# Rapid Appraisal of Policies & Institutional Frameworks for Agricultural Water Management

## TANZANIA COUNTRY REPORT

**IMAWESA Policy Report 10**

**November 2007**

**A Research Report of the**

**Improved Management of Agricultural Water in Eastern and Southern Africa (IMAWESA)**


ASARECA
Association for Strengthening Agricultural Research in Eastern and Central Africa

SWMnet
Turning Knowledge into Action
Soil and Water Management Network of ASARECA

ICRISAT
International Crops Research Institute for the Semi-Arid Tropics

IFAD
International Fund for Agricultural Development

UNOPS
United Nations Office for Project Services

# IMPROVED MANAGEMENT OF AGRICULTURAL WATER IN EASTERN AND SOUTHERN AFRICA (IMAWESA)

# TANZANIA COUNTRY REPORT

## Rapid Appraisal of Policies & Institutional Frameworks for Agricultural Water Management

**By:**
Siza Tumbo; Khamaldin Mutabazi and Kosa R.M. Rajabu

**Edited by:**
Bancy Mati

**November 2007**

**Contact us through**
The Project Manager
Improved Management of Agricultural Water in Eastern & Southern Africa (IMAWESA)
ICRISAT - Nairobi, ICRAF Complex, United Nations Avenue, Gigiri
P.O. Box 39063, 00623 Nairobi, Kenya
Tel. 254 (0)20 7224110 ; Fax: 254 (0)20 7224001
E-mail: b.mati@cgiar.org; Website: www.asareca.org/swmnet/imawesa

**About this Publication**

IMAWESA (Improved Management of Agricultural water in Eastern and Southern Africa) is designed to improve and strengthen the sharing of knowledge, information and best practices emanating from research and field experiences, in implementing development programmes in agricultural water management (AWM). This is considered to be critical, both for enhanced programme design and implementation, and for providing the substantive basis upon which to engage in policy dialogue. The main elements of IMAWESA include; enhancing policy for agricultural water management, studies on key water management issues, capacity building, exchange visits and workshops for programme managers and their staff, as well building a community of practice in AWM through knowledge sharing and networking. The project works directly in sample countries but its products cover 23 countries in the Eastern and Southern Africa (ESA) region, which include Angola, Botswana, Burundi, Comoros, DRC, Eritrea, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Sudan, Swaziland, United Republic of Tanzania, Uganda, Zambia and Zimbabwe.

This report is the result of the findings of a set of rapid appraisals of policies and institutional frameworks associated with/affecting agricultural water management in Eastern and Southern Africa, but specially focusing on Tanzania. The Tanzania report is part of a regional study conducted in nine sample countries viz. Eritrea, Kenya, Madagascar, Malawi, Mauritius, Rwanda, Sudan, Tanzania and Zimbabwe, between November 2005 and May 2007. These other country reports and the Regional Synthesis Report are available at www.asareca.org/swmnet/imawesa. These reports are targeted at policy makers, senior staff of public and private organizations engaged in AWM, researchers and development partners. They are meant to inform, educate and enhance advocacy for conducive policy formulation and implementation for AWM in the region. For further information and comments on this report, readers are welcome to contact b.mati@cgiar.org.

**Outline of this report**

This report is contains the Executive Summary and six chapters, which are (i) Introduction, (ii) Methodology, (iii) Main findings, (iv) Synthesis, Conclusions and Recommendations, (v) References, and (vi) Appendices.

**Acknowledgement:**

This particular publication is an output from IMAWESA, a regional project supported by the International Fund for Agricultural Development (IFAD) and implemented by ASARECA in collaboration with ICRISAT, UNOPS and national programmes on AWM. The authors wish to thank all the institutions and individuals who supported the study. Special thanks to Prof. Nuhu Hatibu, formerly the Regional Coordinator of SWMnet for his contribution to the initiation and implementation of this study. The views expressed here are not necessarily those of IFAD as the content is solely the responsibility of the authors.

## EXECUTIVE SUMMARY

The purpose of the country study was to investigate how policies or institutional frameworks affected or would have affected agricultural water management (AWM) programmes or projects between 1985 and 2005. The study was designed with five outputs, namely to: i) articulate key policies that had or would have had impact on AWM over different periods between 1985 and 2005,;ii) articulate key institutional frameworks (legal, regulatory and organizational) that had or would have had impact on AWM over different policy periods between 1985 and 2005; iii) determine quantitatively and/or qualitatively, the impact of policies and institutional frameworks on the access of smallholders to agricultural water, and performance and outcomes of relevant AWM programmes or projects; iv) assess the necessary and optimal stakeholder participation in AWM policy formulation process; and v) document the process of analysis of the policy and institutional framework for AWM.

The methodology for carrying out the study involved identification of policies, institutional frameworks and AWM programmes and projects operated between 1985 and 2005. This process was followed by collection of relevant documents relating to the same from concerned programmes, projects, offices, line ministries, the Internet, and conducting limited interviews. Through desk review of documents of several policies, institutional frameworks, programmes and projects, relevant information was extracted.

The study found several issues regarding policies and institutional frameworks that had impact on programme and project performance and impact and are explained below.

- Policies recognized the importance of agricultural water in increasing agricultural productivity; however, in the past policies (1985 – 1996), agricultural water was envisioned from the perspective of large scale irrigation. Most of the programmes/projects on AWM analyzed in this study lacked the components of rainwater harvesting (RWH). Recently, other components of AWM particularly RWH, which has a strong bearing on smallholder farmers for crop and livestock production, have been recognized in the policy arena.
- The issue of linkage to markets, as a policy issue, was not considered in the design of AWM projects, especially those undertaken in the first policy period (1985-1996/97). Such supply biased AWM efforts did not assure farmers of meaningful returns from their investments (labour, land and water). Disconnection to profitable markets undermined farmers' participation. Even where productivity was improved it was not sustained after the project. This is because of lack of a demand-pull effect that would have assured farmers profitable returns to investment.
- The implication of institutional frameworks on AWM is far-reaching. The effects of some regulations might seem to be distant to issues of AWM, but this study has proved otherwise. For instance, the public procurement procedures proved to be the critical problem which affected AWM programmes and projects. Bureaucratic procedures embedded in the public procurement processes with aspects of tendering and contracting, caused serious delays in project implementation.
- Furthermore, where the Government, which is the institution managing the procurement, had a share to contribute in the project budget, the disbursement of the funds was not timely and always less than the promised amount.
- Most documents of programmes and projects on AWM claimed to have improved access of poor rural people to improved water management. For example, the smallholder development project for marginal areas in Chikuyu irrigation scheme realized yield increment from 1.2 tons/ha before project intervention to 4.0 tons/ha after the project. Interventions of the Traditional Irrigation and Environmental Organization have influenced the willingness of individual farmers to invest in AWM.
- Though programmes and projects registered positive impact on poor rural people, participation by farmers in programmes and projects has remained a problem even though the policies and institutional frameworks urge for local participation. Farmers are engaged at some point in the course of the project and are always left out during design, or their views are overruled by the technocrats. For example, in the Usangu Village Irrigation Project, farmers were engaged at the implementation stage during construction of an intake. Although the project started with prior discussion with leaders, the leaders did not convey the message to farmers.

- Stakeholders' participation has been the strong component in the process of formulation of policies used by this study to draw lessons. Stakeholders were involved from different domains, ranging from technocrats, donors, private sector, public sector, farmers and the general public. From the general public, special groups such as persons with disabilities, persons living with HIV/AIDS, widows, youth and women were involved in the national wide consultation process.

Based on the findings, the following policy-relevant recommendations are made:

- To fast-track significant and rapid growth in the agriculture sector which is required in poverty reduction, AWM interventions should, apart from conventional irrigation, embark on other components of agricultural water such as RWH and water innovations in rainfed systems.
- The paradigm of 'local participation' has to be reexamined. A mere presence of farmers in the dialogues that overrule their opinions is not what is meant by participation. Participation of farmers at certain stages especially during implementation as opposed to planning is not participation. The PADEP approach has to be adapted in the future AWM programmes. Smallholder farmers have to identify sub projects and be facilitated to put down proposals and action plans.
- Reforms are needed in the regulatory frameworks such as public procurement procedures to make them less bureaucratic. The tendering, contracting and pre-qualification requirements are lengthy and highly procedural. One body can be formed in the agricultural ministry to deal with agriculture-related procurements, as agriculture projects are sensitive to time.
- Participation of stakeholders in policy formulation process is vital in determining how the policies will be actualized. Although a good mix of stakeholders was involved in the policy formulation process, the participatory structures were formed on ad hoc basis. We recommend that a standard way of obtaining the mix and contributions be developed that can be adapted in the formulation of different policies.

# Contents

**List of Tables**

**Abbreviations and Acronyms**

| | |
|---|---|
| **ASARECA** | Association for Strengthening Agricultural Research in Eastern and Central Africa |
| **AWM** | Agricultural Water Management |
| **ESA** | Eastern and Southern Africa |
| **FAO** | Food and Agriculture Organization |
| **FDI** | Foreign Direct Investment |
| **GDP** | Gross Domestic Product |
| **GNP** | Gross National Product |
| **ICRISAT** | International Crops Research Institute for the Semi Arid Tropics |
| **IFAD** | International Fund for Agricultural Development |
| **IMAWESA** | Integrated Management of Water in Eastern and Southern Africa |
| IWRM | Integrated water resource management |
| MDGs | Millennium Development Goals |
| NAWAPO | National Water Resources Management Policy |
| NEMC | National Environmental Management Council |
| **NSGRP** | National Strategy for Growth and Reduction of Poverty |
| PRSP | Poverty Reduction Strategy Paper |
| R&D | Research and Development |
| **RWH** | Rainwater Harvesting |
| **SWMnet** | Soil and Water Management Research Network of ASARECA |
| TAMS | Tanzania Agricultural Mechanisation Strategy |
| **URT** | United Republic of Tanzania |

# 1. INTRODUCTION AND BACKGROUND

## 1.1 Overview and Justification

Forty years after attaining independence in 1961, Tanzania remains one of the poorest countries in the world. Estimated GNP per capita was US$ 240 in 1999, and its growth rate was only around 0.3 % per year on average over the preceding decade (Ellis and Mdoe, 2002). Poverty remains overwhelming in rural areas where about 87 % of the poor population lives, and depends on agriculture for their livelihood (URT, 2005). Using the poverty profiles estimated by the World Bank in 1993, 51% of Tanzanians were defined as poor and 36 % very poor (World Bank, 2000). In these countries, the development policies and strategies recognize agriculture as the lead sector in poverty reduction. The Poverty Reduction Strategy Paper (PRSP), Rural Development Strategy (RDS) and the organizing National Strategy for Growth and Reduction of Poverty (NSGRP) have identified agriculture as a key poverty reduction sector (URT, 2001a; URT, 2001b and URT, 2005).

The economic growth rate which could ensure reduction of income poverty should reach 8% by 2010 from 6.7% recorded in 2004. The economic growth necessary for income poverty should be brought about by meaningful growth in key sectors such as agriculture. The economic importance of agriculture to the national economy, and as a lead sector in poverty reduction cannot be overemphasized. The agriculture sector accounted for 45 % of GDP and about 60 % of export earnings in the past three years. It is the source of food and raw materials for industries. It also provides livelihoods to 82 % of the population. Recently, the sector has registered average annual growth rates of 4.8 % compared to the average growth of 3.1 % during 1998 to 2000. However, for agriculture to have a far-reaching impact on poverty reduction, the sector's growth should be as high as 10% by 2010 (URT, 2005).
Given the development rationale of agriculture, the government has shown policy commitments to develop agriculture as an engine of economic growth. This is reiterated in the policy and strategy documents. The agricultural policies are aimed at transforming the predominantly subsistence agricultural sector into a commercial, favourable agricultural system by providing an enabling environment that is conducive for improving agricultural productivity and profitability, thereby improving farm income, while ensuring food security (Isinika and Ashimogo, 2003). The growth of agriculture is a prerequisite for an economic growth which has a far-reaching impact on poverty reduction in rural areas. However, the growth of agriculture is, among other things, sternly curtailed by limited access to agricultural water to provide for soil moisture necessary for plant growth. For Tanzania, as for other Eastern and Southern Africa (ESA) countries, the major development challenge is to improve the agricultural productivity of the arable land and the available water resources (Rockstrom, 2000). More specifically, increased agricultural productivity should be through improved smallholder agricultural water management (AWM) in both rainfed and irrigated systems.

However, for the policies to translate to actions on the ground, projects have been designed and implemented to improve AWM. Also, institutional frameworks have been set to ensure effective implementation of policies and projects. The success of these endeavours in terms of significant increase in agricultural productivity over time and space has been unsatisfactory in terms of expected outcomes and impacts. There are two hypotheses behind the unsatisfactory performance. First, there might be practical deficiencies in both AWM policies and institutional frameworks to the extent of hindering the performance of AWM projects. Second, where policies and projects might be well-written and robustly planned, the institutional frameworks could still be limiting for successful implementation of AWM projects. In view of this, we took a desk study to content-analyze AWM-related policies, institutional frameworks and performance of projects between 1985 and 2005.

## 1.2 IMAWESA Project Objectives

The overall goal of the project is to enable smallholder farmers of ESA to increase their incomes through improved management of agricultural water. The purpose of the IMAWESA project is to enhance the developmental impact of public and private investments in smallholder AWM. The purpose would be realized through the achievement of four specific results: i) improved policy and strategic framework for management of agricultural water in selected countries of the region; ii) enhanced understanding among development partners of key issues (technical, economic, social and environmental), to guide future interventions and investments in management of agricultural water in the region; iii) improved effectiveness in the management and implementation of IFAD-supported management of agricultural

water projects and programmes in the region; and iv) enhanced sharing of knowledge and best practices in the management of agricultural water within and across the region. These results are presented as outputs in the logframe.

### 1.3 Policy Study Objectives

The first output of IMAWESA was designed to enhance policy dialogue relative to smallholder management of agricultural water within the region while increasing their effectiveness in leveraging policy change. Attainment of this output needed evaluation of the effect of policies, institutions and processes both on the access of rural people to improved water management, and on the performance and impact of agricultural water management components of agricultural programmes. This report presents findings, synthesis of these findings and recommendations based on the same.

# 2. METHODOLOGY

## 2. 1 Policies with Serious Impact on AWM

This section presents processes and approaches used in collection and analysis of data and information for the first output. The first output aimed at articulating key policies that had or would have had impact on AWM over different periods between 1985 and 2005. To address this output, AWM-related policies that operated between 1985 and 2005 were identified. Identification of the policy which was deemed to have serious implication on AWM, in its broad sense, was subjected to researchers' experience and judgement. Identified policies include agricultural policies of 1983 and 1997, water policy of 2002, Environmental Policy of 1997 and Land Policy of 1995. However, the National Strategy for Growth and Reduction of Poverty (NSGRP) was elevated from strategy to policy level. This is because the NSGRP is an organizing framework that takes into account, a range of national policies and strategies for poverty reduction and overall development.

After identification, the next step was to collect the policy documents for content analysis. The documents were collected from two sources. All policy documents were downloaded from the National Website (http://www.tanzania.go.tz) except the 1983 Agriculture Policy which was not available online. The hardcopy of the 1983 Agriculture Policy was obtained from the mini-library of the Soil and Water Management Research Group (SWMRG) at Sokoine University of Agriculture. Through desk review several policy statements were extracted from relevant policy documents.
The compiled policy statements were content-analyzed to draw empirical messages which seriously had or would have had impact on AWM. A range of policy statements was scrutinized to characterize two periods. As shown in the preceding sections, characterization of policy change period was very relevant for attribution of leading policies and institutional frameworks to the performance and outcomes of programmes and projects on AWM.

