
Article:
Harrison, EA and Mdee, AL orcid.org/0000-0002-8260-1840 (2017) Size isn't everything: narratives of scale and viability in a Tanzanian irrigation scheme. Journal of Modern African Studies, 55 (2). pp. 251-273. ISSN 0022-278X

https://doi.org/10.1017/S002227817000027

Size isn't everything: narratives of scale and viability in a Tanzanian irrigation scheme

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* This article is based on research funded by the DFID-ESRC Growth Research Programme, grant reference EJ/JOO9415/1.

ABSTRACT

This paper explores tensions over scale and viability in irrigated agricultural development in Tanzania. A revival of ambition to transform African agriculture has reawakened debate over what type of agriculture can best deliver increased production and poverty reduction for rural populations. This paper examines these debates through the lens of an ethnographic study of an irrigated rice farm in Tanzania. With a chequered history of state and donor intervention management, Dakawa, Rice Farm in Mvomero District is now collectively farmed by a co-operative society of 'small farmers'. It is widely hailed as a success, both of irrigation production, and of 'small farmers' in delivering this However, such narratives of smallness and success obscure a more complex reality in which smallness of scale may be more of a discursive tool than a reflection of empirical reality.. Although notions of 'viability' and 'success' in such development interventions are themselves also contested and depend on perspective, there is evidence that there are fundamental problems of both short and long term viability.

INTRODUCTION

Debates about scale in African agriculture are undergoing something of a renaissance. Should 'smallholders' be supported as a key to growth and poverty alleviation? How can their productivity be improved and is this the right area on which to focus development efforts? This paper contributes to these debates through examination of their particular relevance to irrigation development, and specifically to the privileging of 'smallholder' irrigation schemes. We argue that the focus on 'smallholders' is too often at the expense of understanding the social and political processes that shape variations in scale of farming. Indeed much discussion focuses on the economics of smallholder agriculture without really unpacking either the problems in

understanding what the term ‘smallholder’ implies, nor the variations in social context that surround it. The ethnographic evidence for this argument comes from a donor-supported irrigation scheme in Tanzania: the Dakawa irrigated rice scheme. The USAID ‘Feed the Future’ initiative is currently investing in a range of projects on the scheme to increase rice productivity. In Dakawa the idea is that a collective of ‘small farmers’ is brought together in a large-scale operation. However, there are problems of both efficiency and sustainability. In addition, it appears that discourses of ‘smallness’ may also be being adopted by different actors in support of their own interests - a finding which resonates with established arguments about the function of narratives in international development (Cornwall and Eade 2010, Roe 1991).

This paper arises from research that set out to explore the politics, organization and moralities of small-scale irrigation, and involved fieldwork in Malawi, Bangladesh and Tanzania. In the course of this, it became evident that approaches that examine these only at a local level can miss the complex intersection between ‘local’ forms of organization and national and international contexts. In addition, it is clear that formality itself is an important element of attempts to garner resources, particularly land and water.

Our account of Dakawa allows us to explore the ‘smallness’ of the farmers and to consider the extent to which the scheme is able to support the transformatory outcomes that are hoped for by the donor. The research followed a multi-method ethnographic approach comprising a survey of 115 farmers in June 2013 on aspects of livelihoods, agricultural practices and water use. Farmers were selected randomly during transect walks in Dakawa village. This was followed by repeated semi-structured interviews with 25 farmers (purposively selected to cover a range of plot sizes and gender) and selected key informants from the Chollima Rice Research Station, Wami-Ruvu River Basin Office, Mvomero District Council and Sokoine University of Agriculture, ,the farmers’ cooperative, UWAWWAKUDA, the USAID funded NAFAKA project and other microfinance organisations working in Dakawa. In addition, focus group discussions with groups of farmers

(conducted on an ad-hoc and opportunistic basis) and participant observation were also used to explore issues in more depth.

In what follows we first revisit the debates around scale in African agriculture before going on to explore how these are played out in the specific context of irrigation. We then turn to the case of Dakawa, exploring the contested realities of both smallness and viability.

SMALLNESS IN AFRICAN AGRICULTURE AND IRRIGATION

Among donors and policy makers, the potential of 'small-scale' agriculture for poverty alleviation is widely supported. This is perhaps not surprising; because so many smallholder farmers are so poor, it is assumed that supporting them will address poverty. This position was established particularly strongly in the World Development Report of 2007, which stated that:

> Smallholder farming – also known as family farming, a small-scale farm operated by a household with limited hired labor – remains the most common form of organization in agriculture, even in industrial countries. The record on the superiority of smallholder farming as a form of organization is striking. Many countries tried to promote large-scale farming, believing that smallholder farming inefficient, backward, and resistant to change. The results were unimpressive and sometimes disastrous. State-led efforts to intensify agricultural production in sub- Saharan Africa, particularly in the colonial period, focused on large-scale farming, but they were not sustainable…. Countries that promoted smallholder agriculture – for various political reasons – used agriculture as an engine of growth and the basis of their industrialization. (World Bank, 2007:91)

