.8% per annum. According to the National Statistical Office (NSO) reports, the population had grown from 3.6 million in 1964 to 14.3 million in 2008 (NSO, 2008). According to Malawi Government (2005), 52.4% of the population lives below the poverty line of Malawi while 22% lives in extreme poverty. Close to 84% of the population lives in the rural areas and depends on agriculture for subsistence (Peters and Kambewa, 2007).

Agriculture is the mainstay of the country's economy. It accounts for 35% of the country's Gross Domestic Product (GDP), 85% of its labour force, and 90% of its foreign exchange (UNDP, 2008). The country pursues a dual agricultural structure comprising estates and smallholder farmers. Although 85% of agricultural activities are carried out by smallholder farmers, agricultural policies have been framed in favour of the estates in terms of allocation of fertile land, marketing of crops, and cash crop production (Kydd and Christiansen, 1982; Vail, 1983; Kydd, 1985; Livingstone, 1985; Mhone, 1987; Liebenow, 1987; Pryor and Chipeta, 1990; Peters and Kambewa, 2007). Yet, the country depends on the smallholder farmers for the production of maize, which is its main cash crop.

The country has great potential land for irrigation. It is estimated that over 400,000 ha of irrigable land exists, with the largest sections lying largely along the main lake shores and riverbanks (Malawi Government, 2000), somehow justifying the government priority towards developing run-of-the-river schemes. However, the country continues to depend on rain-fed agriculture, with only 15% of crop production being irrigated. Of the potential of 400,000 ha, 75,460 ha are developed, and only 34% of this is cultivated by smallholder farmers (Wiyo and Mthethiwa, 2008; Mamba and Maweru, 2011). The country has two large irrigation estates where sugar cane is grown and processed for the local and international market. These estates are Nchalo and Dwangwa. The total irrigated area of the two estates is 16,160 ha, while area irrigated by the smallholder farmers is only 7250 ha.

The new irrigation policy advocates the expansion of informal irrigation by smallholder farmers along the stream banks, drainage lines and wetlands that, prior to the new policy, received little public

and scholarly attention (Peters, 2004; Kambewa, 2004; Ferguson and Mulwafu, 2007; Chidanti-Malunga, 2009). Three categories of smallholder schemes exist, namely, informal schemes which farmers collectively develop on their own with limited technical support; semi-formal schemes developed by government but managed by famers on a self-help basis (including small reservoirs); and formal schemes developed and managed by government with farmers engaged more or less as tenants (Njoloma et al., 2009). By 1995, the country had 16 formal schemes, 20 self-help irrigation schemes and numerous informal schemes (Veldwisch et al., 2009). The largest threat to rain-fed agriculture and run-of-the-river irrigation is the recurrence of droughts and floods affecting the supply of water for irrigation. The worst droughts were experienced in 1992, 1994, 1995, 2001, 2002 and 2005 (Syroka and Nucifora, 2010), and with climate change, the country is likely to face further unreliable rains. The recurrence of these droughts coupled with the fact that during the dry season most of the river-diversion schemes cannot be irrigated led donors and researchers to recommend the use of water harvesting techniques such as small reservoirs as a coping strategy (Njoloma et al., 2009), leading to the revision, in 2000, of the irrigation policy.

THE HISTORICAL AND POLICY CONTEXT OF SMALL DAMS IN MALAWI

The idea of developing small dams in Malawi was conceived in the mid-1940s when the colonial government formulated an irrigation policy with the primary objective of reinforcing water and soil conservation (Nkhoma, 2005; Veldwisch et al., 2009). The colonial government constructed small dams as a conservation strategy and also as a source of water for the urban populace as well as for livestock (Malawi Government, 2002). Irrigation around small dams was an 'informal trend' that progressively developed either downstream or upstream of the dams (Kanyenda, 2011; Nyirenda, 2011). Between 1950 and 1964, for example, the colonial government constructed over 750 small earth dams across the country through the Department of Water Affairs and Veterinary Services. The Mwanang'ombe dam which was constructed at Nathenje in Lilongwe in 1964 was the largest of those dams. It had a storage capacity of 470,000 m^3. Of the dams constructed, over 180 were located in Mzuzu ADD. However, the development of these dams was hampered by growing political tension between the colonialists and the nationalists in the country. The nationalists resented the idea of water conservation that inspired the construction of small dams and the coercive measures through which they were constructed (Kalinga, 1993; Mulwafu, 2002).