## 2. 2 Institutional Frameworks with Impact on AWM

Broader policies, and narrower strategies, programmes and projects are implemented within institutional frameworks. As noted earlier, the institutional frameworks entail legal, regulatory and organizational contexts. The second output was geared to analyzing the institutional frameworks that had or would have had impact on AWM. This enables a better understanding of institutional factors behind the performance of AWM programmes over time and space. The temporal dimension of this analysis adopted the two policy periods used in policy analysis. The institutional frameworks entail three aspects of laws, regulations and organization. The organization component, in terms of set-up and function, is stipulated in policy documents and enforced by the law.

The policy documents also contain the regulations which are enforced by the law as well. The laws which give powers to policies, regulations and organization are compiled in Acts which are enacted by parliament. Such intermingling of the laws, regulations and organization renders, not only in the documentaries but in functionality, their data sourcing and analysis inseparable and interdependent. In this respect, the policy documents and Acts were sufficient sources of the required data and information. The parliamentary website (http://www.bungetz.org/parliament.html) was the major source of the Acts which were considered to apply to AWM. Some Acts were obtained from the environmental lawyers' NGO (Lawyers Environmental Action Team-LEAT) based in Dar es Salaam. The policy documents which provided explicit institutional frameworks included the agricultural policies (URT, 1983, 1997) and Water Policy (URT, 2003). The Acts which were used to analyse the legal and regulatory frameworks with implication of AWM were the Water Utilization (control and regulation) Act of 1974 as amended in 1981, 1989, and 1999, Land and Village Land Acts No. 4 & 5 of 1999, Environmental Management Act of 2004 and Public Procurement Act of 2004.

## 2.3 Assessment of Performance and Outcomes of AWM Programmes and Projects

It was necessary to synthesize the performance of programmes and projects in a consolidated way in order to forge a coherent message from diverse interventions. To determine the performance and outcomes of AWM programmes, nine major development programmes and projects that dealt with AWM in contrasting locations with respect to local, formal and informal institutions at differing policy time periods between 1985 and 2005 were identified and selected. The programmes and projects that

were selected had a value of over US$ 500,000, with AWM components constituting at least 50% of the programme or projects' activities and budget. Consultations were made with relevant agricultural sector lead ministries in order to identify programmes and projects that fulfilled the above mentioned criteria. After these were identified, project documents describing and evaluating each of the selected programmes and projects were collected. The collection process involved identifying and contacting (in person) the directors, coordinators or other management team members of the programmes and projects, and obtaining copies of the documents. The documents collected are Progress Reports, Mid-Term Review Reports and Project Completion Reports. The reports were then thoroughly studied and the findings, conclusions and recommendations synthesized to determine: a) the extent of improvement in the access to water for agriculture by smallholders in the target areas; b) the performance of the programmes or projects against their own objectively verifiable indicators (OVIs) at output level; c) the performance of the programmes or projects against their own OVIs at purpose/outcome level; d) impacts of the programmes and projects; e) problems encountered; and f) lessons learnt.

### 2.4 Analysis of AWM Policy Formulation Process

To get information on policy formulation processes, a number of methodologies were used. The first step was the identification of policies whose formulation processes were to be studied. The policies in consideration are the ones which, in one way or another had or would have had impacts on AWM. Since the main objective of studying policy formulation processes was to assess stakeholders' identification, involvement and use of lessons from other parts and periods, it was decided to study policies which were developed or are in the process of being developed recently (2000 to 2006), as this period represents current trends of policy formulation processes. Four policies/strategies were therefore identified and studied. The policies/strategies are: 1) The National Water Resources Management Policy (NAWAPO) of 2002 (URT, 2003); 2) The National Strategy for Growth and Reduction of Poverty (NSGRP) (URT, 2005); 3) The Tanzania Agricultural Mechanisation Strategy (TAMS) (under development); and 4) The National Irrigation Policy and Strategy (under development).

After the policies were identified, the second step was the collection of documents that described policy formulation process. This step involved downloading the policy documents from the national website. Of the two completed policies that where studied, only the NSGRP had the formulation process written in the document itself. For the case of NAWAPO, the formulation process was only described very briefly (in four short sentences). For the remaining two policies which are still under development, there is no document that describes the formulation process which is not yet completed. Therefore, in order to understand the formulation process that was followed or is being followed, the third step was to identify and contact the heads of departments or directorates which supervised the policy development process. Discussions were held with the heads of departments in order to get an overview of the formulation process. The fourth step was to identify and hold discussions with policy formulation team leaders. The fifth step was to obtain and study the policy formulation project documents (proposals or concept notes) that were sent to donors for funding. After thorough studying, the proposed policy formulation process was extracted from the project documents. Thereafter, a second discussion was held with policy formulation team leaders and other members to establish the actual formulation process that was or is being followed.

# 3. MAIN FINDINGS AND DISCUSSION

## 3.1 Key Policies with Implications on AWM

### *3.1.1 Agricultural Policy of 1983*

As any other agricultural policy ought to be, the 1983 agricultural policy emphasized attainment of economic development through improved performance of the agriculture sector. Though the economic reforms intended to reverse the economic downturn of the late 1970s started in early 1980s, the public sector as compared to private sector dominated the development scene. The 1983 Agricultural Policy underscored the need for increased public investment whose magnitude had declined over the years. The policy statement to support this includes '*...investment in agricultural sector should be increased to reflect the proportionate role the sector plays in the national economy'* (pp. 100, section 2.4. 279-f). The policy underscored the need for improving soil moisture for plant growth as a means of agricultural transformation. However, the school of conventional irrigation was overriding most of the policy statements. Where traditional or smallholder irrigation is referred it still envisaged utilization of water flows in rivers and streams. This means, to a great extent, the broad concept of AWM was addressed in a narrow sense. One of the policy objectives as presented reads '*to systematically develop irrigation to relieve the sector of great dependency on an unreliable rain-fed system and increase the utility of the rural population by working smoothly throughout the year'* (p. 97 section 2.4.278).

Policy statements which stress on irrigation as compared to broad aspects of AWM are colourful in the policy document. Some of these statements include *'... large scale irrigation scheme should be constructed to benefit smallholder and large scale agriculture in Ujamaa villages, and Government state and private commercial farms'* (pp. 104, section 2.5.282-v); *'...production should be enhanced through research, extension and irrigation'* (pp. 116, section 2.5.299-a); *'... in order that permanent and reliable supply of irrigation water is assured, comprehensive studies of works needs for flood control, river protection and drainage, and water conservation by damming should be an essential component of plans for development irrigation by large scale state farms and village irrigation schemes'* (pp. 129, section 2.5.319-c)*; and '... irrigation infrastructure is costly and its usefulness must be permanent. In order to ensure that permanent source of water, courses and river catchment areas maintain continuous flow of water required for irrigation, a programme of protection and erosion control for river catchment areas should be instituted and maintained'* (pp. 129, section 2.5.319-d). Conventional irrigation has been overemphasized in the policy agenda since the 1970s to mid 1990s. Thereafter, in 2000s, other aspects of AWM such as rainwater harvesting (RWH) have been receiving policy attention. Nevertheless, the policies did not entirely miss other strands of broader AWM. Some policy statements which relates to AWM aspects were: *'... land use planning and soil conservation call for immediate attention'* (pp. 111, section 2.5.288). The driving policy statements to attain better land use and soil conservation mentioned under the same section were: *'... farming methods and techniques should conserve soils'*; *'... government should endeavour to demarcate the whole country to land use patterns, i.e. agriculture, livestock, forestry, mining, etc'*; *'...tree planting should be made compulsory for all groups who will be allocated land for farming through 'cut a tree, plant tree'*; *'... people be assisted to move from overpopulated areas to agriculturally suitable low density areas'*; *'... by-laws governing soil conservation measures be reactivated for implementation'*. Other AWM related statements include: *'... smallholder production be modernized using modern farm inputs i.e. fertilizer, agro-chemicals, improved husbandry and appropriate mechanization'* (pp. 111, section 2.5.290-c). However, during the period when this policy was in force, interventions to improve non-irrigation aspects of AWM remained limited.

### *3.1.2 Agriculture and Livestock Policy of 1997*

This policy was designed to respond to changing economic environment characterized by shrinking public sector and expanding private sector (Annex 1). Two policy objectives have strong indications of the essence of bringing in the private sector in agricultural development. These include *'... to provide support services to the agricultural sector which cannot be provided efficiently by the private sector'* (pp. 9, section 3.2-h); *'... food crops production will be increased through productivity and area expansion while livestock growth will be through encouraging the private sector based initiatives in the industry'* (pp. 9, section 3.2-a). Other drivers which necessitated rethinking the national policies on primary production sectors such as agriculture, included global concerns of sustainable development, climate change and environmental resource management. The 1997 policy contained objectives which imply heavily on AWM. These include: *'... to develop and introduce new technologies which increase the productivity of labour and land'* (pp. 9, section 3.2-e) and *'... to promote integrated and*

*sustainable use and management of natural resources such as land, soil, water and vegetation in order to conserve the environment'* (pp. 9, section 3.2-f).

As in case of the preceding agricultural policy, the 1997 policy overly emphasized irrigation as a prime strategy for improved productivity of agriculture. The policy states *'... the government will, focus its support on the development of smallholder irrigation schemes in areas of high potential and sufficient demand for irrigation facilities and will encourage the private sector to provide the necessary services in respect to pre-investment studies, scheme design, construction and management of 'large scale' schemes using their own resources'* (pp. 23, section 3.3.1-E 1-i)). The aspects of water rights and governance were apparent in the 1997 policy. The policy statement on these pertinent aspects are: *'... the government will provide information on the issuing of water rights, regulation and monitoring of natural resources exploitation'* (pg. 23, section 3.3.1-E-1-iii); *'... the government will encourage the farmers to form water user associations and irrigation cooperatives for management of their schemes as a step forward towards commercialization and participation in the market economy'* (pp. 23, section 3.3.1-E-1-v).
Furthermore, the policy touched key issues of land management which implicitly apply on AWM. Some of such policy statements include: *'... the ministry will support destocking of heavily eroded and degraded areas and their rehabilitation through soil conservation measures including encouraging tree planting...'* (pp. 52, section 6.3.2-x).
The policy also addressed the issue of land management through demarcation of agricultural and grazing lands as a better strategy to manage both land resources and conflicts among farmers and pastoralists. Such policy statements include: *'... agricultural land will be identified, set aside for agricultural use and protected against encroachment by pastoralists'* (pp. 29, section 3.2-A-iii); and *'... security of tenure for pastoralists in pastoral lands areas will be guaranteed by appropriate measures including gazetting to protect grazing land from encroachment'* (pp. 29, section 3.2-A-i).

### *3.1.3 Water Policy, 2002*

Virtually, the water policy is all about water resources, but not all water resources are agricultural water. The basic intent was to isolate policy statements which explicitly apply to agricultural water. The policy was basically enacted to guide water management and governance in a coherent and integrated way given changing development contexts. The policy statements which explain this (pp. 3, section 2) include: *'... the policy lays a foundation for sustainable development and management of water resources in the changing roles of the Government from service provider to that of coordination, policy and guidelines formulation, and regulation'* and *'... the policy seeks to address cross-sectoral interests in water, watershed management and integrated and participatory approaches for water resources planning, development and management'*.
Of much interest is how the water policy assists or hinders water access by smallholder farmers. This could be comprehended in terms of policy rights and the implications of policy statements on smallholders' access to water for agriculture. The water rights and associated pricing and administration of the same have policy implications on agricultural water access by the poor. The policy recognizes that access to agricultural water is very central for achieving development goals, mainly the food security. Food security is given a high priority in the national development agenda as stipulated in policies (URT, 1992; URT, 1997), legislations[1] and strategies (URT, 2000). The Water Policy 2002 also states that *'... water for food security, energy production and other economic activities is readily available'* (pp. 20, section 3.1-e). In general, access to water for food security is given a high policy priority. Thus one would have expected that basic water for food would have been granted freely to smallholder farmers, which is not yet the case. However, the policy still insists on water pricing and application which might affect water access by the poor through high transaction costs involved in the governance process. The transaction costs could be in terms of enforcement on the side of water administrator and compliance on the side of water users. With respect to water rights and pricing the policy states *'... to ensure that water resources management is financed and raw water priced to promote efficiency, sustainability and equity'* (pp. 20, section 3.1-iii), *'... water has a value in all its competing uses'* (pp. 22, section 3.3-iv); *'...water rights, application of economic incentives and pricing for water use, shall be gradually built into the management system as a means or strategy for demand management and water conservation'* (pp. 30, section 4.2.1-ii); and *'... all water abstractions and effluent discharges into water bodies shall be subject to a "water use permit" or "discharge permit" to be issued for a specific duration'* (pp. 28, section 4.1.2).
The policy advocates fairness and equity in water resource allocation by stipulating that *'... to develop equal and fair procedures in access and allocation of the water resources'* (pp. 26, section 4-i). Reforms in the 2002 Water Policy entailed the elements of the broader concept of integrated water resource management (IWRM).

[1] *The Food Security Act, 1991 - Act No. 10/91*

Under the paradigm of IWRM, the issue of water for environment as part of water resource demand sectors received attention in the policy. The policy statements advocating water for environment and consideration of inter-sectoral water demand sectors include: '*... water for the environment shall be determined on the best scientific information available considering both the temporal and spatial water requirements to maintain the health and viability of riverine and estuary ecosystems*' (pg 23, section 3.3-iii); *'... to have criteria for prioritization of water allocations so as to ensure that socio-economic activities and the environment receive their adequate share of the water resources on the basis of its availability, and to enable the sectors increase productivity, and to mitigate conflicts'* (pp. 27, section 4.1.2); *'... to have in place appropriate principles and procedures for managing the quality and conservation of water resources, as well as improve and protect the ecological systems and wetlands'* (pp. 29, section 4.2.1).
An important component of AWM which did not feature in the policy arena before, is rainwater harvesting (RWH) for agriculture. Concerning RWH the policy states *'... rainwater harvesting, wastewater recycling and desalination of seawater will be employed as a means of increasing the availability of water resources'* (pp. 30, section 4.2.1-iv); *'... more water available to rural communities through rainwater harvesting technologies'* (pp. 60, section 4.6); *'... communities will be made aware and encouraged to use rainwater harvesting technologies'* (pg 60, section 4.6-i); *'... research on rainwater harvesting technology will be enhanced'* (pp. 60, section 4.6-ii); *'... rainwater harvesting will be promoted through creation of awareness and training of various stakeholders'* (pp. 60, section 4.6-iii). RWH for livestock has been emphasized in the policy document that *'... emphasis will be placed on construction of dams, charcos and water wells for livestock'* (pp. 60, section 4.5-i).

### *3.1.4 Environmental Policy of 1997*

Among other things, the formulation of the 1997 Environmental Policy was driven by the Rio Declaration and the need for mainstreaming environmental issues into decision making. Prior to this policy, environmental issues were incoherently addressed under different sectoral policies. Such sector-based management of the environment posed a governance challenge because the construct elements of the environment cannot be partitioned. AWM-related policy statements include: '*... improvement in water use efficiency in irrigation, including control of water logging and salinization'* (pp. 19, section 46-g); *'... planning and implementation of water resources and other development programmes in an integrated manner and in ways that protect water catchment areas and their vegetation cover'* (pp. 20, section 48-a); '*... improved management and conservation of wetlands*' (pp. 20, section 48-b). In endeavouring to protect the environment the policy states that the precautionary principle should be applied (pp. 32, section 81). The basic premise of the precautionary principle is that, *'it is better to be roughly right in time, than to be precisely right too late'*. This means that in certain cases action may be taken to protect and enhance environmental integrity even without complete knowledge of the causes and effects involved, or without waiting for more substantial proof of damage. Recently, this principle has been applied where the President ordered prompt evacuation of pastoralists from Ihefu wetland in the Rufiji Basin. Issues of water pollution are also articulated in the policy which states that, '*... promotion of technology for efficient and safe water use, particularly for water and waste treatment, and recycling*' (pp. 20, section 48-c); *'... institution of appropriate user-charges that reflect the full value of water resources'* (pp. 20, section 48-d); and *'... forest/tree cover shall be increased through afforestation'* (pp. 25, section 59-b). The dimensions of water quality are also addressed in which the policy states that *'... control of agricultural run-offs of agrochemicals to minimize pollution of both surface and groundwater'* (pp. 19, section 46-e); *'... the polluter-pays principle shall be adopted and implemented differently'* (pp. 31, section 76). Under this principle, it means the polluters shall bear the costs of pollution they caused and rehabilitation.
Furthermore, soil fertility and land husbandry which are important aspects of productivity of agricultural water are considered in the environmental policy. In this respect the policy states that *'... improvement of land husbandry through soil erosion control and soil fertility improvement'* (pp. 19, section 46-a).