Building on this position, the Alliance for a Green Revolution in Africa (AGRA) has stressed the importance of smallholders and their vulnerability (AGRA 2014, 2015). Funded in large part by the Bill and Melinda Gates and Rockefeller Foundations, AGRA aims, among other things, to double the incomes of 20 million smallholder farmers by 2020. USAID's Feed the Future Programme is also about supporting smallholders, as is the African Union's Comprehensive Africa Agriculture Development Programme (CAADP). A detailed report from the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security further sets out the case (HLPE 2013). The HLPE report notes that the definition of smallholder is complex and that size of plot farmed alone is inadequate as a definition. It suggests that a smallholding is 'small' because resources, especially land, are scarce. Notwithstanding these complications, the HLPE concludes by calling for a 'new deal for smallholders' on the basis that they make up the majority of farmers and are vital for food security:

> Historical evidence shows that smallholder agriculture, adequately supported by policy and public investments, has the capacity to contribute effectively to food security, food sovereignty, and substantially and significantly to economic growth, the generation of employment, poverty reduction, the emancipation of neglected and marginalized groups, and the reduction of spatial and socio-economic inequalities (HLPE 2013: 12)

2014 was also the 'United Nations International Year of Family Farming'. This

> …aims to raise the profile of family farming and smallholder farming by focusing world attention on its significant role in eradicating hunger and poverty, providing food security and nutrition, improving livelihoods, managing natural resources, protecting the environment, and achieving sustainable

development, in particular in rural areas. http://www.fao.org/family-farming-2014/home/what-is-family-farming/en/

Lastly, IFAD has been an important promoter of smallholders, stating that its main clients are 'poor smallholder farmers' (IFAD 2014). In 2012, IFAD launched the Adaptation for Smallholder Agriculture Programme (ASAP). This aims to increase the capacity of 800m smallholder farmers to withstand poverty, including the effects of climate change. By 2014 it had received $357m in pledges, including from DFID and seven other bilateral donors. For IFAD, farmers as not just victims of climate change but 'a vital part of the solution' (IFAD 2014: 6).

These current policy positions build on a long-established academic debate about the relative strengths and weaknesses of 'small' and 'large' scale farming in sub-Saharan Africa and in particular whether support to such farming is the best way of alleviating poverty and achieving growth in agricultural productivity (Lipton 1977, Poulton et.al 2010, Woodhouse 2012). The debate has been traced back to Kautsky (1899), who asked in The Agrarian Question: 'is there a need and justification for agricultural policies that specifically support smallholder agriculture?' (Birner and Resnick 2010: 1442). Kautsky concluded broadly that 'no, there is not', and that what is important is how to find ways to ensure that small-scale farmers can make a transition away from this. However, this position has been challenged over the years, especially in the work of Schultz in 1964 and agrarian populists such as Chayanov (1926), both of whom argued that smallholders are more efficient than larger scale operations.

The debate has seen a recent revival, especially in the light of discussions about property rights, land reform and land 'grabs'. Certainly, size matters when it comes to some justifications for large scale land appropriations on the basis of 'unproductive' smallholder agriculture (Peters 2013). As Manjengwa et.al (2014) suggest, this centres on the fundamental question of 'Who will make the

best use of Africa's land?' Will it be large scale capital as supported by President Obama and the G8's s New Alliance for Food Security and Nutrition, or smallholder agriculture, as promoted by Kofi Annan's Africa Progress Panel? On the one hand there are those who argue strongly for support to smallholders, for example through subsidies, albeit with caveats about their constraints and capabilities. An important manifestation of this perspective is a collection of papers published as a special edition of World Development on the Future of Small Farms in 2010. The argument goes that the small farms' efficiencies lie in their ability to command family labour and their lower transaction costs for labour (Hazell et al. 2010, Lipton 2010, Poulton et al 2010). In addition, because smallholders constitute such a high proportion of the poor in sub-Saharan Africa, the argument is that assisting them will have inevitable knock-on effects for poverty alleviation (Wiggins et.al 2010). Although constraints and problems are acknowledged, in particular the challenges of marketing and technical capacity faced by African smallholders, and their relative lack of productivity compared to those in Asia, the conclusions about support to smallholders are generally positive.

On the other hand, these perspectives have been challenged, most recently and trenchantly by Collier and Dercon (2014) who suggest that their evidence base is weak, both in terms of arguments about efficiency and of the pro-poor implications of a focus on smallholder agriculture. Collier and Dercon suggest that, to the contrary, there needs to be an openness to different modes of production, and particularly to the possibilities of such smallholders moving out of agricultural production altogether, including through migration. Others raise related queries. For example, Harris and Orr (2014) also question the consensus that equitable growth should be based on smallholder agriculture on the basis of the fact that in sub-Saharan Africa, many farms are becoming so small as to be unviable (a point also noted by Wiggins et al 2010). Lastly, from a Marxist perspective, Sender and Johnson (2004) and Byres (2004) have criticized the populism of calls for support to the 'small family farm'. They take particular exception to the social justice implications of the view that such farms are efficient, precisely because they rely on family labour:

‘The viability’ of most family farms in rural Africa is predicated on compulsion, either exercised by men over the labour of women, younger men and destitute kin, or enforced by acute risks of starvation that necessitate the severe exploitation of all family labour’ (2004: 148).

On the face of it, there are similar debates over scale in the context of irrigation. For example, Fujiie et.al (2011) investigate scale economies and diseconomies of irrigation projects. Contrary to the arguments of Inocencio et al (2007) who suggested that the larger the scale of irrigation the lower the unit cost, they argue that there are strong scale economies for small and micro-projects. Similarly, Sakaki and Koga (2011) suggest that small-scale irrigation projects that are promoted as ‘participatory integrated rural development’ (PIRD) are important for poverty alleviation and food security. Burney and Naylor also see small-scale irrigation as important for ‘breaking the cycle of low productivity and precipitating a sustainable escape from persistent poverty in sub- Saharan Africa’ (2011:111).

