

Policy and Institutional Framework: Implications in Support of Effective and Efficient Use of Water Resources in Tanzania



The core objective of water-smart agriculture (WaSA) combines the best available knowledge and experience on rainfed systems (green water) with the development of surface and groundwater irrigation (blue water) to achieve an optimal balance for farmers. Promotion of the WaSA concept focuses on effective and efficient use of water resources.

Water-smart agriculture as an organizing concept has evolved from a comparative semantic of climate-

smart agriculture (CSA), which was pioneered by FAO (FAO, 2013). Virtually, WaSA encompasses conventional agricultural water management practices—predominantly in the rainfed and smallholder irrigation systems. Water-smart agricultural practices broadly include soil-water conservation, water harvesting, and development of underground water.

WaSA technologies are mainly meant to upgrade the productivity of rainfed agriculture. Policies and

institutional frameworks that have implications on sustainable development of WaSA practices are worth assessing.

Objective

The overall objective of the paper is to highlight and create awareness among readers and planners on the existing policy and institutional frameworks for sustainable development of WaSA.

Methodology

The paper is based on a desk review of both published and gray literature and draws on expert micro-level case experiences on the adoption, implementation, and outcomes of water-smart agricultural practices. The central focus is on highlighting policies and institutional frameworks that have implications on sustainable development of WaSA.

Water-smart agricultural practices are addressed in three major blocks: soil and water conservation (SWC) practices including minimum tillage, deep tillage, mulching, terracing, ridging, and grass trips and stone bunds on the contours; water harvesting (WH) mainly for supplemental irrigation, which include runoff harvesting, and water harvesting with storage such as ponds, micro-dams, tanks and cisterns; and groundwater development (GWD) covering groundwater recharge and extraction practices.

The policy and institutional frameworks envisage sectoral and mainstream policies and enacted legislations, regulations, and organization. On the other hand, the policy framework entails a “continuum” of sector policies, strategies and plans, programs and projects. In this paper, the word “policy” will be referring to sector policies excluding strategies, programs, and projects. Policies for water-related sectors were reviewed. For climate change, the agriculture climate resilience plan was reviewed.

Water-smart agriculture explains how smallholder farmers can manage the little water resources they have to cope with the uncertainties associated with rainfed production systems. It builds farmers’ resilience to deal with the growing uncertainty in

rainfed production systems, combining rainfed farming with sustainable small-scale irrigation from surface and ground sources (IWMI, 2014).

Water-smart agriculture – a landscape of policies

The landscape of policy and institutional frameworks that affects WaSA in the context of agricultural water management in smallholder agriculture was illuminated in three rather distinct policy periods. The policy periods were arbitrarily defined to guide insights on the implications of policies and institutional frameworks on agricultural water management over time. The approach extends a framework used by Tumbo *et al.* (2007) in assessing the policy and institutional frameworks governing agricultural water management in Tanzania.

The study period of 1985–2014 was split into three distinct policy periods: 1985–1996, 1997–2005, and 2006 to date (Table 1). The period from 1985 to 1996 is characterized by major moment-defining political and policy events, which included gradual implementation of structural adjustment programs including the decreasing role of the state in the market due to economic liberalization and the first multiparty election. The period from 1997 to 2006 involved the formulation of key agriculture and water-related policies and legislations—the Agriculture and Livestock Policy of 1997, Land and Village Land Acts No. 4 and 5 of 1999, the Water Policy of 2002, and the Environmental Management Act of 2004. The period from 2006 to date is marked by the start of a second-term political tenure, which advanced with economic reforms that mainly involved privatization of public investments, including irrigated farms, the Irrigation Policy of 2009, and the Agriculture Policy of 2013. Following a growing discourse on climate change agenda, the National Climate Change Strategy of 2012 and the Agriculture Climate Resilience Plan of 2014 were developed. These policy frameworks including others have had implications on WaSA in the context of agricultural water management.

Aside from showing the policy trend, it is imperative to highlight the reviewed water-smart policies that are operational currently. These include the Land Policy (1995), Environmental Policy (1997), Water Policy (2002), Irrigation Policy (2009), Agriculture Policy (2013), and the Agriculture Climate Resilience Plan (2014).