### *3.1.5 National Land Policy, 1995*

The national land policy of 1995 aimed at ensuring land is put to most productive use to promote rapid social and economic development of the country (pp. 5, section 2.4). Land and water are inseparable resources since water is either found on or in the land. Given other factors, water and land are critical inputs in agricultural production. Practically, each policy statement on land management has a bearing on agricultural water management. The aspects of land tenure and gender relations which have serious implications on agricultural water access were of interest to us. This led us to tracing the policy statements in which these two issues were seriously implied.
The Land Policy recognizes the dual tenure system crafted on customary and statutory rights of occupancy which are regarded as equal in law. The related policy objective policy states *'... ensure that existing rights in land especially customary rights of smallholders (i.e. peasants and herdsmen who are majority in the*

*country) are recognized, clarified and secured in law'* (pp 5, section 2.2). Such a statement gives assured room to the majority, especially the poor, to access land which is a precursor to access to agricultural water. The customary law can only govern tenure of water resources and utilization practices where land is occupied under customary tenure by individual or under common customary management by the communities. As a result traditional water rights can only persist when land is held under customary tenure. In registered land that right becomes fluid if not extinct. The 2002 water policy states that *'... water allocation system shall distinguish and separate water use permit from land title'* (pp. 22, section 3.3). Practically, customary rights in land are more secured than the same in water tenure. This is because of the mobility and variability in supply of water resources over time and space. Because of its mobility, the modality of water utilization at one point, say upstream, will affect the state and amount of the same water at another point, say downstream. Such complexity has made policies on water administration to be more strict and formalized compared to that of land. Furthermore, whether land is appropriated through customary or statutory tenure system, the President has powers to revoke either of the two. With respect to this, the policy states *'... the law empowers the President to revoke rights of occupancy in the public interest'* (pp. 15, section 4.2.13). However, the policy admitted that the word 'public interest' is not defined under the law. As a result, some land administrators have misused these powers. In recognition of this shortfall the policy states that *'... a clear legal definition of public interest will be established by law'* (pp. 16, section 4.2.16-ii); and *'... acquisition of land in the public interest may be challenged in a court of law'* (pp. 16, section 4.2.16-iii).

Another land tenure aspect that has been alarming in Tanzania is the land disputes between farmers and pastoralists. The land policy and enforcing laws recognize this problem and have spelt out measures to mediate the land disputes among farmers and pastoralists. Farmers and pastoralists enter into fierce battles for land and water resources particularly during drought years. The policy statements which address such issues include *'... agricultural land will be identified to be set aside for agricultural use and protected against encroachment by pastoralists'* (pp. 35, section 7.2.1-iii); and *'... security of tenure for pastoralists in pastoral land areas will be guaranteed by appropriate measures including gazetting to protect grazing land from encroachment'* (pp. 35, section 7.3.1-i).

Land tenure security is the prime consideration in private investment decisions in agricultural land, especially by non-Tanzanian investors. The economic reforms underway emphasize the importance of attracting foreign investment in agriculture to fast-track poverty reduction process. But, the flow of foreign direct investments (FDIs) in the agriculture sector compared to other sectors of the economy such as mining, tourism, fishery, and service, has been very slow. One of the reasons could be uncertainty in land tenure. Given this hypothesis, it is worth analysing the policy stances with respect to land tenure security for foreign investors. The policy states that '*... land will be allocated to investors according to their ability to develop it and that interests of citizens over their land shall be safeguarded' (pp. 13, section 4.2.8-ii)*; and '*... the transfer of customary land rights by citizens to non-citizens will be prohibited' (pp. 19, 4.2.22-vi)*. Such policy statements and the powers given by the President in revoking any right to fulfil public interest, which is not clearly defined under formal law, creates uncertainty of security to an investment made in land. Furthermore, state intervention and increased pressure on water and land resources has implied that customary rights are increasingly threatened by holders of formal rights.

In terms of gendered land relations, both the Land Policy and the Land Laws sought to improve the ownership rights of women under 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 & Kaijage, 1995). It is widely argued that these laws do not work in favour of women; especially in as far as ownership and transfer rights are concerned. The 1995 land policy explicitly underscores the rights of women under statutory land tenure. However, the efficacy of such policies in deep rooted customs which are also recognized in formal law remains a challenge on the ground. In terms of gendered land relations, the policy advocates that *'... in order to enhance and guarantee women's access to land and security of tenure, women will be entitled to acquire land in their own right not only through purchase but also through allocations. However, inheritance of clan land will continue to be governed by custom and tradition provided is not contrary to the constitution and is not repugnant to principles of natural justice'* (pp. 12, section 4.2.6-i). Furthermore, the policy states that *'... ownership of land between husband and wife shall not be the subject of legislation'* (pp. 12, 4.2.6-ii).

### 3.1.6 National Strategy for Growth and Reduction of Poverty (NSGRP), 2005

NSGRP is a national organizing framework for putting the focus on poverty reduction high on the country's development agenda. It is committed to the Millennium Development Goals (MDGs), as internationally agreed targets for reducing poverty, hunger, diseases, illiteracy, environmental degradation and discrimination against women by 2015. It strives to widen the space for country ownership and effective participation of civil society, private sector development and fruitful local and external partnerships in development and commitment to regional and other international initiatives for social and economic development.

The NSGRP builds on the Poverty Reduction Strategy Paper (PRS(P)) (2000/01 -02/03), the PRS Review, the Medium Term Plan for Growth and Poverty Reduction and the Tanzania Mini -Tiger Plan 2020 (TMTP2020) that emphasize the growth momentum to fast -track the targets of Vision 2025. The NSGRP is expected to last five years, that is, from 2005/06 to 2009/10. The end point of the strategy coincides with the targets of the National Poverty Eradication Strategy (NPES - 2010); it is two thirds of the way towards the MDGs (2015) and 15 years toward s the targets of Vision 2025. The strategy requires increased commitment and resources from domestic stakeholders and development partners in the medium term. To increase the effectiveness of aid, Tanzania will pursue the principles laid down by the Tanzania Assistance Strategy (TAS) and Joint Assistance Strategy (JAS) for harmonization alignment of aid modalities. However, policies will be required to ensure that the pattern of growth is pro poor and benefits at the macro-level are translated into micro-level welfare outcomes.

Linkage of NSGRP with AWM is through the recognition of agriculture as a lead sector for increased pro-poor growth of the economy. In this respect it can be said, agricultural growth is not an exception for pro-poor country-wide economic growth. In the interest of this study, pertinent sources of growth related closely to AWM were found in the NSGRP document. These include increasing productivity, increased access to factor inputs and technology, investment in infrastructure, and assured linkages to agro-product markets. These are discussed in relation to rural growth constraints.

The NSGRP has set operational targets of: 1) increasing food crops production from 9 million tons in 2003/04 to 12 million tons in 2010; and 2) maintained strategic grain reserve of at least four months of national food requirement. These are to be achieved through the following strategic actions:

- Providing targeted subsidy to selected food crops, identifying and promoting modern farming technologies especially in rural areas and providing support for increased utilization of improved technologies for crop and livestock production.
- Identifying research activities and promoting food storage technologies and facilities and enhancing agro-processing as well as environmentally-friendly farming technologies and practices especially for rural areas.
- Improving stock management and monitoring of the food situation.
- Undertaking a review of the maize supply chain, management and monitoring of emergency food supplies, including further clarification of regulation and means of enhancing trade.
- Improving road network connectivity to facilitate flow of food crops.

The operational targets set to reduce rural income poverty were: 1) reduced proportion of rural population (men and women) below the basic needs poverty line from 38.6% in 2000/01 to 24% in 2010; 2) reduced proportion of rural food poor (men and women) from 27% in 2000/01 to 14% by 2010; 3) increased productivity and profitability both within agriculture and outside the agriculture sector; 4) increased sustainable off-farm income generating activities; 5) secured and facilitated marketing of agricultural products; and 6) increased contributions from wildlife, forestry, and fisheries, to incomes of rural communities. The strategic actions to achieve these operational targets were stated to be:

- Providing reliable, affordable and efficient energy and alternative rural energy schemes;
- Enhancing life-skills and entrepreneurship training for rural population;
- Increasing access to rural micro-financial services for subsistence farmers, particularly targeting youth and women;
- Promoting and sustaining community-based savings and credit schemes such as SACCOS and revolving funds;
- Strengthening cooperatives and Export Credit Guarantee Fund for cooperatives and other farmers' organizations;

- Investing in rural infrastructure to facilitate marketing of rural produce;
- Supporting production of crops with high returns;
- Promoting off-farm activities and value-addition schemes to primary agricultural, fishing, forest, wildlife and livestock products through agro-processing SMEs and cooperatives;
- Scaling up community development initiatives e.g. community-based rural road construction and enhancement of programmes such as SIDO, TASAF and SELF that focus at micro level.

Furthermore, the NSGRP underscores the essence of attaining the growth which is resilient, *inter alia*, to natural and man-made shocks. The common hazards in Tanzania include epidemics, pest infestation, droughts, floods, major transport and industrial accidents, refugees and fires. These shocks require definitive policy and resources to manage (for example, prevent, mitigate, and respond to).

### *3.1.7 Defining the policy periods*

The study period of 1985-2005 was split into two rather distinct policy periods. The year 1996/97 was taken to mark radical policy shift. This culminated into two policy periods each with a span of 10 years from 1985 – 1995 and 1996 – 2005. In 1996/97, the new political regime was in full command of running the country after the end of 2005 multiparty elections. The major policy feature of the new political regime was overemphasis on privatisation of the economy which meant reduced participation of the public sector. Moreover, in addition to regime change, two policies with serious implication on water management came into play. This includes the Agriculture and Livestock Policy of 1997 and Environmental Policy of 1997. The post 1996/97 era was basically deliberate encouragement of private sector participation in the economy and shrinking of the public sector. Though economic reforms started in the earlier 1980s, they were in full swing in the mid 1990s.

In the first policy period of 1985 – 1996/97, the key policies which explicitly had or would have had implications on AWM were the Agriculture Policy of 1983, the Water Policy of 1991 which was improved in 2002 and the Land Policy of 1995 (URT, 1995). In the second policy period of 1997/98 – 2005 chosen policies included the Agriculture and Livestock Policy of 1997 (URT, 1997), Environmental Policy of 1997 (URT, 1997), Water Policy of 2002 (URT, 2002) and the National Strategy for Growth and Poverty Reduction of 2005 (URT, 2005). The summary of objectives of these policies is presented in Annex 1.

### *3.1.8 Key elements of AWM policies for each policy period*

The key features of AWM policies in the two policy periods are summarized in Table 1. Generally, the first period is dominated by government supremacy in the economic domains including agriculture. The public sector pursued a range of economic functions such as extension, input supplies and marketing through its parastatals. In mid 1980s there were already economic reforms in broad structural adjustment, but still the public sector dominated the functional scene. Increased access to agricultural water was recognized as an important factor for increased productivity in agriculture. But, agricultural water was envisioned from the perspective of large scale irrigation schemes. In the second policy period, the private sector has increasingly been taking most of the functional roles that used to be the mandate of the public sector. The second policy period was the era of expanding private sector and shrinking public sector in provision of economic services, including agricultural ones. The issues of sustainability and broadening definition of agricultural water were important features of the second policy period. Environmental concern has a serious implication on AWM as a certain amount (not absolutely known) of water that could have been used to produce food, has to be given up for the environment. Increasingly, the concept of RWH for agriculture features in recent policies and commitments at high policy levels. Such policy commitments should combine with the best-bet technologies generated through empirical research translating into meaningful investments in RWH at farm level. This will increase access to agricultural water by a wider section of smallholder farmers in areas plagued by low and stochastic rainfall.

**Table 1: Key policy elements and features implying on AWM over the policy periods**

| Policies | Key elements/features implying on AWM over the policy periods | |
|---|---|---|
| | 1985 to 1996/97 | 1997/98 to 2005 |
| Agriculture Policy 1983 | • Dominance of the public sector in various domains of the economy including agricultural services such as parastatal farming, extension, input supply, marketing<br>• Overemphasis on irrigation (narrow definition of agricultural water)<br>• Land conservation was not designed for moisture conservation<br>• The issue of environmental sustainability not explicitly underscored | |
| Agriculture and Livestock Policy, 1997 | | • Increased engagement of private sector in providing agricultural services such as input supply, marketing<br>• Irrigation still emphasized<br>• Integrative management of natural resources expressed (land, soil, water and vegetation)<br>• The issue of environmental sustainability emphasized (influence of Rio Summit and others)<br>• Conflicts between farmers and pastoralists considered |
| Water Policy, 1991 | • Government considered to be sole investor, implementer and manager of water projects<br>• The issue of water for environment, 'the voiceless' sector, was not accorded importance<br>• AWM was marginally addressed compared to domestic water supply | |
| Water Policy, 2002 | | • Underscored the context of development and management of water in the changing roles of the government to that of coordination, policy and guideline formulation and regulation<br>• The paradigm of IWRM came into play<br>• Economic and institutional instruments for water management expressed for increased water use efficiency, sustainability and equity (water permits, pricing, WUAs, etc.)<br>• Water for environment emphasized<br>• The definition of water for agriculture expanded to envisage issues of RWH for both crop and livestock production<br>• Explicit emphasis and expansive roles of the Basin Water Office (basin approach in water administration) |

| | | |
|---|---|---|
| Environmental Policy, 1997 | | • Aspects of water use efficiency in irrigation, control of water logging and salinization considered (maintenance of the quality of the environment)<br>• Protection of catchment areas, wetlands emphasized<br>• Afforestation through tree planting strongly emphasized (really done on the ground)<br>• Environmental protection and water pollution are underscored, and the precautionary and polluter pays principles are recommended to guide administrative decisions<br>• Land husbandry through soil erosion control and soil fertility improvement are emphasized |
| Land policy, 1995 | • Recognition of customary and statutory rights of occupancy as equal in law<br>• Separatism of water rights to land title (gives rights to water even those who might not have land titles, for example,. the tenants)<br>• All land is public land vested in the trusteeship of the President (has the right to revoke any right of occupancy for the public interest)<br>• Allocating land for distinct use for agriculture and grazing (to avoid conflicts among farmers and pastoralists)<br>• Foreign investors have access right to land for investment<br>• Women's access to land is guaranteed by the policy and then by the law. Inheritance arrangements of clan land are governed by customs and tradition. This should hold if it is not contrary to the constitution and repugnant to principles of natural justice. | |
| National Strategy for Growth and Reduction of Poverty, 2005 | | • An organizing strategy for poverty reduction (delivery of national and MDGs targets)<br>• Increased economic growth is a harbinger to poverty reduction and agriculture is the lead sector whose productivity has to grow tremendously to fast track poverty reduction in rural areas.<br>• Agricultural growth in terms of increased productivity is *inter alia* the function of improved management of agricultural water |

### *3.2 Key Institutional Frameworks (Legal, Regulatory and Organizational)*

The legal and regulatory framework of water management in Tanzania is a mix of written Ordinances that were made by the Legislative Council before independence and the contemporary legislations on one hand, and the set of local, community-y based practices that are normally determined by local customs, traditions and culture of the water users (Sokile *et al.* 2003, Maganga *et al*, 2002). At the national level, water management is predominantly governed by formal institutions, mainly policies, acts and legislations, and related organizations that are judiciously established in accordance with the formal provisions. At the basin level, there is a mix of formal and informal arrangements, but the formal predominates, partly due to the fact that informal arrangements are often still quite localized and do not encompass the whole basin as yet, and partly due to the general failure of formal national and basin-level water management systems to appreciate the informal arm. At the catchment and sub-catchment levels, informal institutions gain strength and the patterns of the formal-informal interface become clearer.