However, beyond these similarities, the questions of scale are somewhat different for irrigation than those for agriculture in general. And these differences illuminate some of the broader problems in focusing on scale at the expense of understanding what ‘smallness’ actually means. As Cousins (2013) notes, the terms ‘smallholder’ and ‘small-scale farmer’ are somewhat imprecise and used inconsistently. They also tend to imply that such farmers are relatively homogeneous as a group, thus obscuring both the important differences between different ‘small-scale’ farmers (Aliber and Hall 2012) and ‘the causal processes through which inequalities emerge’ (Cousins 2013: 118).

When it comes to irrigation, smallness is generally seen to be about who is undertaking the irrigation and how they are organized. While it is easy to recognize that ‘large scale’ implies corporate/big business or state control of irrigation, ‘small scale’ is less clear, but tends to imply individual farming households, sometimes organized in groups. Here, their smallness lies in their limited productivity and equally limited ability to command both capital and labour. However,

although ‘informal’ (and in some cases extremely long-established) irrigation is widespread in SSA, much small-scale irrigation takes place in ‘schemes’. Indeed, in policy discourse, such schemes dominate and ‘informal’ practices are largely ignored, possibly because they are less easy to regulate (Woodhouse 2012). Irrigation schemes are areas of land, separated from residential plots, in which farmers are brought together - by state, donor or NGOs. They are especially common for the production of both rice and maize. Farmers gain access to them through joining formal organizations, paying fees, and observing formal rules. Small-scale irrigators are therefore not the ‘dispersed’ actors that smallholders are often characterized as in the broader literature (e.g. Poulton et.al 2010), but rather come together around the central focus of the scheme. While such schemes can be many hectares in size, they are characterized as small-scale because it is assumed that the farmers who access them are smallholders in that the plots they control are relatively small – and their smallness also equates with a poverty that the irrigation scheme is seeking to alleviate.

The schemes may aim to reach thousands of farmers. So, the scheme may be ‘big’, but the farmers are ‘small’. Or are they? Pellizzoli (2010) reports on a 30,000-hectare scheme in Mozambique in which, unusually and as a result of historical factors such as male-outmigration, women have the majority of plots. A recent pressure to promote a new ‘green revolution’ through stressing commercialization and efficiency is, ironically, threatening to harm women’s security of tenure and access to land. This example alerts us to the importance of a more nuanced account of who smallholders are and how this changes with pressures towards commercialization and formalization that often accompany irrigation schemes.

Some 25 years ago Adams (1990) argued that what is important is not so much the scale of irrigation schemes but the nature of their bureaucratic control – and hence about how access is mediated. In his case, focused on irrigation development in Kenya, he argued that the success or failure of irrigation is determined largely by whether schemes were initiated and controlled by farmers or the state, and that the more bureaucratically controlled they were, the poorer such

schemes performed. These arguments gain increased pertinence as contemporary narratives of small-scale take place alongside those of enhancing productivity. It is thus important to consider, not just size, but also who is able to access land and water and under what conditions? How are claims to land shaped by constructions of either history or contemporary narratives of efficiency, productivity and formal organization? As Berry (2009) has pointed out, mounting anxieties about and competition for land in Africa, and an increased concern to clarify property rights, have tended to undermine rather than increase security of tenure. How does this work in the context of irrigation schemes? Because schemes so obviously bring farmers together, it is very easy to develop misleading assumptions about commonality and, in the process, to pay less attention to the processes that shape inequality, or to how the use of narratives of smallness may obfuscate such processes.

The case of Dakawa Rice Farm illuminates many of these complexities. To some degree it also gives us a picture in microcosm of the evolution of agricultural growth and transformation narratives in Tanzania: from the state-led national co-operative to the donor-supported independent co-operative. The ways in which narratives of scale have been articulated, and the much more complex reality behind them, also resonate with past and current debates about the role of 'peasants' within Tanzanian development, in which 'peasants' (who are generally equated with small-scale farmers) have been presented as both the solution to Tanzania's agricultural development problems, and also in need of modernization and commercialization.

This history goes back over many years. How to transform agriculture in Tanzania (and previously Tanganyika) has been a recurring theme in colonial and post-colonial discourse and has been well documented, for example by Coulson (2013), Edwards (2014), Ponte (2002) and many others. The dominant narrative that continues into the present day is one in which the small-scale must be improved and transformed for the benefit of the national economy.

This perspective continues to be manifested in Tanzania in a recent series of policies and programmes. In 2006 the Agricultural Sector Development Programme was launched in response to the 1999 Tanzanian Development Vision 2025, which aims to transform the country "from a low productivity agricultural economy to a semi-industrialised one, led by modernised and highly productive agricultural activities" URT (1999:1). This has been followed by Kilimo Kwanza in 2009, the Southern Agricultural Growth Corridor (SAGCOT) (2010) and most recently, by Big Results Now (2012). These policies tend to privilege the commercialisation of small-scale agriculture through easing the conditions for partnerships with new agribusiness partners, but often without a robust and fair plan for how the transition is to occur (Berguis 2015).

So, narratives of smallness are both dominant, though contested, among policy makers, and rendered more complex in specific national contexts. The history of Tanzania, in which notions of an idealised peasantry have been challenged by discourses of modernity and transformation, alongside considerable contestation over access to resources is one important illustration of this. In the next section, we turn to how this is played out in the context of Dakawa.