Generally, Tanzania’s policy direction is toward supporting irrigation as a strategy to transform agriculture (Box 1). This is a good move since the country has not exploited its full irrigation potential. However, attention to modern irrigation is likely to scoop much of the budgetary resources at the expense of other agricultural water management approaches that have historically received limited public investment, such as soil-water conservation and rainwater harvesting.

Key institutional frameworks

Legislative frameworks

Water laws

All the waters in Tanzania are vested in the United Republic. The main water legislation was the Water Utilization Act of 1974, which deals with allocation of water among the different users. The Act was amended in 1981, 1989, and 1999. The exclusive rights to use water belong to those who have water rights granted under the Water Utilization Act. Two recent legislations that govern water resources include the Water Resource Management Act No. 11 and the Water Supply and Sanitation Services Act No. 12, both of 2009. The Water Resource Management Act is comprehensive, covering most of the issues

Box 1: Selected ambitious agriculture development targets

6%	Annual growth target for the agriculture sector Tanzania Agriculture and Food Security Investment Plan (TAFSIP), CAADP
10%	Allocation to the agriculture sector from national budget Kilimo Kwanza, Maputo Declaration, CAADP
100%	Food security in terms of food self-sufficiency Tanzania Vision 2025
7 million	Area (ha) under irrigation Kilimo Kwanza

Source: Agriculture Climate Resilience Plan (2014).

related with water resource management; it is thus more relevant to WaSA.

The Water Resource Management Act sets out systems for managing the growing demand for water

Table 1. Evolution of policy and institutional frameworks over time.

Policy	Key elements/features		
	1985 – 1996	1997 – 2005	2006 – to date
Agriculture Policy, 1983	<ul style="list-style-type: none"> ◆ Dominance of public sector control in the economy ◆ Overemphasis on irrigation (narrow definition of agricultural water) ◆ Land conservation not designed for moisture conservation ◆ Environmental sustainability not explicitly underscored 	-	-
Agriculture and Livestock Policy, 1997	-	<ul style="list-style-type: none"> ◆ Increased engagement of private sector ◆ Irrigation still emphasized to upgrade and stabilize agriculture and animal production 	-

Policy	Key elements/features		
	1985 – 1996	1997 – 2005	2006 – to date
Agriculture and Livestock Policy, 1997	-	<ul style="list-style-type: none"> Integrative management of natural resources expressed (land, soil, water, and vegetation) 	-
	<ul style="list-style-type: none"> Environmental sustainability emphasized Conflicts between farmers and pastoralists highlighted 	-	-
National Agriculture Policy, 2013	-	-	<ul style="list-style-type: none"> Specific issues on climate change underscored Irrigation emphasized Rainwater harvesting promoted Water use efficiency emphasized Integrated and sustainable utilization of agricultural land protected and promoted Gender-equitable land tenure governance promoted
Water Policy, 1991	<ul style="list-style-type: none"> Government considered as sole investor, implementer, and manager of water projects On the issue of water for environment, 'the voiceless' sector, not accorded importance Agricultural water management marginally addressed compared with domestic water supply 	-	-
Water Policy, 2002	-	<ul style="list-style-type: none"> Paradigm of integrated water resource management came into play Economic and institutional instruments for water management expressed for increased water use efficiency, sustainability and equity (water permits, pricing, water user associations) Water allocation system distinguished and water use permit separated from land title 	-