#### *3.2.1 Legislative frameworks*

**a) Water laws**

All the waters in Tanzania are vested in the United Republic. The landscape of institutional frameworks for AWM is basically regulated by the Water Utilization (Control and Regulation) Act, 1974 as amended in 1981, 1989 and 1999. There are also some other legislations which regulate the water sector such as the Waterworks Ordinance, (Cap 281) and Urban Water Supply Act, 1981. The Water Utilization Act deals with allocation of water amongst the different users. There were subsequent amendments that were made to the original Water Utilization Act in order to introduce the need for legislation on the quality control of water. The exclusive rights to use water belong to those who have a water right granted under the Water Utilization Act (URT, 2004; Sokile *et al.*, 2005; Kabudi, 2005).

Tanzania is a country with legal pluralism meaning that the legal system is composed of statutory and customary laws. In many parts of the rural areas of Tanzania, statutory water legislations have existed parallel with the customary laws for many years. These traditional systems are deeply rooted and often quite functional, particularly in areas of conflict resolution, water resources and catchments protection, and water allocation among the different users (URT, 2004; Sokile *et al.*, 2005). Customary Law means any rule or body of rules whereby rights and duties are either imposed or established by usage in any African community in Tanzania, and accepted by such community in general as having the force of law. This includes any declaration or modification of customary law made or deemed to have been made under Section 9 A of the Judicature and Application of Laws Ordinance, and references to "native law and custom" shall be similarly construed[2] (URT, 2004). Customary law is therefore a body of customs, usages and norms that are found in a particular society. It also includes rules and regulations.

The unwritten and flexible nature of customary law implies the complexity of application. Contrary to land, customary water rights have never earned recognition under the law in their unwritten or informal status. Only existing rights that have previously been registered can be asserted under the law (URT, 2004). The regulation of traditional water abstraction remains a problem because of non recognition of customary water tenure laws. These have been legally regulated through various channels such as the creation of the Village and District by-laws, formation of water users' associations under the formal law or through courts of law and ward tribunals.

Application of statutory laws governing water management at the grassroots level has never been smooth under different circumstances. Subjection of local users to water rights and fees as per statutory requirements is incomprehensible to local users. This is because of the open access right they have enjoyed since time immemorial, taking water resources as God given and therefore free. For example, the Rufiji Water Board has made an attempt to assert its authority regarding water allocation in Usangu which is one of the areas under its jurisdiction. The Board required each irrigation canal to pay 40,000 TAS annually for a water right. Local users were upset proclaiming that "this water was given to use free by God, and so far we have been using it freely, why are we forced to pay for it?" (Maganga, 2002).

The non recognition of customary water rights under the present legislation has been acknowledge in the national water policy as one of the major issues that need to be addressed. In a statement made in the water policy, the government declares that it seeks to strengthen the water rights concept by *inter alia*

[2] *Definition given under Section 4 of the interpretation of Laws Act No. 4 of 1996*

necessary adjustments to the existing law so that the legal status of long time traditional users who do not presently possess formal rights and who are not mentioned in the Water Utilization Act is recognized. A number of examples exist of conflicts between traditional users and those with formal water rights as in the Lower Moshi Irrigation Scheme where the project had a water right that is contested by traditional users upstream.

Statutory laws may become a major source of livelihood uncertainty to the poor (Meinzen-Dick and Pradhan, 2002). Normally, land and water registration considered by many people to enhance security against disputes is associated with complications and costs in the registration process and therefore discourages people from registering. Such costs include direct application fees and the transaction costs of time and travel involved in the application process. Furthermore, usage of land as collateral in formal credit in the African rural context is still very far from reality. This is mainly because, despite low value and liquidity problems of most rural lands, qualification for formal credit is subject to other conditions apart from security.

Recently, the government released three draft bills on new water laws which are still at a consultation stage since June 2004. These were the Water Resources Bill, the Urban Water Supply and Sewerage Bill and the Rural Water Supply and Sanitation Bill. Of the three sets of legislations, the Water Resources Development Act (2004, Draft) concede to the administration of both informal, local and customary water use permits (formerly water rights) and to the formal ones and, unlike earlier legislation, provides for a possible interface between the two systems of access to water.

**b) Land laws**

This analysis focuses on land tenure and gender relations as they logically imply on AWM. Access to agricultural water is subject to access to land. Therefore, tenure arrangements which govern access to land are very relevant in AWM. Also, a gender perspective of land access is critical so as to comprehend the position of women who are major actors in the smallholder farm sector.

***Land tenure system***

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, 2004). The laws governing the tenure and administration of land in Tanzania are greatly influenced by historical developments. After the First World War, the British administration sought to develop Tanganyika as a peasant plantation economy. They enacted the Land Tenure ordinance No. 3 of 1923, also known as the Land Ordinance Chapter 113. This land ordinance purported to uphold the native's interests over land by mentioning this in a non-binding preamble to the ordinance. The Governor held land in trust on behalf of natives. German conveyance and leasehold titles were converted to freehold titles, providing granted rights of occupancy to foreigners and deemed right of occupancy to natives. The former had documentary evidence while the latter did not. Therefore, customary land rights were not really secure under this law. In 1950 the land ordinance was further amended, requiring "consultation" with Native authorities before alienation of land. Following the East African Royal Commission (1953 – 55), the colonial government passed another government paper in 1958 emphasizing individual exclusive, secure and unlimited tenure in order to promote efficient land use and enhance access to credit. However, this could not be implemented since TANU activists vehemently opposed it, as strongly argued in Mwalimu Nyerere's paper "*Mali ya Taifa*" or "National Property" (Nyerere, 1958 cited in Sungusia, 1999), and independence was just around the corner. Immediately after independence, there was in 1962 Government Paper No. 2, which intended to change the land tenure. It has been argued that besides substituting President for the Governor as trustee over land, the only other notable change was the conversion of all freehold titles to leasehold of up to 99 years (Sungusia, 1999; Gondwe, 1986). There were other changes in government policy and structure, which had a direct bearing on the land tenure. These include: Nationalization of property in 1967 (Arusha Declaration), villagization in 1974 – 76, Decentralization in 1972, Urbanization, which often extinguishes customary land rights of surrounding villagers, and economic liberalization from the mid 1980s. Some of these changes had accompanying legal provisions.

Since Tanzania embarked on economic liberalization in 1986 there have been deliberate efforts to induce land reforms 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. The Land Act number 4 of 1999 covers general land while the Land Act number 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 stipulates 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 No. 5 section). 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, 2004).

***The land tenure-gender discourse***

Both the Land policy and the Land laws sought to improve the ownership rights of women under 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. For this reason it has been proposed by Tibaijuka *et al.*, (1993) that the gender dimension needed to be put into the research agenda to examine the extent to which different customs and traditions around the country are capable of accommodating the rising demand for the recognition of women's rights on land. The recent land laws protect 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 (section 20 subsection (2) of Village Land Act No. 5 of 1999). The Land Act No. 4 of 1999 safeguards gender rights land mortgaging arrangements as the lenders should not discriminate applicants on gender basis (section 142 subsection 1-ii).

Much has been written and said about the skewed nature of land tenure system with respect to gender in most African countries. Most of the land is owned and administered under customary law, where land is often transferred through the patriarchy, even among matrilineal ethnic groups. In Tanzania, the customary laws of inheritance, which are codified under the Local Customary law, places women in the third degree after the oldest son who falls in the first degree and other younger sons who fall in the second degree (Isinika and Mutabazi, 2004). According to this law, daughters of a deceased can only inherit family land if they are the only surviving member of the family. Even then, a woman can occupy and use the land until her death, without powers to transfer (James Fimbo, 1973 as cited by Habiba Mazinda, 2001). Despite stiff endless debate, the reality is that generally women have access rights to land. The central question that matters in AWM is access or ownership rights? The study conducted by Isinika and Mutabazi (2004) on two ethnic societies of *Wabena* and *Wasukuma* found that women were granted access rights to land. And, cases where women were granted ownership rights existed. With developing land markets, secured access to land by women and other groups such as youths, is increasingly seen as economic empowerment which will make them own land through market exchange.

**c) Environmental management laws**

Within the period adopted for this study (1985-2005), the first effort was legislative establishment of the National Environmental Management Council (NEMC) in 1983 (National Environmental Management Act No. 19 of 1983). For more than 10 years NEMC as the regulatory body existed without a definitive environmental management policy. 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 came into play, to enforce environmental management in a more coherent manner. Under the Environmental Act of 2004, the legal definition of water includes 'drinking water, river, stream, water-course, reservoir, well, dam, canal, channel, lake, swamp, open drain, or under ground water' (section 3 of Interpretation). Clauses of the law which impact on water management are many but the following were considered more relevant to AWM:

***Protection of river banks, rivers, lake and lake shores***

Under this clause in section 55 subsections (1) to (2), the authorities responsible for environmental matters shall issue guidelines and prescribe measures for the protection of riverbanks, rivers, lakes and lakeshores. Where the guidelines and measures have been prescribed pursuant to subsection, it shall be an offence *inter alia*, to carry out any of the following activity without prior authorization or permit issued by the Minister: excavate, drill, tunnel or disturb the shoreline of ocean or natural lake, river bank or water reservoir; direct or block a river, river bank, lake, lakeshore or wetland from its natural course; and/or drain a river or lake. By implication, where the guidelines and prescribed measures do not comply with circumstances of local water users, this law might deny water access by farmers which will further undermine local input in the protection of the resource.

***Environmental obligations under water laws***

This clause is found in section 60 subsections (1) to (2). It states that 'every applicant for 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. Practically, the Basin Water Office will do that on behalf of smallholder applicants. This means, such a statement is made out of applicants' knowledge. Section 2 specifies duties of the Basin Water Boards that should issue the water permit indicating extent of compliance by water use permit holders of the following conditions - obligation to return 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; and Basin Water Boards in prioritizing different uses of water shall ensure that adequate water is made available for environmental purposes. The practicality of such conditions, of returning flows which are free from pollution is questionable mainly because the Basin Water Office lacks the capacity to monitor and analyze pollution levels among sparse users dominated by unregistered water uses.

### *3.2.2 Regulatory frameworks*

**a) Establishment and functions of Basin Water Office**

Tanzania had already adopted a River Basin Management Approach for water resource management in 1980s when the country was divided into nine basins through Act No.10 of 1981, which was an amendment of the Principal Act No. 42 of 1974. The Basin Water Office is declared to be the body responsible for water administration. The policy declared that the existing Water Act and regulations will be reviewed and conflicting water related laws and regulations will be identified and harmonized. In the review, the mandates of Basin Water offices will be strengthened to enable these offices to: (a) enforce and follow-up on existing legislation, regulations and operating rules governing water use and control of pollution; (b) become the legal authority to collect the various water use charges: (c) facilitate the establishment of lower level water management organizations which will bring together users and stakeholders of the same source; and (d) become centres for conflict resolution in water allocation, water use and pollution (URT, 2003:49(4.11-i).

**b) National Environmental Management Council**

NEMC is the regulatory body for environmental management established under the National Environment Management Act No. 19 of 1983. The prime function of the council as stipulated both in section 4 of the Act No.1983 and Environmental Management Act of 2004, has been to advise the government on all matters relating to the environment, in particular formulation and implementation of environmental management. The purpose for 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, shall facilitate public participation in environmental decision making, 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.

**c) Public Procurement Act**

Most of the programmes visited reported that bureaucratic public procurement procedures delayed implementation of projects. For this reason, it was important to evaluate the public procurement Act of 2004. Despite its late establishment, the Act explains what happened before 2004. This is because the 2004 procurement Act just consolidated and improved upon procedures of public tendering and contracting which existed before. The procurement Act now has stronger implications than ever on AWM because most of the money granted by donors is channelled through the government in what is termed as 'basket funds'. This is in compliance with arrangements stipulated in the national assistance strategy aimed at rationalizing utilization of development support from donors. The public procurement Act and disposal principles and methods are too bureaucratic and demanding. Some lengthy and demanding procedures are contained in the award of contracts (section 31); qualification of suppliers, contractors and consultants (section 46), and tendering aspects (sections 60, 61 and 67). Legally, 'procurement' means buying, purchasing, renting, leasing or otherwise acquiring any goods, works or services by a procuring entity spending public funds on behalf of a ministry, department or regional administration of the government or public body and includes all functions that pertain to the obtaining of any goods, works or services, including description of requirements, selection and invitation of tenders, preparation and award of contracts[3].

For instance, before the suppliers, contractors and consultants qualify, *inter alia*, the law requires them to have been registered with appropriate current professional statutory bodies in Tanzania (section 46 sub-section (2)). However, foreign suppliers, contractors or consultants wishing to participate in the proceedings are exempted from the requirement under subsection (2), but where as a result of the procurement proceedings, any foreign supplier, contractor or consultant is selected as having submitted the lowest evaluated responsive tender or the best ranked proposal, such supplier, contractor shall register with appropriate professional statutory body and shall be required to submit evidence of registration as an approved supplier, contractor or consultant in Tanzania (section 46 subsection (3)). In most cases, not all potential suppliers, contractors and consultants are registered with professional statutory bodies. In case of non-citizen service providers, registration with a local professional statutory body is seemingly unrealistic given that the standards of professionalism are diverse among countries. Another area that may delay effecting the procurement is the procedures for what is termed in the Act as competitive tendering.

A procuring entity shall prepare a tender notice inviting suppliers or contractors to submit priced offers and such tender notice shall be submitted within reasonable time before the planned issue of the tender to the Secretary of the tender (section 61, sub-section (1)). The approved tender notice is then advertised to ensure widest reach of potential suppliers and contractors (section 61, sub-section (2)). The tender notice shall be published in sufficient time, as prescribed in the regulations, to enable prospective tenders to obtain tender documents and prepare and submit their responses before deadline of receipt of tenders (section 61, sub-section (3)). The time specified for the opening of the tenders submitted shall be the same as the deadline for receipt of tenders or immediately thereafter, and shall be repeated, together with the place for tender opening, in the invitation to tender (section 61, sub-section (4)).

### *3.2.3 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 (URT, 2003: 36(4.4.2-i).

**a) Central level: Ministry of Water**

Although the thrust of current water resource management in Tanzania is to implement water management at the basin level, the central ministerial level continues playing a significant role in water management and the coordination of all nine basins in the country. The central level is responsible for developing, disseminating, monitoring and evaluation of the National Water Policy 2002 (URT, 2002). A new structure is being proposed in the draft new Water Resources legislation (2004, draft).

[3] *Public Procurement Act No. 21 of 2004.*

**b) Basin level**
As per Act No.10 of 1981, for mandates, tasks and roles provided in this Act for Basin Water Boards are as stipulated in section 3.2.2(a).

**c) District level**
Practically, district level entails catchment or sub-catchments as water management units. At this level the ward is the governance structure. 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.
Each ward has a Ward Councilor. Ward Councilors represent the community members who elected them into power in the District Council, and mobilized communities towards the formation of WUAs.