SMALL FARMERS IN LARGE SCHEMES: THE CASE OF DAKAWA

The Dakawa Rice Farm is a 5000-acre, formerly bankrupt, state farm in Tanzania. It has been the site of repeated aid interventions by a series of donors. The latest incarnation of this is in the form of the USAID Feed the Future initiative. A 2013 article in The Nation newspaper shows clearly how it fits neatly into the narratives of smallness described above:

Box 1: A narrative of aid supported salvation for the small farmer

As in most of Tanzania, the majority are desperately poor, subsistence farmers. Nearly all of them farm tiny plots, growing barely enough to feed their families, if that, and few have any substantial surplus to bring to market.

One exception is the Uwawakuda irrigation cooperative farm. More than 900 Tanzanian farmers, including 414 women, have banded together to farm a 5,000-acre spread whose productivity is fed by a pumping station and irrigation system that provides underground water to the farm. Originally installed three decades ago during the era of Tanzania's president and founder, Julius Nyerere, the pumps are creaky now, and thanks to a grant from the US Agency for International Development (USAID) new ones are being installed. It's a star attraction for USAID's Feed the Future program. According to the local officials who run it, the American help will rebuild the pumps, pave an access road, and rehabilitate the drainage canal that supplies the network of rice farms in the complex. In addition, USAID has put in place a model farm that teaches members of the coop the best practices in rice farming. A phalanx of women farmers greet us as we arrive at the model farm, singing and clapping and performing a series of original songs they've prepared for the occasion, and one of them, Victoria, with tears in her eyes, describes a litany of gains she's been able to achieve as a member of the relatively prosperous coop, with USAID's assistance (Dreyfuss 2013: http://www.thenation.com/blog/173078/letter-tanzania-iv-visit-morogoro#)

Built by the North Koreans in 1981, the scheme has never operated at full capacity. It does not, as the statements above suggest, draw underground water, but it depends on the flow of the Wami River. Even at the time of completion the Wami River couldn't manage a sufficient flow of water to fill the large irrigation canals, as noted also by USAID (1984). Situated around a three hour drive from Dar-es-Salaam, close to the city of Morogoro, and on the main road to Dodoma and the national parliament, it is said by some to be the ideal location for local politician and aid industry photo opportunities. As one key informant told us: "All the world is coming to Dakawa- even the Queen of Denmark has been there" (Key informant interview, 2013)

This status as an aid hotspot is also newly reinforced by the presence of a 65 hectare Chinese Agricultural Research Facility built in 2010. This is staffed by Chinese scientists and its walls are adorned with pictures of a smiling President Kikwete shaking hands with the Chinese Ambassador.

Dakawa is currently under the control of Ushirika wa Wakulima Wadogo Wadogo Dakawa (translated as Society of Small Farmers in Dakawa), and known by the acronym UWAWAKUDA. The excerpt above presents UWAWAKUDA as a creation of small farmers coming together to work co-operatively, using the rehabilitated large-scale scheme. Like other donors discussed above, USAID's current focus is on enhancing the productivity of small-scale farmers. This type of scheme is one way of attempting to achieve this through a large infrastructure scheme, in a collectivisation of small farmers. The narrative device in the publicity frames the Dakawa farmers as representative of poor subsistence farmers who, by their spontaneous 'banding' together, (and with a little help from USAID) are able to bring their surplus rice to market. The tears of the women give emotive force to this tale of aid-supported salvation for the small farmer.

In order to interrogate what is happening in Dakawa we need to understand three things: first, how did UWAWAKUDA come into being and how does it operate? Second, who are the small farmers in Dakawa and what makes them small? And lastly, what is behind the claim that Dakawa is a viable way to increase the production of the 'small' farmers? In what follows we explore these three questions, drawing on both documentation and fieldwork interviews.

To turn first to the history of the farm and its current operation, it is perhaps not surprising that the current operating arrangements for Dakawa Rice Farm are the latest in a succession of attempts to manage it. As already mentioned, the irrigation canals and pumping station at Dakawa were built in 1981 with aid from North Korea, and operated originally as a state rice farm under the National Agriculture and Food Corporation (NAFCO) (Chachage & Mbunda 2009). NAFCO collapsed in 1996 and the farms under its control were sold or transferred to the Parastatal Sector Reform Commission (PSRC). Reportedly the farm was unused for a period of ten years before this. In 1999, the PSRC ordered that the farm be handed over to Dakawa village. In the period that followed a localised attempt at rehabilitation was led by the 'group of six': a group of powerful regional officials from government, the police and army. In collaboration with the local Village

Council this group operated the farm as an informal alliance. Key land allocations and decisions on pumping water were controlled by the group of six, through their patronage of the Village Council. Individual farmers operated the plots and paid a share of the electricity costs for water pumping. Our interviews suggest that this was a cause of much local dissatisfaction. Both farmers and current UWAWAKUDA management reported that the farm operated for the benefit of the wealthier (non-resident) farmers who could simply call up the pumping station workers and direct them to divert the water to their own plots. As one key informant told us: 'the farm did not work well in this period. There was chaos as one of the big shots could simply call up from Dar and demand that his blocks should be watered' (Key informant interview, May 2013). By 2003, the then District Commissioner ordered that the farm be divided between the Village Council, Government Officers (including the Chollima Rice Research Institute based in Dakawa) and the organisation led by the group of six (DAKOP). This led to the collapse of DAKOP and the emergence of UWAWAKUDA.