Policy	Key elements/features		
	1985 – 1996	1997 – 2005	2006 – to date
-	-	<ul style="list-style-type: none"> ◆ Water for environment emphasized ◆ Rainwater harvesting for both crop and livestock production emphasized ◆ Stipulated roles of the Basin Water Office (basin approach in water administration) 	-
National Irrigation Policy, 2009	-	-	<ul style="list-style-type: none"> ◆ Strong emphasis on irrigation development ◆ Promoted rain water harvesting-based irrigation, e.g., runoff diversion ◆ Upgrading of infrastructure in traditional irrigation ◆ Emphasis on registered irrigator associations ◆ Equitable access to irrigated land addressed
Environmental Policy, 1997	-	<ul style="list-style-type: none"> ◆ Water use efficiency in irrigation, control of water logging and salinization considered ◆ Protection of catchment areas, wetlands emphasized ◆ Afforestation through tree planting strongly emphasized ◆ Environmental protection and water pollution underscored ◆ Land husbandry through soil erosion control and soil fertility improvement emphasized 	-
Land Policy, 1995	<ul style="list-style-type: none"> ◆ Customary land rights secured in law ◆ Presidential power over land underscored (President can revoke any right of occupancy for the public interest) ◆ Demarcation and protection of agricultural land ◆ Women's access to land guaranteed by the law 	-	-

Policy	Key elements/features		
	1985 – 1996	1997 – 2005	2006 – to date
-	<ul style="list-style-type: none"> Customs and traditions over land access and rights hold if they are not contrary to the constitution and repugnant to principles of natural justice 	-	-
Agriculture Climate Resilience Plan, 2014	-	-	<ul style="list-style-type: none"> Rain water harvesting promoted Increased water use efficiency Catchment protection and conservation
-	-	-	<ul style="list-style-type: none"> Improved soil, water and land management Conservation farming

through integrated planning and management of surface and groundwater resources. The Act assigns local water user associations to foster water resource management on the ground by helping in the implementation of water policies and enforcement of related legislations. Through the IWRM framework, the water user association can help protect catchments and water sources.

Tanzania is a country with legal pluralism, meaning that the legal system is composed of statutory and customary laws. In many parts of rural Tanzania, statutory water legislations have existed parallel to customary laws for many years. These traditional systems are deeply rooted and often quite functional, particularly in areas of conflict resolution, water resource and catchment protection, and water allocation among different users (Sokile *et al.* 2005).

The unwritten and flexible nature of customary law implies the complexity of application. Contrary to land rights, customary water rights have never earned recognition under the law in their unwritten or informal status.

Application of statutory laws governing water management at the grassroots level has never been smooth under different circumstances. Subjecting local users to water rights and fees as per statutory law requirement is incomprehensible to local users. The local communities think that they are not supposed to seek user permit or pay fees for water, which is a God-given resource.

A number of examples show conflicts between traditional users and those with formal water rights as in the case of the Lower Moshi Irrigation Scheme where the project had a water right that was contested by traditional users upstream (Tumbo *et al.*, 2007).

Land laws

This analysis focuses on land tenure and gender relations as they logically affect WaSA. Access to agricultural water is subject to access to land. Therefore, tenure arrangements that govern access to land are very relevant in sustaining WaSA. Also, a gender perspective of land access is critical in order to comprehend the position of women who are major actors in the smallholder farming sector.

Land tenure is defined as a bundle of rights that a person may possess with respect to a piece of land. Such rights prescribe what the person can or cannot do on the land, including means of access, disposal, and exclusion. Restrictions on these rights impinge on one's security of tenure on that piece of land, while unrestricted continuous use and disposal rights enhance them (Isinika and Mutabazi, 2010).

Since Tanzania has embarked on economic liberalization in the mid-1980s, there have been deliberate efforts to induce land reform so that the prevailing land tenure is consistent with the ongoing economic transformation.

Consequently, a number of steps have since been taken to guide the land reform process. First, in order to address the increasing number of land conflicts, a presidential commission of inquiry into land matters was established in 1991 to, among other things, review policies and laws, which were then in force and recommend for their improvement. The reform process continued, with a new land policy in 1995, based on which two new land laws were enacted in 1999. Land Act No. 4 of 1999 covers general land, while Land Act No. 5 of 1999 addresses land that falls within village boundaries. The latter is specifically intended to cover customary law. Under this law, security of customary tenure is assured by issuance of a customary land certificate, thereby giving equal status to both granted and deemed rights of occupancy. The land laws stipulate that all land is public land under the trusteeship of the president, and this public land is categorized into general land, village land, and reserved land (Land Act No. 4, section 4 of Fundamental Principles of National Land Policy, Village Land Act section 5). Some people argue, however, that such equality cannot exist since village land can be transferred into general land by order of the president (Isinika and Mutabazi, 2010).