**d) Local level: The village and below**
The lowest tier of formal organization in Tanzania is the village level. Each village has a village assembly of all adults, which elect 25 representatives to form the Village Council. The Village Council operates through three mandatory committees, which are vested with responsibilities for handling daily affairs of the village: the Finance, Economic and Planning Committee; the Social Services and Self-reliance Committee and the Law and Order Committee. Water sub-committees fall under the Social Services and Self-reliance Committee. Seemingly, whenever the formal village sub-committees are weak, there is a stronger informal institution that assumes the roles and fills the gap (Sokile *et al.*, 2005).

### *3.2.4 Key elements of AWM institutions for each period*
Legislative and regulatory frameworks seldom change as policies do, as the legislative framework is subjected to amendments. For so long, and within the reference study period of 1985-2005, AWM-related laws have not changed radically. For example, the water related institutional frameworks have been shaped by the Water Utilization (control and regulation) Act of 1974 as amended in 1981, 1989 and 1999. This Act prescribes a range of aspects including among others, issues of water permits, Basin approach for IWRM, water users association, etc. Pertinent institutional frameworks for AWM, which are hardly attributable to our reference policy periods, are discussed in section 3.2.1.

## 3.3 Impact of Policy and Institutional Frameworks on Performance of AWM

### *3.3.1 Overview of programmes and projects*
**a) Smallholder Development Project for Marginal Areas (1990-1996/97 period)**
***Description of the project***
The Smallholder Development Project for Marginal Areas (SDPMA) was one among several efforts initiated by the Government of Tanzania and funded by the International Fund for Agricultural Development (IFAD) to address rural poverty problem. It aimed at poverty alleviation. SDPMA became operational in 1990/91. The project objectives were to: i) Increase productive capacity of smallholders; ii) Improve household food security and raise incomes; iii) Improve environmental preservation; and iv) Improve the well being of rural poor, women and youths. This was to be achieved by the introduction of proven technologies with respect to rainwater harvesting; land conservation and management, extension and research; and provision of credit. The project objectives were to be achieved through implementing various activities in the following six functional components, namely:

- Irrigation development
- Participatory extension and trial programme;
- Pilot land rehabilitation in Shinyanga (Hifadhi Ardhi Shinyanga-HASHI);
- Management of rehabilitated land in Dodoma (Hifadhi Ardhi Dodoma-HADO);
- Land survey, registration and land use planning; and
- Project Coordination

Of the six functional components, irrigation development was the major component, drawing support from other components.
The project's area covered the regions of Dodoma, Singida, Tabora, Shinyanga and part of Mwanza. The six-year project which was to cost US$ 18.09 million was being funded by an IFAD loan of US$ 14.61 million and a grant of US$ 0.8 million. The Government of Tanzania was to contribute US$ 1.68 million.

***Extent of improvement of access to agricultural water by smallholders***

Eighteen irrigation schemes with a total area of 4,705 ha and with reliable water for paddy irrigation were constructed and completed. Farmers were also trained on production techniques, and operation and maintenance manuals for their irrigation schemes. Furthermore, technical staff have been assigned to each scheme village.

Yields per hectare have increased in the irrigation schemes (for example, from 1.2 tons per hectare before project intervention to 3.5 tons per hectare after the project at Bahi scheme; from 1.2 to 3.0 tons per hectare at Chomacha Nkola and from 1.2 to 4.0 tons per hectare at Chikuyu irrigation scheme). Thus total production has also increased resulting in increased income to beneficiaries.

***Impacts of policies and institutional framework on performance of project***

The main problem observed was the delay in the implementation of the project because of tendering procedures, disbursement of funds or incomplete disbursement. International tendering procedure in the government system was the main cause of delay. This led to delay in the implementation of the project for about two years because of late arrival of project equipment and vehicles from overseas. Delay in the reimbursement of funds from financiers (IFAD) which sometimes took up to six months also affected project implementation. Disbursement of funds by the Government of Tanzania was characterized by release of insufficient funds and delay in their disbursement.

The second problem relates to credit facility. The modalities of administering credit to beneficiaries were hampered by assigning such responsibility to commercial lending institutions which charged interest at commercial rates. In addition, input delivery to scheme farmers was insufficient, mainly due to failure of credit component and also lack of input distributor. The third problem relates to low crop prices offered to farmers, which were disincentives and automatically affected the servicing of their credits.

**b) Development of Usangu Village Irrigation (1990-1996/97)**

***Description of the project***

The Usangu Village Irrigation Project (UVIP), which started in 1985, was located in the southern part of the Usangu Plains. The project was implemented in two phases. This report is mainly concerned with the second phase, which started in 1991 and ended in 1993. The project's second phase was jointly financed by UNDP and the Government of the United Republic of Tanzania and executed by FAO. The total cost of the project was estimated at US$ 2,696,020.97 million, with UNDP contributing US$ 2,063,060 and the Tanzanian Government contributing US$ 632,960.97.

The overall development objective of the project was to contribute to achievements of the country's development objectives of improved food security and increased food-self-sufficiency through both the evaluation of technically, economically and socially viable approaches to village irrigation development in the Usangu Plains and the building up of regional, zonal and national operation capability to up-grade and develop village irrigation schemes; and to contribute to the raising of living standards of the rural population. The project purposes were:

1. Appraisal of the viability (technical, social, economic and financial) of various approaches to up-grading village irrigation schemes.
2. Building-up a fully integrated national team capable of undertaking village irrigation development without external expertise; and in collaboration between the Zonal Irrigation Office in Mbeya and UVIP Phase II, a consulting office was established with a fully integrated national team capable of undertaking all aspects of village irrigation development projects.
3. Involvement of farmers in all stages of up-grading the village irrigation schemes to ensure sustainability of the schemes.
4. Participation of farmers from the schemes and village communities in field discussion and their assistance to the design team was greatly enhanced.

***Extent of improvement of access to agricultural water by smallholders***

In this project there was weak involvement of farmers in all phases of implementation. For example, farmers of Majengo Irrigation Scheme were not informed of how the project started and as a result they were reluctant to clean and maintain the canals, and in many cases they would refer to the scheme as FAO's scheme and canals. Although the project started with prior discussion with leaders, the leaders did not convey the message to farmers. Existence of two farmers' organizations running the same scheme was the second problem. The two organizations were the Irrigation Committee and the Majengo Farmers'

Cooperative Society. The former had mostly leaders and therefore was more powerful, although, some of the members were without farm plots, whereas in the latter, all members had farm plots.

***Impacts of policies and institutional framework on performance of project***

There were some delays in the implementation of the project. The first delay was caused by the very long negotiation between project staff and farmers on location of the intake, which affected the timely start of the project. However, it seems that the farmers were not happy with the location of the intake as proposed and 'forced' on them by the design team. As a result, the intake that was built has now been abandoned due to excessive siltation and a traditional intake has been built in the upstream using local materials such as stones (boulders) and brushes and trash. The traditional intake is located at a site that was initially proposed by the farmers. The second delay was related to disbursement of funds. The construction schedule was hindered by the inadequate and untimely disbursement of government funds.

**c) Southern Highlands Extension and Rural Financial Services Project (1990-1996/97)**

***Description of the project***

The Southern Highlands Extension and Rural Financial Services (SHERFS) project was initiated in 1993 as a result of the Government of Tanzania's request to utilise the un-disbursed balance of funds from the Southern Highlands Smallholder Food Crops Project (SHSFCP). The Government's aim was to strengthen extension services along the lines of the National Agricultural and Livestock Extension Rehabilitation Project (NALERP) in 16 other regions of the country.

The International Fund for Agricultural Development (IFAD), however, felt that rather than extending the closing date of the SHSFCP, it would be more preferable to formulate a new project. The new project would have agricultural extension as a core component, supplemented by an improved and extended network of input distribution which must include putting in place an appropriate rural financing mechanism. The salient feature of this new project is that, it should be demand-driven with extension services reflecting the real needs of beneficiaries as identified by them.

The central objective of the project was to remove constraints hampering the raising of smallholder productivity which could enhance family food security and incomes. The objectives were:

1. Strengthening and enhancing the existing inputs and credit delivery system to better serve the poor;
2. Developing a participatory, demand-driven extension and community service system, that would be particularly responsive to the needs of poor families; and
3. Ensuring the development and extension of technological packages appropriate to farmers and women, which are also environmentally sound.

***Extent of improvement of access to agricultural water by smallholders***

Awareness of the extension packages by farmers ranges from 27% to 100% whereas adoption rates range from 22% to 56%. There has been a significant increase in production of five major food crops (maize, rice, finger millet, Irish potatoes and beans) in the project area since 1993/94, although the changes can not be attributed solely to project intervention. However, this is a good indication that the project was on the right track towards achieving its objectives. Yields in most demonstration plots or units run by using farmers' own resources and used by village extension officers to demonstrate to farmers improved extension packages have increased three fold or more.

Farmers were not fully involved in planning and implementation of smallholder technologies. Also, much emphasis was given to impact points geared to increasing yields, ignoring other important aspects which would have significant impact on farmers' incomes such as marketing aspects, especially agro-processing, one of the major problems farmers faced in the project area.

***Impacts of policies and institutional framework on performance of project***

Implementation of the project was delayed because of the long procurement procedures. It took a long time to award tenders for civil works and procurement. Some of the items procured were not suitable for the project area as they needed frequent repairs and maintenance thus increasing operational costs.

Delays in the take-off of the credit component and in obtaining bank statements contributed to a lag in project implementation. There was inadequate funding of research programmes such that technological packages developed on-station have not been tested on farmers' fields.

Overlapping of activities between (SHERFSP) and Southern Highlands Smallholder Food Crops Project (SHSFCP) also reduced the pace of project implementation.
Extension officers were usually not fully involved in planning and implementation of smallholder technologies. In addition, most front-line extension officers lacked group mobilization skills and participatory approaches. Consequently, the extension messages delivered to farmers were not directly related to farmers' problems and needs. Furthermore, there were imbalances between extension staff training, supervision and farmers' contact time. More time was spent on extension staff training at the expense of supervision and farmers' contact. Even worse, the civil service reforms caused retrenchment and suspension of recruitment of extension officers. This affected the effectiveness of extension services as the ratio of extension officers to farm families rose from 1:600 to 1:900.

**d) River Basin Management and Smallholder Irrigation Improvement Project (1990-96/97)**
***Description of the project***
The Development Credit Agreement (DCA) for the River Basin Management and Smallholder Irrigation Improvement Project (RBMSIIP), which became effective on December 5, 1996, was part of a practical and phased approach, which was adopted by the Government of Tanzania (GOT) to develop and implement its strategy for managing water resources. The project had two sub-components namely: (i) River Basin Management (RBM) which was implemented by the Ministry of Water and Livestock Development (MWLD) through the Water Resources Department (WRD); and (ii) Smallholder Irrigation Improvement Component (SII), which was implemented by the Ministry of Agriculture and Food Security (MAFS) through the Irrigation Department. The total cost was estimated at US$ 30.7 million in 1995/96 of which US$ 26.3 million was IDA Credit, US$ 2.96 million was farmers' contribution and US$ 1.44 million was GOT contribution. The RBM sub-component was valued at US$ 10.6 million with contingencies, and SII sub-component was valued at US$ 20.1 million with contingencies.
The objectives of the project were to: (1) Strengthen the government's capacity to manage water resources and address water-related environmental concerns at national level and in Rufiji and Pangani River Basins; and (2) Improve irrigation efficiency of selected smallholder traditional irrigation schemes in the above mentioned river basins.
Some of the specific objectives of the Smallholder Irrigation Improvement sub-component directly related to smallholder farmers were:

1. Improvement of management capacity and updating of infrastructure for targeted traditional smallholder irrigation schemes in the Pangani and Rufiji River Basins;
2. Strengthening of community organizations to enable them to manage improved irrigation schemes, through the provision of training and technical advisory services;
3. Strengthening capacity of the private sector to carry out successful smallholder irrigation through the strengthening of water user groups and training of private sector contractors on technical features of construction of irrigation works and the use of labour-based construction materials;
4. Increasing water use efficiency to 30%.

***Extent of improvement of access to agricultural water by smallholders***
By project closure, a total of 1,674 farmers from the improved schemes as well as groups from outside Pangani and Rufiji river basins were trained on: i) scheme water management; ii) crop production techniques; iii) agribusiness and financial management; and iv) scheme management and leadership skills. There were also outreach programmes to the 15 improved schemes.
Increased understanding of water management and water use efficiency as a result of farmers training; and the introduction of water use fees to the schemes after they had acquired water rights, made farmers realise that water has value and costs. Crop production plans that provide guidance on crop selection for each season, combined with the training that farmers received enabled them to continue obtaining higher yields. All improved schemes have formalised Irrigators Associations that are able to fund operation and maintenance.
However, some farmers perceive that basin management is a ploy to deprive them of exercising their historical (customary) rights to use of water for irrigation. They also viewed themselves as the losers in their trade of water for hydropower since electricity is primarily provided for urban domestic and industrial use.

***Impacts of policies and institutional framework on performance of project***

There were delays in bidding due to inadequate capacity of MAFC staff in the preparation of tender documents and lengthy Central Tender Board review of pre-qualification and bidding of documents (from both contractors and consultants) and preparation of subsequent reports. This delayed implementation on the rehabilitation works.

Rehabilitation of the first four schemes was delayed due to inexperience and inability of local contractors in undertaking construction of irrigation schemes according to set programmes and weak supervision. The performance of local contractors was further constrained by inadequate financial capacity and personnel in construction of irrigation schemes.

Furthermore, there was inadequate and non-availability of improved inputs and better crop husbandry practices, and non-availability of marketing infrastructure, i.e. processing, packaging and distribution network.

**e) Traditional Irrigation and Environmental Development Organization (1997/98-2005)**

***Project Description***

The Traditional Irrigation and Environmental Development Organization (TIP) traces its origin back to a study that was conducted in 1987 to assess the status of traditional irrigation in Tanzania. This study eventually gave birth to a district-based Traditional Irrigation Improvement Programme (TIP) in 1988, which operated in seven districts including; Lushoto, Same, Mwanga, Arumeru, Iringa, Mpwapwa and Kilosa. TIP as a programme ended officially on 31 December 2000. The present Traditional Irrigation and Environmental Development Organisation was registered as a non-governmental organization (NGO) under trusteeship in August 1999, maintaining the name "TIP" for continuity.

The current NGO phase, which has been in operation since 2000, is mainly supported by NOVIB. Activities have been carried out in four districts namely Lushoto, Same, Mwanga and Arumeru, which are located in three regions, that is, Tanga, Kilimanjaro and Arusha. By 2005, TIP had activities in more than 57 Villages, involving about 86 WUGs.

The main objective of TIP is to contribute towards improving rural livelihoods by promoting gender equitable access and control of land and water resources. The specific objectives of TIP are to:

1. Increase water use efficiency through improved irrigation infrastructure
2. Increase land productivity through improved land use management
3. Enhance capacity of communities to manage water resources in a sustainable manner
4. Enhance capacity of TIP to deliver services cost effectively

***Extent of improvement of access to agricultural water by smallholders***

1. Farmers are now willing to invest in water storage tanks within their farms, which cost up to two hundred thousand shillings.
2. Farmers can also now afford to undertake relatively more expensive irrigation techniques such as drip irrigation and pipe conveyance.
3. Moisture conservation has improved as a result of wide use of terraces.
4. Improvement of farms through terracing and improvement in the water distribution system has increased the number of people served by water storage reservoirs. For example, in Goha village only five people could use the water which was stored overnight in the reservoir. After improvements, the same reservoir now serves ten people.
5. More downstream farmers can now access irrigation water. For example, prior to TIP intervention only farms that were close to the intake could use water for irrigation at Dindira village, Lushoto District. However, the water now reaches more distant downstream farmers.
6. Farmers can now grow up to three crops per year due to improved availability of water.