The first (2003-5) and second chairs (2006-8) of UWAKAKUDA were replaced after two years as local dissatisfaction with water allocation and access to plots continued.

"At this point the Village Council decided that they wanted to take control of the farm and they installed [X] to become the Chair of UWAWAKUDA. Another conflict emerged because water availability became more scarce and people who paid their money to get the plot didn't get any. There was a lot of conflict about money as it seems the money paid to the society was not deposited in the bank. Therefore some people took the matter to the Ministry of Agriculture and Co-operatives and they conducted an investigation". Farmer interview, October 2013

Following the investigation, the UWAWAKUDA Chairman was removed and the current leadership, all appointed by the Ministry, were installed for a period of 3 years to get the farm back on track. Therefore the current chair of UWAWAKUDA is also an Agronomist and employee of the Chollima Rice Research Station. This Chair continues in control of UWAWAKUDA at the present time, and appears to have enabled the recent flows of funds from donors.

This complex history can be understood as being about local struggles for control over the Dakawa Rice Farm as a productive development resource. It is important also to recognise that what is apparently a village-centred struggle also links to regional and national politics and draws in interest groups from further afield than Dakawa. We have explored the contestation over water resources in the Wami-Ruvu River Basin in an earlier working paper [reference withheld for reasons of anonymity]. Competing narratives are constructed to legitimate the water claims of local residents, the River Basin Office, district government and urban water authorities. At the macro level, the Wami-Ruvu Basin supplies drinking water to the city of Dar-es-Salaam and is therefore the most politically charged river basin in the country. Dar-es-Salaam is chronically short of water and media and civil society pressure on politicians is intense. This has been played out in attempts to evict farmers in the nearby Uluguru Mountains for their 'illegal' use of water for irrigation (Mdee et al. 2014). In the context of Dakawa, the Wami river is under intense pressure from declining rainfall and increased upstream extraction pressures, including commercial agricultural projects. The Director of the Wami-Ruvu River Basin Office admitted that although they issue permits to water users, they have no capacity to regulate and measure water use. The management of Dakawa Rice Farm is well aware of this and believes that greater regulation of extraction is required to protect the future viability of the farm, but there is currently no institutional mechanism in place in Tanzania to resolve this issue.

In addition the land around Dakawa is also the site of struggle. Much of the land was state-controlled ranch land (Chachage & Mbunda 2009) and current ownership of the land is not clear and the subject of much local speculation. There is certainly evidence of large scale farming and the names of national politicians crop up in many interviews as the owners of these lands. There is also long term conflict between pastoralists and settled farmers (http://allafrica.com/stories/201403060136.htm l).

This history also allows us to contextualise the everyday practices of the current UWAWAKUDA. UWAWAKUDA is a cooperative society under Tanzanian law but is also recognised as an official Water User's Association (WUA). This gives it a legal right to draw water from the Wami River. UWAWAKUDA operates as a membership organisation. Members must purchase 10 shares to join the organisation. At the time of the research, each share cost 10,000Tsh (£4). However, whilst UWAWAKUDA is constituted and presented as a society of small farmers, it is actually currently controlled and operated by a manager who is also an agronomist at the Chollima Rice Institute and therefore an employee of the Ministry of Agriculture and Food Security. Some farmer interviewees suggest a great deal more satisfaction with this arrangement than the previous period: 'Since they took over, water has not been a problem and our productivity has improved' (Farmer interview, October 2013).

However there are others who feel that the current management is 'political' and can be traced back to the political struggle between the party of government (CCM) and the opposition party (Chadema): 'The last Chairman was removed for political reasons, he was a Chadema chairman. Now the current Manager is also the CCM secretary. It is my belief that UWAWAKUDA does not benefit the real residents of Dakawa' (Farmer interview, October 2013). The evidence from the interviews suggests that, although the current management of the scheme has been relatively stable, it is not fully accepted and local politics continues to play a role in how the farm is operated. This is very similar to the process of contestation and elite capture noted elsewhere in

Tanzania in operation of water users' associations (Cleaver & Toner 2006). In both cases, local power brokers compete for control over the development project. One group alleges mismanagement by the previous administration and that they represent the 'real' villagers.

Turning now to the question of 'smallness', what does this mean in the context of Dakawa? As we have noted, smallness is defined through a quantitative assessment a of cultivated land , and the need to rely predominantly on household labour in order to undertake this cultivation. UWAWAKUDA rules, state that each member can farm a maximum of 12 acres, and for each acre they must pay 60,000Tsh (£24) per year to cover the costs of pumping water and operational overheads of UWAWAKUDA. Within the society itself, sub-groups of small farmers can also take on a 12acre block and divide it between themselves . The size limit on plot cultivation is designed to guarantee access for the 'small farmer'.

Current membership of UWAWAKUDA is reported to be just under 1000 farmers. However, these figures cannot be verified as UWAWAKUDA membership records are not publicly available, even to the USAID contractors working on the productivity enhancement programme (NAFAKA). It has been suggested by key informants that access to member lists is neither open nor transparent. One interviewee went so far as to say that in reality many 'farmers' are simply 'labourers' on other people's land: 'we know that most of those farmers in Dakawa are just working on other people's land' Key informant interview, October 2013

There is certainly evidence from informal interviews and observation that during the active farming season (March-July) the population of Dakawa swells to accommodate the migrant labourers working on the farm. Interviewees talked about how the population dramatically increases in the planting and harvesting seasons: '…the restaurants are full and people are spending money. Labourers are coming from all over Tanzania to work here' (Farmer interview, October 2013). Our survey also suggests a large degree of variation in cultivated land (from 1-26 acres) with an average of 3.5 acres per farmer. However, our survey is limited in this regard as it

only captured data from those farmers who are resident in Dakawa for the whole year. Therefore it missed those who own plots but live outside of Dakawa and those migrant labourers who are temporary residents.