The post-colonial government was sceptical about developing small irrigation dams. Dr Banda, the first president of the country, and the others who followed him placed more emphasis on the development of run-of-the-river irrigation projects than on small reservoirs. Compared to river diversion schemes, small irrigation dams were seen as expensive to construct and yielding benefits to a limited number of rural farmers (Nthakomwa, 2011; Kanyenda, 2011). Ideologically, the post-colonial government, especially under Dr Banda, did not want to be associated with small dams constructed by the colonial government as those were strongly opposed by the local population and somehow 'embedded' in the colonial power against which the nationalists had fought (Kalinga, 1993; Mulwafu, 2002). Clearly, this shows that small dam infrastructures have an inherently political nature. Irrigation policies developed between 1967 and 1994 attested to this thinking. An irrigation ordinance was formulated in 1968 through which a Settlement Branch was established to facilitate the construction of smallholder irrigation schemes using river diversions (MNA, 1968, 1972; Nkhoma, 2011). Not a single irrigation dam, however, was constructed in the country during this period.

From the mid-1990s, the government began to show some degree of interest in small irrigation dams. Whether this was prompted by the devolution of power from one party to a multiparty system of government or not is unclear. But what is certain is that the reintroduction of multiparty politics opened the door for donors to support irrigation and food security development projects, amongst which were small irrigation dams (Veldwisch et al., 2009). Besides, liberal democracy brought in a new philosophy of stakeholder participation, decentralisation, local empowerment and human rights in the

management of natural resources (Nkhoma and Muwafu, 2004; Ferguson and Mulwafu, 2007). Almost all policies on natural resources were rewritten and new laws were drafted to reflect this thinking. For the first time, a new irrigation policy was drafted which mentioned the construction and rehabilitation of small irrigation dams in Malawi (Malawi Government, 2000). This renewed interest in small-scale dams was also supported by scholarly works (Chitseko, 2008; Mamba and Maweru, 2011). The recognition of small irrigation dams in the mid-1990s also coincided with changes in thinking about large-scale irrigation on the international arena (for instance, WCD, 2000).