***Impacts of policies and institutional framework on performance of project***

Although irrigation structures have been improved and WUGs have been strengthened, there has been persistent drought during the last three years such that irrigation and even rain fed agriculture has been below optimum levels.

**f) Participatory Irrigation Development Program (1997/98-2005)**

***Project description***

The Government of the United Republic of Tanzania and the International Fund for Agricultural Development (IFAD) signed a Loan Agreement on 10 November 1999 for the implementation of a Participatory Irrigation Development Program (PIDP). PIDP was a six-year programme to be funded by IFAD, World Food Programme (WFP), Irish Aid, Government of Tanzania and beneficiaries to the tune of US$ 25.258 million. The programme became effective on 18 February 2000. PIDP was initiated as a follow-up of Smallholder Development Project for Marginal Areas (SDPMA). Implementation arrangements of PIDP have taken into account the lessons learned and experience gained from IFAD's projects and programmes in Tanzania and its Country Strategy framework for Tanzania. The programme is using participatory and demand driven approach.

The programme is implemented in 12 districts of six regions in marginal areas of Tanzania. The regions and their districts are as follows: Arusha (Babati and Mbulu); Dodoma (Dodoma Rural and Mpwapwa); Tabora (Nzega and Igunga); Singiad (Iramba and \Manyoni); Mwanza (Misungwi and Kwimba) and Shinyanga (Shinyanga Rural and Maswa).

The purpose of the programme is farmer initiated and managed irrigation schemes in targeted semi-arid areas of central Tanzania improved and expanded as per Agricultural Sector Development Strategy (ASDS) targets/outputs. The main outputs are:

1. Water management systems in the target area improved and expanded
2. Services for agricultural development in the programme area improved
3. Farmers' organizations and local institutions in the target area established and capacitated
4. Participation, gender equity and sustainability in the programme area fostered
5. Institutional arrangements and capacity at district level in the programme area established and improved
6. Coordinated programme activities in place

***Extent of improvement of access to agricultural water by smallholders***

Rehabilitation of 16 schemes increased the area that receives reliable water to 5,000 ha from 3,405 ha. Farmers received training and attended demonstrations and trials, which led them to adopt good agronomic practices such as line-transplanting, seed selection, proper land preparation and timely transplanting of seedling. The access to resources such as land and water by resource-poor farmers also increased. The outcome of these interventions was increased average production of paddy from 1-2 tons per ha to 3-4 tons per ha.

***Impacts of policies and institutional framework on performance of project***

Delayed establishment of District Programme Units and recruitment of key staff (District Programme Managers and Accountants) caused postponing of planned activities, especially trainings and seminars.

**g) Kilimanjaro Agricultural Training Centre (1997/98-2005)**

***Project description***

The Kilimanjaro Agricultural Training Centre was established as the irrigated rice cultivation training centre in 1994. The technical cooperation, the KATC Phase I Project was implemented by JICA from 1994 to 2001 for the purpose of strengthening the function of KATC. On the basis of its achievements, the Government of the United Republic of Tanzania proposed another project. It aimed to further strengthen the technical and pedagogical capabilities of KATC personnel through development of training courses to meet the needs of the model sites.

The main objective was to increase productivity of rice in the model sites through KATC's training. The planned outputs were:

1. The concept of and approach to the model sites are established (based on the agreement of all the stakeholders);
2. The capability of KATC in identifying training needs is improved;
3. Technical training programmes are strengthened to meet local needs;
4. The training programme for improving institutional framework of irrigation schemes is strengthened;

5. The capability of KATC in collecting and providing useful irrigated rice cultivation information is improved; and
6. The concept and approach to mainstream gender into planning, implementing and monitoring technical training on irrigated rice production are established.

***Extent of improvement of access to agricultural water by smallholders***

1. There is improvement on the living standards of the people in model sites and surrounding areas. More people are now able to pay school fees, build modern houses, and buy radios, bicycles, cellular phones and even plots of land.
2. Many farmers are now willing to acquire appropriate irrigated rice production technologies and knowledge.
3. Participation of neighbouring farmers in in-field training and field or farmers' day has increased.
4. There is strong support to the project from district authorities and farmers organizations (irrigators associations) after they have been stimulated by the project's implementation.
5. There is potential for increasing the irrigated area as a result of improvements in irrigation facilities and water management.
6. Promotion of KATC activities, dissemination of the knowledge generated and its impacts has been disseminated to other stakeholders through participation in agricultural shows, KATC newsletters, and other media.

***Impacts of policies and institutional framework on performance of project***

1. Water shortages
2. Since 2003 when the project provided in-field trainings, all the model sites have been affected by frequent water shortage due to prolonged drought. Very severe drought in 2003 led to postponement of in-field training activities at Nduguti model site.
3. Delayed disbursement of funds.
4. The budget from the Tanzanian side has not been disbursed as planned. The disbursed amount was far below the amount needed for the operation of the project.
5. Low level of information dissemination.
6. Collection and provision of useful information on appropriate techniques (methods) of irrigated rice cultivation has been low.

**h) Conservation Agriculture and Appropriate Mechanization for Sustainable Crop and Livestock Production (1997/98-2005)**

***Project description***

The objective of this pilot project is to introduce and demonstrate conservation agriculture technology as a means to improve crop yields and income, while reducing requirements of labour and resources. The project will address the problems of soil infertility, labour shortage and environmental degradation, which are caused by inappropriate farming practices in various parts of the country.
The conservation agriculture approach is particularly important in solving these problems because it is based on the forest model approach of recycling nutrients. It maintains soil cover on the land and restores soil fertility and productivity in degraded soils and in doing so, it increases crop yields. It also increases resource use efficiency through a reduction in farm power needs, inorganic fertilizers, and reduction of environmental degradation.

The project activities will focus on improving soil fertility and moisture retention by using different leguminous crops, introducing no-till implements and demonstrating their use. This will thus prepare the way for future, post-pilot project encouragement of local manufacture of the introduced implements, initiation of a stockist network to stock such implements and also encouragement of cover crop seed production. The project ranks high in the implementation of Agricultural Sector Development Strategy. The main implementing agent will be the Directorates of Crop Development, Research and Development of the Ministry of Agriculture and Food Security, based in Dar es Salaam and which will collaborate with the Extension Section in order to establish links between researchers and the farmers. The area coverage will be in the two districts of Morogoro and Kilosa in the Morogoro Region. The pilot project duration will be two years, but upon successful implementation, the project will be extended to other parts of the country.

The objective of the project is to introduce conservation agriculture technologies into the selected pilot areas as a way of improving crop yields and income, whilst reducing labour inputs. These technologies are also intended to overcome the farm power constraints and reduce environmental degradation. The main thrust of the project activities will be oriented towards training and the following principal activities are envisaged:

1. Improvement of soil fertility and moisture retention for increased crop production in the proposed pilot areas, using different cover crops.
2. Introduction of specially developed no-till implements, demonstrating their use in the designated project areas to create awareness and demand for the technology.
3. Encouragement of cover crop seed production in situ and promotion of storage and exchange or sale of such seeds with other farmers.
4. To assess and analyse the current mechanisation situation to formulate an agricultural mechanisation strategy and action plan for successful adoption of conservation agriculture.

***Extent of improvement of access to agricultural water by smallholders***

1. District authorities and farmers were sensitized to create awareness on the conservation tillage initiative. Inception workshops were conducted for all participating districts for district authorities, technicians, manufacturers, researchers and other stakeholders in the three project areas. The first workshop was held on 13 October 2004 in Morogoro town for Mvomero and Kilosa districts. The second workshop for Mbeya Rural District was held on 15 October 2004 in Mbeya Town. One of the outputs of the Workshop was the preparation of work plans for the particular district by participants for the respective districts. Awareness creation meetings were made by each district and participatory farmer groups were identified in the pilot areas. To facilitate smooth transfer and understanding, the participatory groups were formed on the basis of common interests and similar constraints. Groups of 25 farmers with similar interests and constraints were formed. The total number of groups is 30, ten in each district. These farmer groups are the targets for the technology transfer of conservation agricultural techniques.
2. New types of agricultural tools and equipment, suitable for CA practices and for use with human labour, draft animals and tractors were identified and imported. These include hand jab planters, animal and tractor-drawn direct seeders and hand-pulled knapsack sprayers. The equipment arrived in the country in mid November 2004, and was cleared from the port on 24 December 2004. Right after Christmas they were transported to the respective district centres.

***Impacts of policies and institutional framework on performance of project***

*Delay in clearing of farm equipments from Dar es Salaam Port*

The implements arrived in the country in mid November. Problems were encountered which resulted in late removal of the equipment from the port. The FAOR, in collaboration with the clearing agent, made a close follow up on the delay. This is unusual and the problem was eventually solved and the goods were cleared on 23 December 2004. Upon clearing, the Ministry arranged for transport of the implements to the three participating districts on 29 December 2004. As a result, the initially planned mode of project implementation at farmers' level where each farmer was planting maize and cover crops using the implements, could not be carried out for eight groups in Kilosa District and all groups in Mbeya District.

*Unavailability of cover crop seeds*

Cover crop seeds are not readily available in agricultural input stores. To solve this problem the project sought assistance from the Trust Fund project CA for SARD - GCP/RAF/390/GER (KEN/URT) Arusha, who were requested to collect *Dolichos lab lab* seeds from farmers on behalf of the project. Other research institutions namely ARI Uyole, ARI Mlingano and ARI Ilonga were also requested to collect viable seeds from farmers so that the project could purchase the seeds from the farmers.

**i) Participatory Agricultural Development and Empowerment Project (1997/98-2005)**

***Project description***

PADEP is a five years demand driven intervention to enhance agricultural development through promotion and adoption of improved technologies by the target community while enhancing active participation of the private sector in the input and output marketing. The project is coordinated by MAFS but implemented by various agricultural sector lead ministries (ASLM) departments, participating district councils, communities and farmer groups. The total cost of the project was estimated at US$

69.99 million, with World Bank-IDA, the Tanzanian Government (Central and District Councils) and the beneficiaries contributing US$ 56.58, 1.59 and 11.82 million respectively.
The project adopts a decentralized approach involving the district councils, rural communities and private sector in planning and executing demand-driven agricultural development activities. It therefore promotes decentralized decision-making with greater involvement of farmer groups and village communities in planning, implementation and management of demand-driven investment sub-projects. Also, it encourages and supports participation of private sector, local NGOs and Community Based Organisations (CBOs) in the identification, design and implementation process of the sub-projects.
The overall development objective of the project is to increase farm incomes and reduce food insecurity, thereby contributing to reduction of rural poverty. The project's immediate objectives are to: (i) Strengthen the capacity of rural communities to plan and implement demand-driven agricultural development initiatives; (ii) Strengthen the institutional and human capacities of local authorities and national level to plan and implement community agricultural development initiatives; (iii) Increase agricultural productivity and production by promoting integrated and sustainable use and management of natural resources through adoption of improved technologies; and (iv) Enhance private sector participation in input and output markets, and in the provision of services to rural communities. The project goal is to cover 840 villages over a five-year period. The project targets an estimated 500,000 farm households .The target number of villages in each district is 30 in the mainland and 94 *shehia* in Zanzibar. To achieve these objectives the project is implementing two main components namely: (i) Community agricultural development sub-projects; and (ii) Institutional strengthening and capacity building.

***Extent of improvement of access to agricultural water by smallholders***

*Limited knowledge of available technological options*

The research and development system in Tanzania has developed a wide range of technological options for various ecological zones. However, most of them are still on the shelves of research institutes. Neither extension staff nor farmers know exactly what is available in the research institutes. In some cases, farmers prepare sub-project proposals without knowing where they will get technologies from. As such, when developing technological interventions they often go for conventional and sometimes outdated interventions. Sometimes one intervention in a village is proposed by many groups, occasionally to solve similar problems. There is need to expose new interventions to the extension workers and farmers to give them a wide choice of options. The project in collaboration with the Ministry's Directorate of Research and Development are developing a catalogue of available agricultural technologies in the country in order to share it with stakeholders at district and village levels.

*Inadequate capacity to facilitate the participatory process*

When the project started its interventions in the participating districts, a good number of the District Facilitation Teams (DFT) and Ward Facilitation Teams (WFT) members had inadequate capacity to facilitate the participatory process. This culminated into some districts becoming too slow in facilitating the process which is the source of fundable sub-projects. To date, most DFT and WFT members appreciate the effectiveness of the participatory approaches and they can facilitate the process with less difficulty.

*Poor quality of sub-project proposals*

Normally, all sub-project proposals are prepared and written by farmers under the guidance of the district and ward facilitators. Initially the quality of those proposals was not good. With time the PCU has been receiving well written proposals from farmers, which is an indication that both the facilitators and farmers are slowly acquiring required proposal writing skills. The most interesting aspect is that most proposals have a clear link with the problem trees. We shall continue to support farmers to write high quality proposals so that similar skills can be used to write proposals for other donors.

*Limited participation of the private sector and NGOs*

Participation of the private sector and NGOs is still limited. The tendency has been for the DFTs/WFTs to facilitate the process alone even where there are competent NGOs around. Considering the number of villages to be covered, it might not be possible for the DFTs/WFTs alone to facilitate the sub-project preparation and implementation process. Since the project design allows for use of other experts from the private sector, NGOs or CBOs operating in the districts, emphasis should be on the use of these sources

of expertise especially in areas where extension services are inadequate. Sensitization workshops and meetings are required to show partners that the private sector is just as important as the public sector.

*District implementation prowess*
Capacity building and institutional strengthening at the district level has been implemented as planned. However, the district level support to communities has not matched with both community and national level expectations. This leaves a lot to be desired in terms of district administrative prowess. Most of the districts with a high number of Farmers Group Investment Sub-project (FGIS) (namely Singida, Hanang, Masasi and Nachingwea) are among phase one districts which started implementation in January 2004.

***Impacts of policies and institutional framework on performance of project***
*Inadequate facilitation and extension services to farmers*
There seems to be a general weakness in facilitating communities to plan and implement their sub-projects. Facilitating teams at district level seem not to meet the farmers' and national level expectation in supporting (technical support) communities and farmers' groups throughout their project implementation process.

*Exorbitant charges in securing contractors services*
Apparently, farmers are being charged unrealistically higher costs for undertaking their sub-projects. This is particularly so for community investment sub-projects (CIS) where prepared Bills of Quantities (BoQs) aim at exhausting the allocated sum per CIS of US$ 35 million even for works which could cost less under normal circumstances. This is also true for the technical assistance and training services offered by various experts including district technical staff. This denies the farmers the opportunity of getting the optimal benefit of the funds allocated to them for investment, technical assistance and training.

*Weak information sharing among various levels*
While the project emphasises transparency and information sharing among various stakeholders as one of the pillars for effective implementation of farmer groups and community investment sub-projects, it has been observed that information sharing among farmer group members and communities is weak; it's also equally important to district authorities to be transparent to other partners and stakeholders particularly on resource allocation and ongoing development initiatives.

*Unclear contribution modalities by farmers to sub-projects*
Realizing matching grant contributions from farmers appears not to be a big problem with the farmers themselves. What is lacking is probably clear explanation particularly on contribution modalities, that is, required amount depending on percentage for contribution as stipulated in the project guidelines with regard to the nature of technologies being adopted.