Whilst the 12-acre block-sharing arrangements may allow access to land to smaller-scale farmers, they also have their own problems as farmers sharing a block may be at different stages of the planting cycle or be using different methods, and so disputes over when to allow water over the fields can occur. Block sharing groups have to resolve these conflicts internally, with variable outcomes. For example, one farmer told us that 'We have worked with each other for some time and so we know how to co-operate!' But his neighbour countered that: 'we don't trust each other because everyone is looking after their own interest. Although we might be talking and sometimes do things like ploughing and harvesting together, deep down no one trusts anyone'. (Farmer interviews, October 2013)

It was also reported that some individuals control several blocks by registering them under the names of different family members: 'The rules say that one person cannot have more than 12 acres (one block) but in reality there are some who just use the names of family members, you may find a baby who has a large plot of land' (Farmer interview, Sep 2013). Furthermore it has also been asserted that large blocks of land are controlled by individuals working in government and the armed services as they were throughout the recent history of the farm: 'When the Regional Commissioner wants his plots watered, then all he has to do is to call up the office'. (Farmer interview, October 2013) Our survey could not capture these larger landowners as they are not resident in the village. They also would not admit to multiple registration of plots as this is against the constitution of UWAWAKUDA.

It is not therefore easy to say the extent to which Dakawa Rice Farm is 'small-scale' production. But we can be fairly certain that the Dakawa farmers are not a homogeneous group. In our survey the average irrigated landholding was 3.5 acres but total landholding covered a range of 1-26

acres. But the evidence from Dakawa also shows us how limited survey data can be in pinning down smallness. It only captures those farmers resident in Dakawa and does not include the larger farmers resident in urban Morogoro. Farmer interviews which assert the presence of large landowners from the political class are corroborated by interviews with NAFAKA staff and other key interviewees. A Professor from Sokoine University of Agriculture who has observed Dakawa Rice Farm since its creation observes: 'there are no small farmers in Dakawa'. Whilst there are certainly some smaller scale farmers involved in using the land, even these farmers must be able to procure resources to pay their membership and for inputs. There is competition for plots and interviews suggest that the poorest Dakawa residents struggle to gain admittance to the scheme at all and their farming is confined to the rainfed land in the rest of the village.

Therefore it is difficult to say whether UWAWAKUDA provides a collective solution for small farmers to benefit from large scale irrigation infrastructure, or if larger farmers (local and regional elites) have maintained their control over the Dakawa Rice Farm, but have leveraged in support from donors through the use of a small farmer narrative. It is likely that the reality is that UWAWAKUDA is a mixture of the two and perhaps, necessarily so. Clearly, to characterise Dakawa as a benign 'banding' together of similarly poor farmers is far from accurate.

One illuminating illustration of how slippery the 'smallness' tag is, is provided by a female farmer, Mrs Veronica Urio, whom we have not anonymised, given her prominence in publicity materials. She is featured in several publicity web entries for the USAID intervention, including the one quoted above. One USAID publicity report suggests that she has 6 acres, another 12. For example:

One of the Feed the Future programme is progressive farmers programme which two women with 6 acres are receiving farm implements and other extension services support. In her testimony as one of the beneficiaries of the Feed the Future progressive farmers' beneficiary's farm, Mrs Veronica Urio and

another colleague whose farms are six acres said that she was proud of the support extended by the USAID. (http://dailynews.co.tz/archive/index.php/local-news/6284-farmers-association-wins-us-praise.)

Plots of 6 acres would make Veronica a relatively large farmer in Tanzanian terms. The 2011/12 Household Budget Survey gives a figure of 5.6 acres as the mean holding for a Tanzanian mainland household, and 67% of households have plots of less than 5.99 acres (URT 2014:74). Therefore even if Veronica has only 6 acres, then this gives her more land than two thirds of those on the Tanzanian mainland. Nonetheless, Veronica is characterised in publicity materials as a small farmer, who, on being given seeds, tools and knowledge, was able to transform her production for the sake of her family. Another press released states:

'While visiting with Victoria (sic) Urio, a progressive farmer who reported a 73 percent increase in her rice harvest as a result of Feed the Future interventions, the Ambassador stated, "The important work you do here has the potential to feed not just Tanzania, but all of Africa; Tanzania has more than enough land and water to become a bread basket for the region." Veronica and her husband, Anaeli Urio engaged in a small experiment for their harvest this year. They each have 12 acres of land and Veronica planted the rice using the training, hybrid sees, and enhanced technology she learned through Feed the Future, while her husband used the traditional method of planting. Veronica usually gets about 2.2 tons of rice per acre and this year she reaped 3.8 tons per acre—a substantial increase. Her husband's harvest remained the same, with no increase. He intends to apply the technology and training to increase his yield next season.'
http://feedthefuture.gov/article/us-ambassador-tanzania-inspired-feed-future-activities

These 12 acres for each husband and wife, would put the household in the 4.4% of Tanzanian mainland households who have more than 20 acres (URT:74). A landholding larger that 95.6% of

the rest of the mainland population can hardly be characterised as small. Our own conversations with Veronica suggest that she farms multiple plots (in different family names) and has taken out significant bank loans to do this. She gives the impression of being (and is viewed by others) as a successful and dynamic entrepreneur rather than an impoverished small-scale farmer. Her gender is important too: the press release is able to contrast the dynamism and success of her farming with the 'traditional' and less successful methods adopted by her husband. This fits in with other narratives of female farmers being the saviours of African agriculture (Cornwall et.al 2008, O'Laughlin 2008).