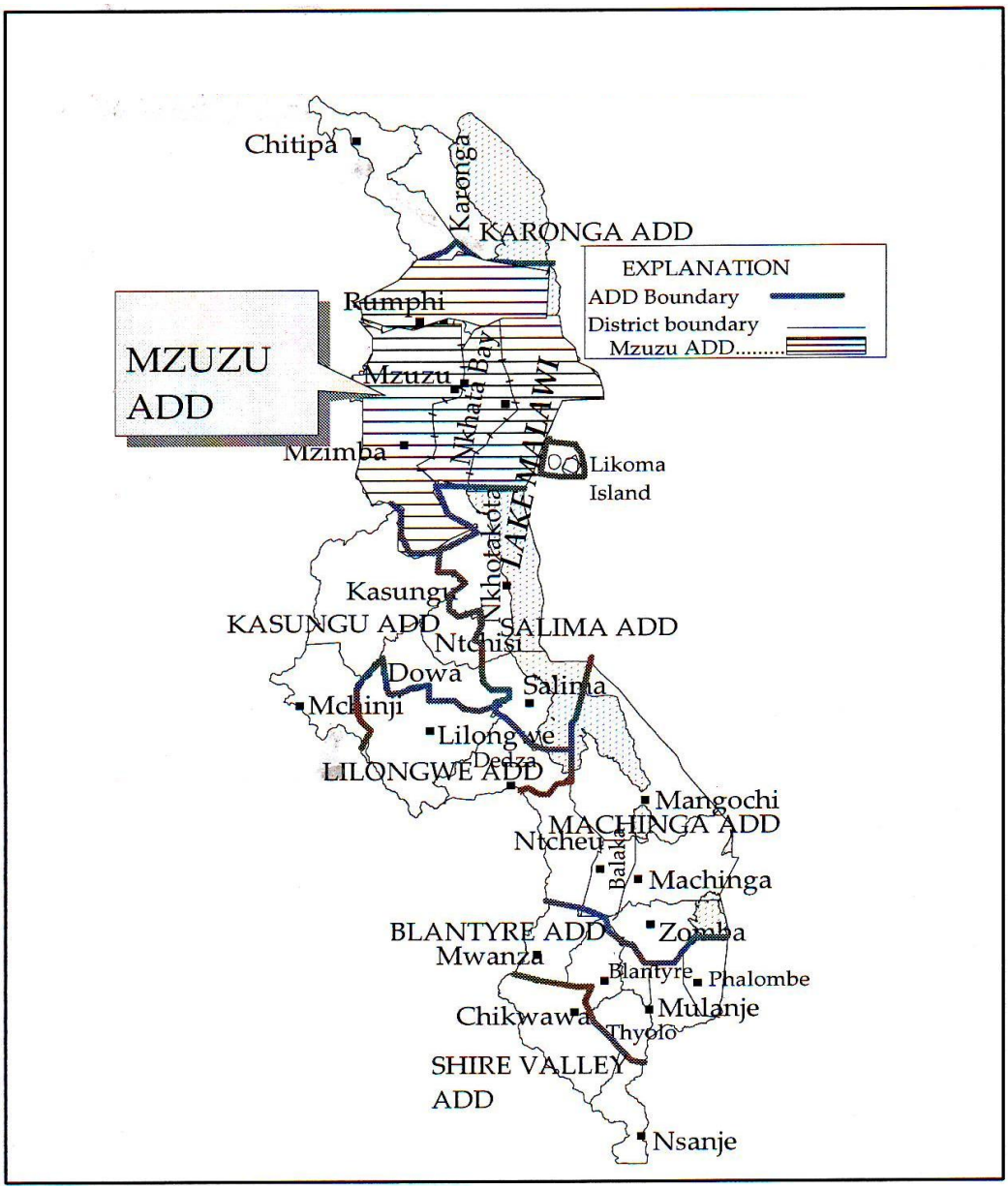
I argue here that the framing of small dams as a strategy for irrigation development did not mark a shift in governmental priorities but was rather a pragmatic move to secure external funding. The government continued to pay more attention to run-of-the-river schemes than small reservoirs. The major item on the new irrigation policy and act was the transfer of the ownership of the 16 public irrigation schemes constructed earlier during Dr Banda's presidency to water users (Malawi Government, 2001). The construction and rehabilitation of small dams was included in the policy with the objective of promoting food security in rural areas. Rehabilitation of dams was crafted with the view of transforming them so that they could serve irrigation schemes since they were earlier meant for water conservation and livestock watering. Irrigation dams were to be transferred to those communities who would be willing to assume full responsibility of operation and maintenance of the dams and the associated schemes (Malawi Government, 1998b, 1999, 2000).

In terms of the implementation of the policy, the government mostly depended on donors, NGOs and faith communities. It acted as a facilitator of development rather than a provider of public services (Malawi Government, 2000; Ferguson and Mulwafu, 2007). Regarding the development of small irrigation dams, Danish International Development Agency (DANIDA), African Development Bank (AfDB) and World Vision International (WVI) were the major actors and financers. In 1994, for example, DANIDA funded a reconnaissance study of the potential and existing small dams in the country, and pledged to fund the construction and rehabilitation of all small irrigation dams through a project known as '*dambo* and dam' project (Malawi Government, 2002; Kanyenda, 2011). The results of the study showed that the country had great potential for the development of small irrigation dams and that a large number of dams had been constructed by the colonial government. However, it noted that most of the dams dried up due to either spillway failure or overtopping of embankments (Malawi Government, 1998a, 2002). The report was of the view that most of the dams were constructed without technical know-how related to small-scale irrigation, and therefore had to be rehabilitated. Drawing from the political spirit of the time, participatory approaches were to be used in the construction and management of small irrigation dams.