### *3.3.2 Impact of policies and institutional frameworks on AWM programmes and projects*
**a) Performance of programmes and projects within policies and institutional frameworks**
The performance and outcomes of programmes and projects with agricultural water management components differ and depend on the location, duration, objectives and financial capacity of the programmes. Although the performance of the programmes and projects was supposed to be assessed at the purpose/outcome and output levels basing on OVIs, some programmes and projects didn't use the OVIs to evaluate the performance. They used other criteria such as efficiency, effectiveness, relevance and sustainability of the projects. Furthermore, during project formulation, no logframe was developed for some projects (for example, Southern Highlands Extension and Rural Financial Services Project). However, a list of indicators to facilitate project monitoring and evaluation was given. Unfortunately, the indicators were not categorised into activities, milestones, output indicators, purpose indicators and goal indicators as would be the case in logframe. This categorization helps to systematically identify the activities that accomplish each output; and the outputs which contribute to the achievement of the project objective.

The impacts or outcomes achieved by programmes and projects with agricultural water management components can be summarized as follows:

1. There are new innovations, which have made the programmes and projects to be more effective in addressing poverty reduction and development problems in general.

2. Water User Associations have been strengthened technically through training and cross fertilization via exchange visits, study tours and participation in agricultural shows at various levels.
3. Water User Associations have now become more democratic, transparent and gender sensitive and the level of women empowerment has been greatly enhanced;
4. There is increased understanding of water management and water use efficiency as a result of farmers' training.
5. The knowledge and skills of village technicians has been enhanced and this is crucial for ensuring sustainability of the projects;
6. The efficiency of using water for irrigation has improved and the productivity of crop production has more than doubled in many cases.
7. The access to resources such as land and water by resource-poor farmers has increased;
8. There is increased adoption of good agronomic practices for rice farming such as line-transplanting, seed selection, proper land preparation and timely transplanting of seedlings by a significant number of farmers as a result of trials, demonstrations and farmers' training.
9. Beneficiaries of the projects and programmes have acquired knowledge on better production techniques, particularly in agronomic aspects. Such better techniques have also been acquired by farmers at the tail-end of the schemes as well as neighbouring farmers (spill-over effect).
10. Early maturing, high yielding crop varieties such as rice have been introduced.
11. There is improvement on the living standards of the people in projects sites and surrounding areas. More people are now able to pay school fees, build modern houses, and buy radios, bicycles, cellular phones and even plots of land.
12. There is potential for increasing irrigated areas as a result of improvements of irrigation facilities and water management.
13. Some male household heads now spend more money on drinks.

From the foregone discussion, it can be concluded that the programmes and projects studied have been effective in achieving objectives that were set in their logframes. Technologies have been adopted, productivity has improved and livelihoods of the beneficiaries have changed. Indicators of such changes range from more food security, increased access to education and health services, better housing and bedding and accumulation of assets by villagers. However, all those benefits that have been mentioned are currently reaching only a small proportion of villagers who are direct beneficiaries of the programmes, and a few others who have adopted some of the technologies. The need for extending these benefits further is obvious. Strategies for achieving them have to be worked out.

**b) Problems encountered by the programmes and projects**

Despite the aforementioned achievements, programmes and projects with agricultural water management components faced a number of problems that impacted negatively on their performance. Some of the problems include:

1. Inadequate and non-availability of improved inputs and better crop husbandry practices; non-availability of marketing infrastructure, i.e., processing, packaging and distribution network.
2. Lengthy and bureaucratic procurement procedures by Central Tender Board. It took a long time to award tenders for civil works and procurement due to long procedures imposed by the Central Tender Board.
3. Over emphasizing impact points geared to increasing yields while ignoring other important aspects which would have significant impact on farmers' incomes such as marketing aspects, especially agro-processing;
4. Retrenchment and suspension of recruitment of extension officers as a result of civil service reforms adversely affected the effectiveness of extension services.
5. Lack of group mobilization skills and participatory approaches to most front-line extension officers resulted in extension messages not directly related to farmers' problems and needs being delivered to farmers.
6. Insufficient and delayed fund disbursement from the government delayed implementation of project activities.
7. Harsh working conditions and inadequate incentives to project staff resulted in poor performance of the workers.
8. Staff and beneficiaries training are usually not given high priority during project design.

9. There is degradation of forests (deforestation) as a result of construction of irrigation schemes, especially type I schemes (from virgin land to productive land).
10. There are increased incidences of diseases such as malaria and bilharzia as a result of irrigation schemes implementation.
11. Farmers of some irrigation schemes were not aware of how the programmes and projects started and as a result they were reluctant in cleaning and maintaining the canals. Although some projects and programmes started with prior discussion with leaders, it seems that some leaders did not convey the message to the farmers.
12. Frequent breakdown of construction equipment in some projects and lack of work- related incentives to the local staff further delayed construction work of the irrigation schemes.
13. Siltation had been causing major operation and maintenance problems at the intakes of some irrigation schemes.
14. Discussion of alternative design proposals with the scheme farmers and local communities before agreeing on the final design proposal took a very long time for some irrigation schemes and thus delayed completion of construction works.
15. Delay in clearing of projects' equipments from Dar es Salaam Port.
16. Some projects have been experiencing frequent water shortage due to prolonged drought such that the impacts of the programmes and projects could not be clearly seen.
17. In most programmes and projects there is still low level of collection and dissemination of useful information on better crop husbandry practices and appropriate technologies.

**c) Key lessons learnt**

The key lesson learnt from the assessment of the performance of agricultural water management programmes and projects is that it is possible to reverse and eradicate poverty if:

1. Farmers are incorporated at all stages of project implementation. This can be done by letting the farmers elect their own leaders and committees to guide them during the whole project implementation process. This kind of leadership could easily be transformed into a cooperative or water users' association later.
2. A sociologist is recruited at the beginning of any irrigation scheme rehabilitation or construction project in order to, among other things, translate and simplify the "engineering language" into "farmers' language".
3. Training of farmers on proper crop husbandry practices by using effective participatory approaches and user-friendly techniques of training is frequently undertaken as evidence shows that trainings can give good results, even without monetary assistance.
4. Gender mainstreaming is given utmost priority throughout the life of the projects in order to change farmers' attitudes and perceptions on women.

**d) Recommendations for improved performance of programmes and projects**

To overcome the problems and improve the performance of programmes and projects with agricultural water components in the future, the following measures are recommended:

1. There is need to expose new interventions and technologies to the extension workers and farmers to give them a wide choice of options.
2. Seminars, workshops and training programmes should be organised more frequently to impart more knowledge to farmers, other community members, extension staff, government leaders, and technical and non technical personnel.
3. The irrigation division should think of ways of calling engineers together to exchange their experiences and if possible to expose them to new technologies such as the use of computers in engineering work.
4. Zonal design offices should be well equipped with all necessary facilities and the government should provide enough office accommodation for the design sections so that they can cater for all projects falling under the zones.
5. The government should fulfil its obligations to the projects and programmes by providing timely and adequate budget allocations.
6. Farmers should not be promised by government officials, politicians and technical experts what cannot be fulfilled as this makes farmers lose interest in the projects.

7. Agricultural water management programmes and projects should make greater efforts to scale-up and promote the knowledge gained and outputs generated to other districts, agricultural sector lead ministries and MAFS training institutions.
8. Agricultural water management programmes and projects should make greater efforts to establish and operate libraries and database systems to store and archive project documents, data and other outputs.
9. District authorities and agricultural sector lead ministries should identify farmers training needs (training needs assessment) and relevant authorities should provide enough funds annually to facilitate such trainings.
10. Training on proper husbandry practices on high value crops during off-season and upland crops should also be given due importance and strengthened.
11. Water harvesting structures including boreholes, wells and storage reservoirs should be constructed in order to provide a reliable flow of water.

## 3.4 Stakeholders Participation in Policy Formulation Process

### *3.4.1 Consultation process for the Tanzania Agricultural Mechanisation Strategy (TAMS)*

**a) Overview of the formulation process**

The Agricultural Mechanisation Strategy formulation process involved a team of consultants who conducted a situation analysis study on agricultural mechanization through search and analysis of secondary data, field surveys and two stakeholders' workshops. To bring on board various actors in the formulation of the strategy, the ministry adopted a participatory and consultative process involving all key stakeholders. The involvement of stakeholders in the formulation process was in two stages, namely participation in the interviews conducted by the consultants and in attending the two stakeholders' workshops. In stage one of the participatory process, consultations and interviews were held and data collected from various stakeholders such as farmers (small, medium and large scale), machinery and equipment supply chain (manufacturers, retailers, wholesalers, importers, distributors, repair and maintenance, contractors, blacksmiths and artisans), financial institutions, NGOs, government ministries such as Ministry of Agriculture, Food and Cooperatives, Ministry of Livestock Development, Ministry of Water, Ministry of Regional Administration and Local Governments, Local Government authorities, Ministry of Industries, Trade and Marketing, Planning Commission in the President's Office, Ministry of Science, Technology and Higher Education, and Ministry of Finance.

The second stage involved holding of workshops. During the first stakeholders' workshop various stakeholders synthesized the information collected, raised the key issues for the strategy, made proposals on interventions to be included in the strategy and suggestions on the way forward to be used by the Formulating Team in finalizing preparation of the draft TAMS. The workshop was attended by 63 people represented by: farmers (small, medium and large scale), machinery equipment supply chain (manufacturers, retailers, wholesalers, importers, distributors, repair and maintenance, contractors, blacksmiths and artisans), financiers, researchers (public and private), extension workers, trainers, NGOs and policy makers.

**b) Stakeholders participation**

TAMS formulation process involved two categories of people. In the first category is a group consisting of 'experts' or 'technicians'. These are people with specialist knowledge in the various themes covered by the strategy. The second category is composed of stakeholders who invariably will be involved in implementation of the strategy. In the process, however, a person could belong to both categories.

In the expert category are the 11 consultants, staff from MAFS and FAO, and other regional organization who contributed expert support. Stakeholders who participated in the TAMS formulation process include the different categories of people who were included in the field survey conducted in the districts and institutions between September and November 2005. The stakeholders, to whom the final drafts were circulated include:

- All Directors and Assistant Directors of MAFS;
- FAO (Dar and Rome);
- UNIDO (Dar and Headquarters);
- Tractor dealers;
- Agricultural machinery local manufacturers;
- Farmers who participated in the two stakeholders workshops;

- Various institutions such as Tanzania Engineering, Manufacturing and Design Organisation (TEMDO), Centre for Agricultural Mechanisation and Rural Technology (CAMARTEC), Tanzania Industrial Research and Design Organization (TIRDO), Tanzania Bureau of Standards (TBS); and
- Ministry of Industries and Trade

Comments from the consulted stakeholders are currently being incorporated before the Final Tanzania Agricultural Mechanisation Strategy and Programmes Document is presented to the Ministry of Agriculture, Food and Cooperatives.

### *3.4.2 Consultation Process for the National Strategy for Growth and Reduction of Poverty (NSGRP)*

**a) Overview of the formulation process**

Reflecting on the participatory experience from the preparations of PRS (P), the Tanzania Assistance Strategy (TAS) and the National Poverty Eradication Strategy (NPES), the consultations for the NSGRP sought to have wider coverage of the actors and poverty issues. The three *PRS Progress Reports* also presented issues for consideration for the second generation PRS, the NSGRP. During the three years of the PRS (P) key internal consultations between Government, development partners and civil society 0rganizations (CSOs) continued through notably the Public Expenditure Review (PER) review and cross sectoral meetings. Subsequently, the government engaged these stakeholders in mapping out the one-year long PRS review process, particularly in developing and agreeing on the PRS review guide, identifying different levels of stakeholders for broader consultations at sub -national levels and modalities, and timeframe for the consultations. The guide spelled out the objectives, principles and focus of the review. The PRS Review moved to improve on a number of specific weaknesses so as to make the consultations for the NSGRP more elaborate and inclusive than the previous cases of national policy processes.

**b) Stakeholders participation**

For the purpose of highlighting key issues, two mediums of consultations may be identified: i) nationwide consultations, mainly at sub-national level and involvement of the Members of Parliament; and ii) internal consultations, that is, within government and between government and other stakeholders including development partners at the national level. Deliberations were carried out through the PER review meetings, cross-sector meetings and government-donor and government-civil society consultations and the Poverty Policy Week.

The first round of nationwide consultations was planned early in December 2003 with the meeting of the lead stakeholders. It was followed by series of training of trainers' workshops for the facilitators who were then deployed in the country. The Association of Local Authorities of Tanzania (ALAT) played a significant lead. District level consultations were conducted through workshops in which representatives from district council secretariat, faith- based organizations and the aged, children, youth, women, persons with disabilities, persons living with HIV and AIDS, widows, orphans, CBOs, and CSOs, private sector, trade unions and informal sector were all invited and participated. Village level consultations were undertaken through the Village Assembly. Consolidated views were forwarded to the regional headquarters and compiled to form the regional report. Workshops, seminars, radio programmes, TV broadcasts, fliers, interviews and music were applied. A special questionnaire was prepared and circulated throughout the country. About 500,000 questionnaires were distributed throughout the country and on the Internet. Members of Parliament were involved through parliamentary committees and through special seminars. Reports of the first-round consultations were consolidated into the first draft that was sent back to lead stakeholders for scrutiny and comments. The draft was also widely circulated through Internet and its summary translated into Swahili.

Further deliberations on the second draft were made during the National Workshop in September 2004. The National Workshop brought together representatives of government and non –government actors including the CSOs. The workshop further ingrained the consensus around the strategy. Critical contributions from the different lead stakeholders noted the need for the strategy (document) to be more inclusive, particularly articulating more distinctly the special needs of the vulnerable groups, such as people with disabilities in service delivery. Issues of governance frequently came up and it became clear that implementation of the strategy would critically depend on the quality of governance. The comments were used to improve the draft which was then presented at the Poverty Policy Week in November, 2004.

Weaknesses associated with consultations for PRS (P), 2000 are:

1. Participatory structures were formed on an ad-hoc basis.
2. Collaboration with stakeholders was less frequent and joint decision -making on relevant aspects of pro-poor policy was limited.
3. The PRS process was exceptionally compressed (six months duration); too tight a timeframe for consultation limited the participation of stakeholders.
4. CSO involvement and their impact on the outcome of the processes have been very limited.
5. Inadequate background and understanding of PRS (P) limited stakeholders' participation.
6. Inadequate resources to implement PRS consultations.
7. Problem of synchronization where TAS was supposed to provide PRS framework but was not completed before the PRS (P).
8. The composition of participants in the workshop did not represent adequately all sections of the society: women, youth, people with disabilities, elderly, people living with HIV/AIDS, orphans were not adequately represented in the PRS (P) process.
9. Participation of the poor in the PRS was not institutionalised within the LGRP.
10. Trade unions were not involved in the PRS participatory process.
11. Inadequate analysis of "Voices of the Poor" through the zonal workshops.
12. Inadequate mechanism in dealing with cross -cutting issues such as environment, HIV/AIDS, gender, employment.
13. Lack of PRS communication strategies.
14. Inadequate capacity in key government institutions (PRS technical committee, PRS steering committee, PRS inter-ministerial committee).
15. CSO lacked access to key documents and adequate mechanism to provide feedback.
16. Inadequate capacity of several CSOs to engage in policy issues discussions.

Planning and resources for the consultations aimed to address these weaknesses and to get the public informed. There were frank deliberations on the constraints to growth and about governance concerns. The outreach was wider and time longer than in the previous consultation processes. Nevertheless, some stakeholders still felt time was not sufficient. It was agreed that public debate needed to be formalized and continued over the entire period of the strategy.

### *3.4.3 Consultation Process for the National Irrigation Policy (NIP) and Strategy Formulation*

**a) Overview of the formulation process**

The Government of Tanzania requested FAO in 2002 for a programme to formulate the National Irrigation Policy and Strategy. . This was after completion of the National Irrigation Master Plan. The programme was agreed upon and signed in February 2006. After the programme was signed, the government proposed an initial team of three national experts to start the work.