Yet at the same time, Veronica presents herself as a small-scale farmer struggling against bigger players (namely government employees). As she told us:

> There are rumours that next season each farmer will pay almost double per acre as compared to last season. It is expected to exceed 100,000Tsh per acre. This will be a disaster to most of us. If we don't pay the expected amount then we will be considered ineligible and our land will be granted to other people- for that land access for us small farmers is not guaranteed. Interview, September 2013

Veronica's case is arguably rather singular and atypical; it might be argued that if there are not many others like her, then her case does not undermine the smallness narrative. After all, perhaps there are many 'real' small-scale farmers at Dakawa? We would suggest that, to the contrary, this case is a very strong illustration of the strength of narratives, imagery and stories over whatever might be termed 'reality'. Veronica Urio crops up so regularly in the publicity materials that it is arguable that the reality of her smallness as a farmer - or otherwise - does not trouble USAID. What is more important is strength of the story that she embodies. It is these that enable them to

claim the success of Dakawa, regardless of what might in fact be the case in terms in of long-term viability.

Finally we turn to the question of whether a scheme like Dakawa offers a viable means to collectivise and 'transform' small-scale production. As Cousins and Scoones (2010) have noted, notions of 'viability' are (like smallness), used to justify and support particular policy positions and theoretical perspectives; for example the 'viability' or otherwise of land redistribution will depend on both whose viability is prioritised, and on whether viability is being assessed from a perspective of neoclassical economics, agrarian populism, Marxism, or something in between. Policy positions reflect a combination of political and commercial vested interests and different understandings of the value of different forms of organisation of rural production. Accepting this argument, our understanding of viability is therefore rooted in concerns both about the realities of absolute scarcity of resources, particularly water, and a contested politics of access to this. Such a politics operates at local, and national and international levels.

In theory, the model of a small farmer cooperative benefiting from a large-scale infrastructure investment is an attractive one. And on the surface the USAID NAFAKA intervention is successful as all of the data suggests that it has improved the production of improved the production of rice. As one farmer told us: 'Production is now so high, it has even doubled or tripled as compared to some seasons ago. This is due to the use of modern methods such as transplanting' (Farmer interview, September 2013). However, this has not necessarily led to significant improvements in income as the same farmer goes on to report. "In the last season we were getting up to 100,000Tsh per bag of rice, but in this season we only received 45,000-50,000Tsh per bag" (Farmer interview, September 2013). Farmers need to access credit to fund the membership fees and the upfront costs of production. This is heavily promoted by a Dakawa Rice Farm partnership with microfinance company, Opportunity Tanzania, whose agents visit the

farm. Some farmers suggest problems with repayment, especially given declines in the sale price of rice.

Even with the price decline, survey data shows that farmers cultivating between 1 and 10 acres of rice in the Dakawa scheme were making some profit (Mdee 2014). In this sample there was a net profit of 385,000Tsh (£154) per acre. These farmers considered this to be insufficient reward for their own labour and reported a considerable decrease from the previous year. There is a however a wider problem in the national rice market, which Therkildsen (2012) argues has reached saturation point for local rice and therefore the price has declined. Illegal imports of rice via Zanzibar are also said to depress the price of local rice. Dakawa Rice Farm itself also has a marketing problem. A rice-milling machine purchased by the JICA TANRICE project was reportedly sold to a private investor, and the smaller (plot sharing groups) Dakawa Farmers are trapped into selling to whoever comes to Dakawa to purchase their crop. Wealthier farmers have the means to take their rice to market directly.

There are also problems with the longer-term economic viability of the Dakawa Rice Farm. Interviews and sight of accounts suggest that the membership contributions from farmers are unable to fully fund the costs of pumping water to the scheme, staff costs, or for further investment in storage or milling facilities (Mdee 2014). The HISA (membership) payment by farmers to UWAWAKUDA cannot cover the costs of electricity to run the water pumps or the salaries and operating costs of UWAWAKUDA. The need to raise more funds is openly discussed by the Chairman of UWAWAKUDA and is what gives rise to the rumour that the membership contributions will need to rise, and raises fears over the future profitability of production.

All of the water for the Dakawa Rice Farm is taken by pumping station from the Wami River, which flows along the boundary of the farm. According to the accounts and stakeholder interviews, UWAWAKUDA pay 15 million Tsh (£6000) per month) TANESCO for electricity each month. Another USAID-funded project is underway to rehabilitate and install new pumps in

the pumping station to make this operation more efficient. Interviews suggest that this project is has been delayed for three years by political wrangling over contracts. Aid has plugged the gaps in the scheme, which is not independently sustainable from members' contributions (Mdee 2014). This is of relevance if a scheme like the Dakawa Rice Farm is seen as a vehicle for the transformation of agriculture.