SMALL IRRIGATION DAMS: EXPERIENCES FROM MZUZU ADD

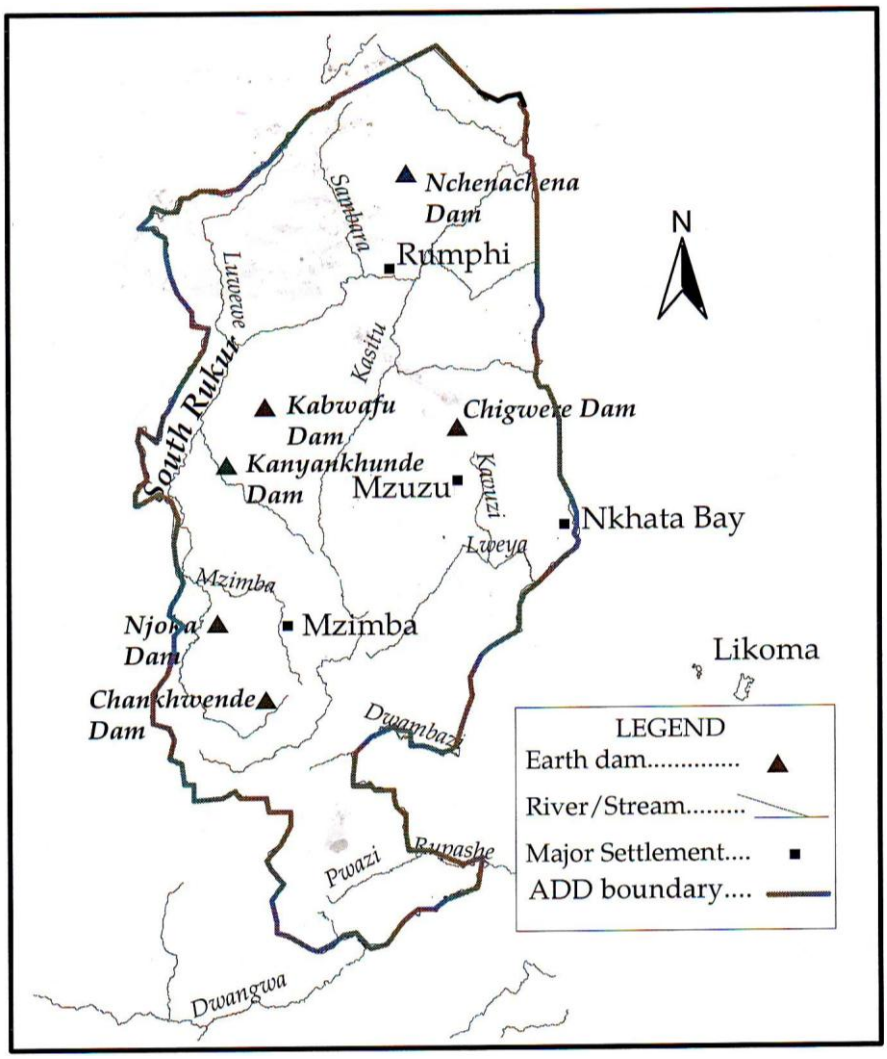
Mzuzu ADD provides an appropriate local context to understand small irrigation dams and the kind of problems that undermined their development in Malawi. The ADD was among the ADDs that were established in the mid-1970s to deal with agriculture and rural development (Nankumba, 1981). In total, Malawi has eight ADDs, namely Shire Valley, Blantyre, Machinga, Salima, Lilongwe, Kasungu, Mzuzu and Karonga. Within each ADD, there is an Irrigation Service Division (ISD) whose role is to coordinate and implement irrigation projects including small irrigation dams. Mzuzu ADD covers the four districts of Mzimba, Rumphi, Nkhata Bay and Likoma. Of these, Mzimba is the biggest. Likoma is an island on Lake Malawi (figure 1).