Both the land policy and the land laws sought to improve the ownership rights of women. Authorization must be sought for any act of excavating, abstraction, drilling, draining, or disturbance of water resources. By implication, where statutory law. However, the same policy and laws also recognize ownership and administration of land under customary law, which is the most dominant in rural areas. In 1992 it was estimated that about 82% of the land in Tanzania was administered under customary law (Tibaijuka and Kaijage, 1995). It is widely known that these laws do not work in favour of women; especially in as far as ownership and transfer rights are concerned. The Village Land Act No. 5 of 1999 protects access rights to land under both customary and statutory laws, not only by women but also other disadvantaged groups such as youths and people with disability. The Land Act No. 4 of 1999 safeguards gender rights land mortgaging arrangements as the lenders should not discriminate applicants on gender basis.

Despite that women can access land, lack of secured land ownership can limit adoption of water-smart agricultural technologies with long-term investment such as terracing. Empowering women economically

remains to be another pathway through which women can own land acquired through exchange in the rural land markets.

Environmental management laws

The environmental management policy was made available in 1997 and the law to enforce it came seven years later. Meanwhile, enforcement of environmental management issues was done in a fragmented manner under diverse legislations. In 2004, the Environmental Management Act (EMA) came into play, to enforce environmental management in a more coherent manner. It is imperative to underpin the hotspot legal narratives legal in the EMA that imply on the EMA.

The authorities are responsible for the environmental matters are mandated to issue guidelines and prescribe measures for protection of water bodies – rivers and lakes. In most cases, the top-down environmental governance is problematic when the grassroots resource users are either not aware or possessed guidelines are not compatible with reality on the ground.

The EMA prescribes that a permit or prior Authorization must be sought for any act of excavating, abstraction, drilling, draining, or disturbance of water resources. By implication, where guidelines and prescribed measures do not comply with. Considering the circumstances of local water users, this law might deny water access by farmers, which will further undermine the adoption and development of WaSA technologies.

Every applicant for a water use permit issued under the relevant laws governing management of water resources, abstraction, and use of water shall be required to make a statement on the likely impact on the environment of the use of water requested. A mere smallholder farmer is not in a position to know the impact that he/she may cause as a result of his/her act of using water.

Basin water boards that mandated to issue water permits indicating the extent of compliance by water use permit holders—e.g., returning the water after its use to the body of water from which it was taken, ensuring that water that is returned to any specified source is not polluted. The practicality of such conditions, of returning flows which are free from pollution, is questionable mainly because the

Basin Water Office (BWO) lacks the capacity, mainly in terms of staff and budget, to monitor and analyze pollution levels among sparse users dominated by unregistered water users (Tumbo *et al.*, 2007).

Regulatory frameworks

Establishment and functions of the Basin Water Office

The BWO and its mandate envisage a critical regulatory framework for WaSA at the agro-landscape scale. Tanzania had already adopted a river basin management approach for water resource management in the 1980s. BWO is declared to be the body responsible for water administration. The mandate is to enforce and follow-up on existing legislation, regulations and operating rules governing water use and control of pollution; become the legal authority to collect the various water use fees; facilitate the establishment of lower level water management organizations, which will bring together users and stakeholders of the same source; and become centers for conflict resolution in water allocation, water use, and pollution (URT, 2002).

National Environmental Management Council

The National Environmental Management Council (NEMC) is the legal regulatory body for environmental management. The role of NEMC was made more explicit and inclusive in the Environmental Management Act of 2004. The Council was mandated to undertake enforcement, compliance, review, and monitoring of environmental impact assessment and, in that regard, facilitate public participation in environmental decisionmaking, exercise general supervision and coordination over all matters relating to the environment assigned to the Council under this Act or any other written law. NEMC works through the regional secretariat and the local government authorities, which ensure participation of local organs in one way or another. The village environmental management Committees of each village shall be responsible for the proper management of the environment (Tumbo *et al.*, 2007). However, NEMC has been more evidently visible at the national level dealing with industrial pollution by large corporations. The presence of NEMC at the grassroots with smallholder land users is less vivid.