A final, and perhaps the most significant, factor in doubting the viability of Dakawa as a self-sustaining scheme is the declining level of the Wami River. Dakawa has the technical capacity to produce two crops of rice per year. However, it cannot do so at present as the level of the Wami is only sufficient in the wet season. We have noted elsewhere [reference held for reasons of anonymity] that there are weaknesses in the functioning of the Wami-Ruvu River Basin Office (WRRBO) in effectively regulating the extraction of water. The situation with the Wami reinforces our arguments. There are many registered water users upstream from the Dakawa Rice Farm (including large sugar and bio-fuel plantations), but the amount of water that they extract is not measured or known by the regulatory authority. The localised and decentralised system of regulating water users appears unable to hold larger users to account. Whilst the Dakawa-based representative of the River Basin Office suggested that declining rainfall lies behind the decline of the Wami, it is likely to be a combination of both this and increased extraction. There is some meteorological evidence for a decline in annual rainfall in the downstream areas, but not in the mountains where the Wami originates (Mdee at al 2014).

There therefore appear to be several threats to the viability of UWAWAKUDA and the operation of the Dakawa Rice Farm. The first issue of processing and marketing might be assisted to some degree by improved storage, marketing and sales capacity in the organisation, as is argued by the current management. However, issues of pricing in the rice market and the lack of water available to the scheme are problems that require resolution at a level beyond the farm itself.

CONCLUSION

In this paper, we have discussed both a narrative of successful small-scale farming and a more complex reality that gives rise to questions about both scale and success. So what is a small-scale farmer? The case of Dakawa confirms that 'small-scale farmer' is not a self-evident category. Rather, farmers in a scheme such as this combine those controlling varying size of holding and with varied ability to access resources. There is considerable lack of clarity and rumour about the detail of this, which may well include capture by elites and is certainly about the politics of resource access. It is clearly a possibility that many supposed small-scale farmers are predominantly labourers on others' land. However, importantly too, smallness is shown to be a narrative device that is supported and makes sense for all sorts of different actors. For donors such as USAID it fits within a broader discourse of helping the weak and is used as an important publicity device.

As has been noted elsewhere (e.g. Cornwall et.al 2008), such 'myths' can be important mobilising devices as they enable generalization through the repetition of imagery and symbolism: in this case the laughing and clapping women that have been empowered through the assistance of the donor-supported programme. Such figures have become 'stock figures of mythical narratives – simple but dramatic stories, told in somewhat esoteric language, recited repeatedly by people by powerful voices' O'Laughlin (2008: 42). In our example, the powerful voice is that of USAID, which is building on the dominant narrative of smallness that has become an important orthodoxy for development organisations working in sub-Saharan Africa – sometimes at odds with the emerging policy narrative of the Tanzanian state. In neither case is there necessarily a reflection of 'reality'. Arguably too, such narratives are also used because they are conceptual shorthand that is simpler to work with than the complexities of social and political arrangements. This is an observation that has been made in relation to the use of key and charismatic individuals in development stories over many years (Crewe and Harrison 1998).

For farmers such as Veronica Urio, the narrative fulfils a similar function of supporting ideas of success, though it is clearly also meaningful for her. Ironically, Veronica also fits another narrative; that of the larger-scale and more entrepreneurial farmer that might also be an employer and contribute to increased national production. For some, she might epitomise what is seen as an ideal trajectory for small farmers as they capitalise and expand their operations. This is, as we have suggested, something that has been strongly supported by the Tanzanian state. But it is in contradiction to the narrative of smallness. It is also the case that the desire for the commercialisation of the small-farmer tends to neglect the barriers to incorporation in the market of poor subsistence farmers and privileges commercialised agricultural production.

And then there is the other element of the discussion we outlined in the introduction: assuming the category of 'small-scale farmer' makes sense, what is their value? Should they be the subject of support from donors and/or governments because of their significance and productivity? The case of Dakawa does not of course give us a definitive answer to these questions.. But what is clear is that there are very real issues of profitability and viability of this particular scheme. The issues of profitability reflect the challenges faced by farmers in terms of pricing and markets. Viability is partly about financial viability. But it is also closely related to the broader national politics of resource access in which a limited resource such as the Wami River is subject to competing claims. These are not in principle irresolvable, but in practice are not resolved because of institutional incoherence and weaknesses at both local and national levels.

In Tanzania, both pre and post-colonial visions of transformation have relied on wishful thinking and hope rather than on the realities of small-scale production. Therefore policy and implementation have never been coherent. Booth (2012) suggests that 'policy driven institutional incoherence' is often a feature where the state is lacking in implementation capacity and relies on co-production with other actors (NGOs, Donors, Private investment) to produce public goods. This can easily lead to problems of co-ordination and even contradiction in policies pursued by

different organisations. Therefore, although national agricultural policy in Tanzania seems to have been quite single minded in pursuit of the 'modernisation' of the 'small farmer', it has never managed to build agricultural or irrigation institutions capable of the transformation it desires.

So perhaps dichotomies such as 'small-scale' versus 'modern/commercialised agriculture' – and the publicity narratives that perpetuate them - are missing the point? Instead, it may be more important to interrogate more systematically not only the ways in which agricultural production is organised and the role of power and access to markets in this, but also the pay close attention to the ways in which this intersects with agro-ecological realities such as access to water. As Woodhouse (2012: 790) has pointed out, African rural communities are increasingly 'made up of a variety of more or less mobile populations, probing the political economy in which they live'. In this, there are winners and losers, which are overlooked in the narratives of smallness favoured by many policy makers.

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