Figure 1. Map of Malawi showing existing agricultural development divisions.



Mzuzu ADD is bordered by Lake Malawi to the east, Viphya mountains to the south and a dry low-lying zone to the north-west. Owing to its mountainous ecology, the ADD largely receives adequate rainfall. The lake shores are largely made up of literal flood plains, a network of perennial rivers and wetlands, and an ecology that has made the zones conducive to the development of river diversion irrigation and wetland farming. Besides, a good number of wetlands exist in the Henga valley in Mzimba, Mhuju and Nkhamanga valley as well as Hewe valley in Rumphi. It is in these areas that most of the river diversion schemes were constructed, and presently the total number of these schemes is 343 (Malawi Government, 2010). Small irrigation dams appear particularly suited to the north-west dry low-lying land, most of which lies in the largest district of the country, Mzimba. While the mountainous part of Mzimba, for example, receives a higher rainfall, the north-west is dry. This is where most small dams have been built. See figure 2 for more details about Mzuzu ADD in Malawi.

Figure 2. Mzuzu ADD: Location of small earth dams.



Records show that by 1994, when the country started to embrace the idea of small irrigation dams, there were over 180 dams in Mzuzu ADD, though most of these were in a moribund state as mentioned above. As pledged in the reconnaissance study, it remained the priority of DANIDA to initiate the process of rehabilitating these dams. As per government policy, DANIDA attempted to achieve this by engaging the rural communities. The idea was to instil local ownership through participation of the beneficiary communities and the engagement of local committees with whom it would work. However, the degree of cooperation remained limited. Most local communities did not want to be associated with dams that had been constructed by the colonial government. Besides, they did not adhere to the idea of either using the dams for irrigation or mobilisation of community labour (Kanyenda, 2011). The interest of the local inhabitants was to use the dams for livestock watering, fishing and washing, and not for irrigation. Having been associated with an autocratic system whereby rural communities were compelled to do community work for free and by force, the idea of community participation did not appeal to them.[2] Most of them demanded to be paid for the work, which DANIDA on principle was

[2] During Dr Banda's era, community work was coercively enforced, which made such works unpopular. When the country regained multiparty politics, it became difficult to convince people of the values of such community work. Often, they demanded to be paid for such work.

reluctant to do. Consequently, the communities began to withdraw their commitment to the development of small irrigation dams. Further, the project was stopped in 2001 due to political disagreements over issues of corruption with the Malawi Government. The Danish High Commissioner to Malawi accused government of rampant corruption, an allegation which did not please the Government of Malawi.[3] The government responded by closing the Denmark embassy and banished the High Commissioner from the country (Ferguson and Mulwafu, 2007; Kambewa, 2011), leading to the interruption of all collaborative projects.

In 2004, the Malawi Government with funding from the African Development Bank (AfDB) introduced a Horticulture and Food Crop Development Project (HFCDP) whose aim was to improve national and household food security by increasing land under irrigation, increasing agricultural productivity and farm incomes of 8500 smallholder farmers. This was to be achieved, among other things, by rehabilitating 25 small earth dams (Malawi Government, 2004). Seven dams from Rumphi and Mzimba in Mzuzu ADD were among the dams earmarked for rehabilitation through the programme. See table 1 below for details about the dams from Mzuzu ADD that were to benefit from the programme.

Table 1. Dams earmarked for rehabilitation through the HFCDP in Mzuzu ADD.