Organizational framework

Tanzania is divided into nine river basins that do not follow administrative boundaries such as regions and districts. The main levels of water administration and planning are national, basin, district, and community or user level.

At the national level, the ministry responsible for water oversees water resource governance. The central level is responsible for developing, disseminating, monitoring, and evaluating the National Water Policy of 2002. At the water basin level, the BWO oversees water administration at the basin scale, covering catchments and sub-catchment units in its area of jurisdiction.

At the district level, the district councils under the local government administer and govern water resource at catchment and subcatchment units. The district has a district irrigation development team that oversees irrigation issues, including rain water harvesting-based irrigation. Although not specifically formed for managing water, wards influence water management considerably.

The ward development committees frequently pass bylaws that impact on sanctions and penalties that seek to guide water allocation and quality. Ward councilors represent community members who elected them into power in the district council and mobilized communities toward the formation of water user associations (Tumbo *et al.*, 2007) or irrigators' organizations. The village is the lowest legal organization in Tanzania. Each village has 25 elected representatives to form the village council. The village council operates through three mandatory committees—the Finance, Economic and Planning Committee, the Social Services and Self-reliance Committee, and the Law and Order Committee. Water subcommittees fall under Social Services.

Conclusions

The policy landscape indicates that agricultural water has been for decades viewed under conventional irrigation. This narrow policy outlook on agricultural water management has denied meaningful attention in terms of public investment to other agricultural water management practices such as rain water harvesting and SWC that are of much relevance in the context of smallholder-based WaSA. Even the

policy attention that such technologies gained in the mid-2000s seems to ebb with the renaissance of modern irrigation under grand government initiatives such as SAGCOT and BRN.

The concept of IWRM surfaces in the policy arena on agricultural water management. The operationalization of the concept is challenged by the lack of a clearer basis of water allocation. Overarching questions include the following: Should allocation be based on economic criteria such as returns per drop, and if so, how is water for the environment, of which the absolute amount is not widely known, valued? Should water be treated as a social or an economic good? If water is to be considered an economic good (and hence has to be paid for), how will the very poor access water for food, their basic survival right? These are policy challenges around pro-poor WaSA in the context of agricultural water management.

The water policy highlights some positive issues, including that of separating water rights from land titles during water allocation. This means that a formal right to water is not the subject of a land title. A landless farmer, who has acquired a piece of land through other arrangements such as through borrowing or renting, can still be granted water rights. The owner of a piece of land on which the common water resource is found or flows on cannot deny access to water of other neighboring land users.

The analysis of institutional frameworks has revealed that customary rights to water, though recognized in policies, are not articulated in statutory water laws. This is in contrast to land resources where customary tenure is articulated in the formal law. There is, however, a large group of small farmers without water rights but who claim to have a right-based custom—i.e., use of water by their families or tribes since time immemorial. The non-recognition of traditional or customary water users is at the root of many water use conflicts and jeopardizes the effective management of agricultural water resources.

The right to survive is a human right and access to food is the primary precondition for such survival rights. Therefore, access to agricultural water to produce basic food should be one's right. However, this is contrary to institutional frameworks that impose water permits (rights), which also envisage water fees. In addition to the costs paid, with the formation of WUAs and application procedures, the applicant bears significant transaction costs.

Recommendations

To upgrade productivity in smallholder rainfed agriculture promotion and investment in WaSA in a broad context are critical paying attention to highly orphaned rain water harvesting and SWC technologies.

Whereas food security is ranked high in policy priorities and access to agricultural water is critical in food security, especially for the poor, it is time now to consider 'free basic water for food' in our policies and institutional frameworks.

Customary rights to water, which are widespread in agricultural water management in the country, should be mainstreamed into formal water laws as in the case of land. This will increase access to water by smallholder farmers and reduce conflicts between holders of customary rights and formal rights.

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