Site	Irrigable area	Location	District
Kapalankhwale	30	Mbawa	Mzimba
Chidika	18	Euthini	Mzimba
Mbongo	5	Euthini	Mzimba
Chamunya	5	Euthini	Mzimba
Kanyange	15	Manyamula	Mzimba
Kachulu	8	Manyamula	Mzimba
Manyamula	6	Manyamula	Mzimba

Source: Adapted from Malawi Government, 2004.

The table shows that Mzimba was the only beneficiary of the HFCDP project in Mzuzu ADD. Since colonial times, Mzimba has always been the largest beneficiary of small earth dams in Mzuzu ADD. The first reason for this focus on Mzimba is agro-ecological as mentioned above. The second reason is the importance of livestock-rearing for the economy of the district. The dams were therefore constructed as drinking and dipping points for cattle in the area (Kanyenda, 2011). Oral evidence seems to suggest that there were political reasons as well for Mzimba's 'monopoly' of small earth dams. Mzimba is the largest district in Malawi, and is the home of the Ngoni people. Until 1905, the district was not part of the British protectorate. The district became a British protectorate in 1905. Presently, it is the only district that has a chief in the council in the office of the District Commissioner. The present chief of the Ngoni has effectively managed to integrate himself into the political system, and he is always taken on board as chairperson for various statutory bodies in the country. His political connections and position are believed to be used by him to lobby for development projects, among which are small irrigation dams in the district.

The HFCDP phased out in 2007. However, no significant dam rehabilitation works were concluded. One of the incomplete dams was Chidika in Euthini (see figure 3).

[3] Although the government denied the allegation, the Muluzu regime was characterized with cases of corruption, which are still in court.

Figure 3. The uncompleted Chidika dam in Euthini, Mzimba.

Source: Malawi Government. 2010. Mzuzu quarterly report.

There are different accounts regarding the failure of the HFCDP. Local farmers in the area feel that the programme was initiated simply as a political campaign strategy, conceived to woo electoral support from the district during the elections of 2004. Once the elections were over, there was no government commitment to continue with the project (Sichinga, 2011). However, Mzuzu ADD officials suggest structural reasons as the basis for the failure of the projects, such as over-centralisation and poor financial management. Since the project was managed by the Ministry of Agriculture and Irrigation headquarters in Lilongwe, it became extremely difficult to manage and supervise the projects in Mzuzu. At the local level, Mzuzu ADD was equally heavily understaffed and underfunded to effectively monitor and supervise the project; for instance, most of their vehicles were down (Kanyenda, 2011; Nthakomwa, 2011).

In addition to the HFCDP, several projects were initiated to construct and rehabilitate earth dams in Mzuzu ADD. Between 2007 and 2010, World Vision Malawi provided funding to rehabilitate Emazwini and Katikwi dams located in Mzimba and Rumphi, respectively. Upon completion, Katikwi was to irrigate 5 ha of land benefitting over 50 farmers. Rehabilitation of Katikwi was successful, but the one at Emazwini in Mzimba did not take off. The inhabitants from Emazwini rejected the project because they were not keen to contribute towards the project or be involved in irrigation as was required by World Vision (Nthakomwa, 2011).

In 2008, the government launched a 'one-dam-one-district' project in which it pledged to construct at least one dam in each district of the country. The contractor assigned for this work in Mzuzu ADD abandoned the works half done in 2009. The problem was that the government was unable to pay the contractor on time. Oral sources suggest that the idea of 'one-dam-one-district' was rather a campaign slogan aimed at wooing support for the 2009 presidential and parliamentary elections. However, farmers from Chigwere took advantage of their scheme and unofficially cultivated 10 ha of maize in the scheme. In 2010, the government assigned the work to another contractor who has completed the work at Chigwere, and is yet to complete the construction of the dams at Luvwere and Mbirizi. Now Mzuzu ADD has six small irrigation dams namely, Njoka, Kanyankhunde, Chankhwende, Kabwafu, Chigwere and Ntchenachena. The first four are in Mzimba, the filth and sixth ones are in Nkhata Bay and in Rumphi. Of the six schemes, Kabwafu and Chigwere use motorized pumps for irrigation. The gross irrigable area for all the small dams is 116.7 ha of which 64.6 have been cultivated by 466 farmers.

Gravity-fed systems and water pumping have been adopted as irrigation technologies in these schemes. See table 2 for the details of the small irrigation dams in Mzuzu ADD.

Table 2. Dam-based gravity-fed irrigation schemes.

District	Name of dam	Type of scheme	Gross area	Irrigated area	Male farmers	Female farmers	Total farmers
Mzimba	Njoka	gravity	20	16.4	42	29	71
	Kanyankhunde	gravity/pump	41	22	50	32	82
	Chankhwende	gravity	7.5	5	25	25	50
	Kabwafu	pump	1.2	5	10	5	15
Rumphi	Ntchenchena	gravity	38	11	60	71	131
Nkhata Bay	Chigwere	pump	9	12	40	77	117

Source: Adapted from, Malawi Government, 2010.

PROBLEMS AFFECTING THE DEVELOPMENT OF SMALL DAMS IN MZUZU ADD

As noted above, the development of small dam irrigation is fraught with a lot of problems and challenges. The first problem is lack of proper coordination of different actors in the provision of small dams in Mzuzu ADD. Officials from the ADD complain that there are a lot of NGOs working in the area and that most of them do not consult them, a scenario which results in the compromising of standards of dam construction, and circulation of conflicting messages to local farmers (Kanyenda, 2011). Sometimes, some projects are controlled from central government in Lilongwe without adequate use of officials from Mzuzu ADD, and this leaves the ADD with limited power to monitor their progress.

The second problem is lack of political will to promote small irrigation dams. Government funding towards small irrigation dams is minimal, and there is no capacity building programme in Mzuzu ADD. This has also to do with government priority which, at present, remains the promotion of the river diversion scheme. Unfortunately, donors have entrusted the government with the construction of small dams, and are expecting the government to deliver. Related to the above, over-dependency on donors for development programmes is a major issue. One of the problems is the time-bound nature of donor's funding. In the absence of any real political support to small irrigation dams, the sustainability of the projects is problematic when donor support phases out or is pulled out. This explains why most of the projects introduced have remained dysfunctional in Mzuzu ADD.

At the local level, limited local ownership, conflicts over the uses of the dams, and local politics are major issues. Despite the emphasis on community participation, local inhabitants still feel that the dams are the property of the providers. Because of this mentality, they are not willing to contribute towards their operation and maintenance; instead, they want the implementing agencies to maintain and rehabilitate the dams for them (Chibambo, 2011). The underlying reason is that they perceive projects as being imposed on them. Where small dams were demanded by the local communities, the feeling is that inadequate consultations were made with regard to dam siting and future management. The local committees formed to oversee the affairs of the dams are also at a loss about the issues of ownership. Often, they look up to the implementing agencies for support.

Regarding conflicting usages, these are grounded on different priorities of the diverse actors involved. Conflicts over the use of dams occurred at three levels. First, there are conflicts between implementing agencies and the local communities. Often, local communities accuse implementing agencies of prioritising dams on irrigation at the expense of what they perceive as pertinent uses such as livestock watering, fishing, bathing as well as rain-fed agriculture. In Mzimba where cattle are the backbone of its economy these accusations are critical. As noted above, some communities rejected

dam projects wholesale due to this prioritisation of dam use to irrigation. As regards farming systems, the local communities are used to rain-fed technology and not irrigation. Most of them consider irrigation to be labour-intensive as they have to work on the scheme all year-round. Consequently, they straddle between working in the schemes and upland gardens. Oral sources suggest that farmers are relatively more committed to upland gardens than to small dam irrigation schemes (Botha, 2011). One reason for such behaviour is the limited income farmers are able to secure from irrigation as they are allocated small-size plots. Second, and related to the above, there are conflicts between irrigation farmers on the schemes constructed around the dams and those who are not irrigation farmers but want to use the dams for livestock watering and drinking and for other domestic functions. Irrigation farmers claim to be legitimate users of the dams, and thus accuse cattle farmers and fishermen of wasting water that is meant for irrigation. These conflicts also affect the arrangement that the water users should be contributing towards the maintenance of the dams. However, the cattle farmers and fishermen, claim that since the colonial period and before rehabilitation, the dams were meant for livestock and fishing. They feel that irrigation farmers rob them of their rights over the use of the dams. Third, there are conflicts between upstream water users, irrigation farmers at the dams, and downstream water users. It should be noted that most of the dams were constructed on rivers. Water from the river goes into the dam and then released for downstream users. Conflicts arise when up-stream dam users divert all the water from the river thereby depriving the dam users and those downstream of the dam water. Dam users are often accused of having a monopoly of water at the expense of the downstream dam water users (Botha, 2011).

The growth of these conflicts over the use of water reflects two deficiencies of the 1999 Water Act which governs water rights in Malawi. First, the act has provided for multiple use of water once a dam has been constructed without putting any mechanism for the regulation of multiple users to minimise conflicts over use of water (Malawi Government, 1999). Second, the act provided for the formation of a Water Resources Board to give licence to water users to abstract water from water sources, and yet the Board does not have the capacity to enforce and police water rights as most of the water users do not have water rights (Mamba and Maweru, 2011).

Finally, local politics have tremendous impacts on small irrigation dam development and outcomes. They manifest themselves largely through increased interference of local leaders in the construction and management of small irrigation dams. During the construction of Kanyankhunde dam, for example, the local communities could not agree on the location of the dam. Each of the three villages – Kamkondo, Mchema and Philipo, wanted the dam to be in their village. It took the intervention of the Traditional Authority and the District Commissioner for Mzimba for them to come to terms (Sichinga, 2011). In most schemes, cases of local leaders trying to dominate and dictate on issues related to dam management were common, a situation which undermined the work of local committees elected to oversee the affairs of the dams (Chibambo, 2011).

CONCLUSION

The above account demonstrates that small irrigation dams should not be simplistically seen as a panacea to the problems associated with large-scale irrigation dams. Problems of top-down and externally driven planning, lack of attention to national and local interests, over-dependency on donors and low commitment of the government, lack of local ownership of facilities, local politics, conflicts over the uses of dams, corruption and negative perceptions related to the colonial history of small dams, some of which made large-scale infrastructure unpopular in the 1990s, affect the development of small irrigation dams in Mzuzu ADD. The major underlying problem is that the development of small irrigation dams remains mostly externally driven; this affects the degree of commitment and participation by government and local communities. Indeed, the government priority seems to be on river diversions that are seen as being more productive, cost-effective and benefitting a larger number of rural farmers than small irrigation dams that 'make sense' only in specific areas where water is scarce

and the cattle economy significant. As a result, of the 200 small dams constructed in Mzuzu ADD, only six are functional, irrigating a dismal 64.6 ha of land and supporting a total of 466 farmers out of a population of over 700,000.

The apparent failure of small irrigation dams in Malawi raises questions on the widely held views by most donor agencies that 'small is beautiful', productive, self-sufficient, and that small dams will benefit a multiple of other functions to the local communities in addition to irrigation. It is clear from the above account that small dam projects like any other development in the world is technically expressed but politically and socially shaped by incentives, interests, institutions and ideas in local settings. The design of projects is a continuously contested and negotiated process among various actors and institutions, and is only completed by the ability of the actors to adapt the project to local conditions. Success, therefore, should be seen as a function of the ability of the actors, especially implementing agencies, to develop adaptive learning towards the competitive, conflicting, and dialectical relation that often arises in the process of implementation. It is actually the failure of implementing agencies to develop this adaptive learning that has undermined the success of small irrigation dams in Mzuzu ADD.

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