**b) Stakeholders participation**

There are two important committees that oversee the Irrigation Policy and Strategy formulation process, namely:

*1. The National Program* Steering *Committee (NPSC) of Agricultural Sector Development Program (ASDP)*

It comprises representatives from Agricultural Sector Lead Ministries (ASLM), namely the Ministry of Agriculture, Food and Cooperatives (MAFC); Ministry of Water (MoW); and President's Office-Regional Administration and Local Governments (PO-RALG). Other representatives are derived from the Ministry of Natural Resources and Tourism (MNRT); and Vice President's Office – Department of Environment. However, as of August 2006, this committee had not yet met. Under NPSC, there is a core group or sub-committee, which is responsible for day-to-day implementation of the project. Some of the members of this core group include:

- Director of Irrigation and Technical Services–National Project Coordinator (Chairman);
- Director of Policy and Planning;
- Director of Cooperatives;
- Director of Water Resources;
- PO-RALG representative;
- Vice President's Office representative; and
- National Environmental Management Council (NEMC) representative.

This committee meets periodically to review the progress with the formulation of the Irrigation Policy and Strategy and report to the Task - Force 2 (Policy, Regulatory and Institutional Framework) of the Agricultural Sector Development Project (ASDP). It is this committee which endorsed the questionnaire used during consultation with various stakeholders.

*2. The Formulation Team (FT)*

The initial formulation team, which started working in mid March 2006, was formed by the Government of Tanzania through MAFS and included the national team leader (irrigation expert); agro-economic; and water resources experts. The national experts are drawn from ASLM as well as other government and private institutions. The final selection of the national experts was done in Rome, after the MAFC sent the names of the nominated experts together with their curriculum vitae (CVs). The national experts were not recruited at a go, but one after the other as the need arose. However, as of August 2006, all the national experts, except an agronomist have already been recruited. The national experts are backstopped by one international expert on institutions. FAO provided an expert on irrigation policy and strategy. The international expert was proposed by FAO (Rome) and the name and CV were sent to the Government of Tanzania for approval.

The development of Tanzania Irrigation Policy and Strategy adhered to the principles of national character and involved a process of wide consultation with various stakeholders. To meet these requirements, the national experts assisted by an international expert and with support from FAO's Water Resources Development and Management Service (AGLW), consulted with various stakeholders.

### *3.4.4 Consultation process for the National Water Policy (NAWAPO) formulation*

**a) Overview of the formulation process**

The process of reviewing the National Water Policy was conducted through a participatory consultative process by a multidisciplinary team of national experts from all water-related sectors in order to ensure comprehensiveness and acceptability. A series of joint working sessions of the multidisciplinary team of national experts (MTNE) culminated in the Zero Draft Policy Document, within the framework of the building blocks. There were five building blocks, which dealt with: (i) environment and natural resources; (ii) social, economic and political assessments; (iii) economics and financing; (iv) legislation, regulations and international waters; and (v) institutions and participation. A number of technical studies were also undertaken to provide input to the policy review process. The technical studies undertaken include: (i) floods and drought studies; (ii) catchment degradation studies; (iii) effluent treatment and water quality standards; and (iv) river modelling and water balance. All the building blocks were linked closely with each other, and also with the technical studies carried out. Further input to the policy review process was obtained from DFID parallel funded project, named "Sustainable Management of the Usangu Wetland and its Catchment Areas". The water policy review process also took into account all related existing policies, including the National Environment Policy, Agriculture Policy, Energy Policy, National Land Policy, etc.

**b) Stakeholders participation**

Many key stakeholders were involved at different levels in different forums including field consultations, meetings, technical workshops and national conferences. The draft National Water Policy was subjected to review by water sector-related ministries, universities, research institutions and NGOs.

A number of stakeholders were consulted in the review of the National Water Policy as detailed below.

*Decision makers at basin level*

This group include decision makers at basin level, i.e. Pangani and Rufiji Basin Water Boards and Pangani and Rufiji Basin Technical Committees of the River Basin Management and Smallholder Irrigation Improvement Project (RBMSIIP). Meetings were held for each of the two basins involving members of the Basin Water Board and the Basin Technical Committee of the respective basins.

*Stakeholders at basin level*

Key stakeholders that were consulted were industrialists, smallholder farmers, large scale farmers, pastoralists and livestock keepers, NGOs and other pressure groups, including district level leadership. The strategy adopted for this group was to discuss the concerns of each group separately, that is, each group was accorded one day of discussion with key stakeholders. Consultations for smallholder farmers, pastoralists and livestock keepers who are grass root level water users and stakeholders were held for sampled villages. The groups constituting of industrialists, NGOs and large scale framers also included

regional level administrators, who participated in, and moderated through the process. Additionally, similar consultation meetings with stakeholders were conducted on other selected basins. The Smallholder Irrigation Component of the RBMSII Project was invited to participate in some of the consultations process, especially those concerning large scale, and smallholder farmers at grass root level.

*Technical consultation at national level*
The technical consultation process continued simultaneously with the consultation workshops. This was in the form of field visits by members of multi-disciplinary teams, and discussions with various technical personnel at their work places, to gather more technical inputs and information required for refining the policy. The Technical Consultation Workshop drew participants from all sectors of the national social and economic life. This included heads of government departments or their representatives such as environment, urban and rural water supplies, industry, energy, fisheries, wildlife, women and children affairs, community development, mining, tourism, lands, forestry, agriculture, irrigation, livestock, health and sanitation, information, education, and foreign affairs-international cooperation, among others. Other participants were from the University of Dar es Salaam, the Sokoine University of Agriculture, Tanzania Bureau of Standards, Chief Government Chemist, and so on. The consultation workshop was held after the consultants hired by the project to carry out specific technical tasks had made some technical input into the policy review process.

*National Stakeholders Workshop (National Level)*
This workshop drew participants from selected members from the consultation groups, who had participated in earlier discussions. This provided them the opportunity to see how their contributions were finally considered in the final draft policy. The national workshop mainly discussed the policy, policy implementation arrangements and strategy, and the institutional framework.

*Decision makers at national level*
This group included chief executives of government ministries of sectors related to water resources. The Inter-Ministerial Steering Committee of the RBMSII Project, which included most of the permanent secretaries, who are the decision makers at the national level, of water- related sectors formed the core of this group, expanded to include other key persons. A one day consultation meeting with the chief executives was held after all the consultations were done, and before presentation of the policy to the Cabinet.

**Steps in the policy formulation process**
**Tanzania Agricultural Mechanisation Strategy (TAMS)**
The chronology of stages in the formulation of the TAMS was as follows:

**STAGE ONE: Expert Consultative Meeting on TAMS Formulation**
Before forming the TAMS Formulation Team MAFC conducted a small expert consultative meeting in July in Morogoro under the guidance of an FAO expert/consultant. Two papers were presented at this meeting. One paper was prepared by the Agricultural Machinery and Structures Section (AMSS) of MAFS describing the current situation of agricultural mechanization in Tanzania. The paper was based on data collected by MAFS previously. The other paper was prepared by FAO staff. It presented a global overview of agricultural mechanization. This meeting, among other things, also:

1. Discussed and unanimously supported strongly the need for the strategy;
2. Made recommendations on the formulation process, including constituting the team of consultants to facilitate the process and prepared terms of reference (ToRs) for the work;
3. Through a brain storming exercise carried out in six groups, produced a list of key issues under the following thematic areas:
   - Policy issues (public sector)
   - Private sector issues and challenges
   - Research, research and development and extension
   - Training
   - Agri-food systems and processing
   - Conservation agriculture

**STAGE TWO: Formation of the Formulation Team (FT)**

A formulation team composed of a multi-disciplinary team of 11 experts from government, higher learning, research institutions and the private sector was appointed to oversee TAMS formulation. The FT was formed during the expert consultative meeting held in Morogoro in July 2005. The team is responsible for the preparation of a Report on Mechanization status, Situation Analysis Report, Strategy and Programs document in consultation with stakeholders. Members of the FT were drawn from the Ministry of Agriculture, Food and Cooperatives, Ministry of Water, Ministry of Livestock Development, Sokoine University of Agriculture and the private sector. The team is composed of agricultural engineers, agricultural economists, animal scientists, a sociologist and sales specialists. The team members had expertise in various disciplines such as irrigation engineering and management, land planning, policy and planning, research, training and sales.

**STAGE THREE: Data Collection**

**Field survey**

The field survey was conducted in all districts of Tanzania. The survey used a questionnaire interview which was administered to different categories of stakeholders including farmers (small scale, medium scale, large scale, and farmer groups), oxenisation centres, driving schools, garages, machinery suppliers, machinery importers, machinery manufacturers, researchers and trainers.

**Input from Tanzania Society of Engineers Conference participants**

A half day session of the Tanzania Society of Engineers Conference held in Morogoro between 21 and 23 November 2005 was used to provide input to the agricultural mechanization strategy. The theme of the conference was on promoting agricultural mechanization and as such a number of the conference papers presented the key issues for agricultural mechanization. This then enabled the conference participants to move straight to suggestions of possible interventions to address the issues.

**STAGE FOUR: Preparation of the Issue Paper**

The aim of the Issue Paper is to form part of the resource materials for the 1st Stakeholders Workshop. The summary of key issues presented in the paper is intended to initiate a brainstorming exercise to allow more comprehensive lists of issues to be developed by workshop participants and assist in proposing an approach for the workshop that will be tabled for discussion and approval.

**STAGE FIVE: First Stakeholders' Workshop**

**Workshop process, objectives and results**

The objective of the workshop was to discuss the problems facing mechanisation in the country and their possible solutions and come up with a strategy and programmes that will ensure sustainable increased use of tools, implements, agricultural equipment and machinery

The workshop was implemented through an intensive work schedule over a period of three days. The approach used to achieve the workshop objectives consisted of presenting a few key targeted papers and conducting group work. The first keynote paper 'Mechanization Status in Tanzania' presented the current status of agricultural mechanization in Tanzania, the need for the strategy and the justification for holding the workshop. The second keynote paper - the Situation Analysis (Issue) Paper was intended to initiate the process of identifying key issues for the strategy. The Issue Paper for Tanzania presented in the workshop was modified from the earlier paper presented by AMSS of MAFS in the Expert Meeting in Morogoro in June 2005 by including some of the findings from the field survey. The Issue Paper served as a guide for the stakeholders' to make broad proposals on the agricultural mechanisation strategy. The outcomes of the workshop are summarised below:

*Identification of key issues for the strategy*

Key issues were identified by the workshop through group discussions. In coming up with the issues, the groups made use of information from the Situation Analysis (Issue) Paper presented in the workshop, deliberations from the Expert Meeting held in Morogoro in July 2005 and issues from the field survey conducted in November and December 2005.

Each group was assigned an intervention area within which to develop the issues. The intervention areas represented thematic areas proposed in the keynote paper presentations as key areas against which the strategic interventions would be developed. The thematic areas were: Research, R&D and Training; 2)

Extension; 3) Local manufacturing; 4) Importation and Supply; 5) Agro-Processing and Agri-Food Systems; 6) Conservation Agriculture; and 7) Finance and Policy.

*Analysis of constraints and solutions (problem and objective tree – cause and effects)*
A problem tree was generated from the issues raised in the workshop as described above. The exercise of constructing the problem tree was done by a small team consisting of members of the strategy formulation team as recommended by the workshop. The problem tree was constructed on the basis of five key problem areas that were obtained after clustering the issues. The areas identified included:

1. Unavailability of appropriate and affordable mechanization inputs and services
2. Poor financing for mechanization
3. Poor extension services for mechanization
4. Ineffective policies and inadequate implementation
5. Inadequate promotion and poor information dissemination

*Development of strategic action areas*
The problem tree was then converted to an objective tree which was used to develop strategic action areas. Nine strategic action areas were identified and for each area, specific objectives were developed. The specific objectives were then used to develop strategic actions, and the strategic actions were used to develop the sets of activities that need to be done to achieve the specific objectives. This analysis produced the mechanization strategy framework matrix.

*Preparation of case studies*
The morning session of the third day of the workshop was used by individual participants to prepare case studies of interventions that could be included in the strategy. The case studies were written using a specified format nicknamed "blank cheque". Thirty nine case studies were produced. The strategy implementation programmes were prepared and presented on the Strategy Framework Matrix.

*Recommendations*
The workshop made the following recommendations for follow-up:

1. The case studies presented during the workshop should be reviewed by the Strategy Formulation Team and cluster them to make programmes with broad objectives.
2. Programmes being formulated for the strategy should as far as possible be demand driven and be based on what has been found to work in order to increase their success and ensure sustainability.
3. To ensure smooth implementation of the strategy, effort should be made to have conducive policies and regulations in place.
4. Mechanization interventions by their nature often cross into other sectors. Efforts should be made to create inter-sectoral collaboration in order to enlist support from other sectors.

**STAGE SIX: Development of the First Draft of the TAMS**
The Formulation Team fine-tuned the Situation Analysis (Issue) Paper and came up with the First Draft of the Agricultural Mechanisation Strategy.

**STAGE SEVEN: Review of the Draft TAMS Document**
Three mechanisms were used to review the Tanzania Agricultural Mechanisation Strategy Draft Document as outlined below:

- Discussion of the draft document at the ministerial level in the MAFC (heads of departments meetings);
- Circulation of the document for comments to a wider audience, particularly amongst those who provided information during the preparation process; and
- Presentation and discussion of the draft document in the second stakeholders' workshop.

**STAGE EIGHT: Second Stakeholders' Workshop**
**Workshop process, objectives and results**
The second stakeholders' workshop on formulation of the Tanzania Agricultural Mechanization Strategy (TAMS) was held in Dar es Salaam, Tanzania from 10-11 February 2006, and was attended by 45 participants. The specific objective of the workshop was to critically review the first draft of the Tanzania Agricultural Mechanization Strategy (TAMS) and discuss the proposed Programmes and Implementation

Plan. The workshop used a participatory approach with group discussions being prominent. The draft TAMS had nine key strategic action areas namely:

1. Improving mechanization inputs supply and distribution.
2. Strengthening capacity for local manufacture of appropriate agricultural machinery.
3. Improve utilization of agricultural machinery.
4. Promote processing and establishment of rural-based agro-industries.
5. Improve land management and water conservation.
6. Strengthen agricultural mechanization extension service delivery.
7. Improve training and research for enhancing agricultural mechanization.
8. Improve financing of agricultural mechanization.
9. Policy, legal and regulatory environment for agricultural mechanization.

At the conclusion of the workshop the drafts of TAMS, programmes and implementation plan had all been reviewed. It was agreed that the reviewed drafts should be finalized by the Mechanization Formulation Team, after which the documents should be circulated to various stakeholders for comments. Outcomes of the workshop included:

*Proposed TAMS programmes*

The proposed TAMS programmes are on:

1. Increasing utilization of draught animal power in agriculture
2. Increasing utilization of mechanical power
3. Promoting agro processing
4. Promoting conservation agriculture
5. Improving financing of agricultural mechanization
6. Improving policy, legal and regulatory framework for agricultural machinery

*Identification of key issues for the strategy*

The following strategic approaches were identified as critical in developing TAMS further:

1. Institutional capacity building: human resources
2. Institutional capacity building: infrastructure and equipment
3. Continual improvement and updating of methods and techniques
4. Establishment of effective mechanisms for coordination
5. Promotion of interest and awareness in clearly defined user groups
6. Assuring adequate funding
7. Clearly defining institutional information mandates

**STAGE NINE: Finalisation of the Agricultural Mechanization Strategy Document**

The Formulation Team then prepared the final draft of the agricultural mechanization strategy and programs after incorporating comments and recommendations from stakeholders consulted in Stage Eight. The final drafts were then circulated to various stakeholders for final comments in February 2006. The stakeholders, that the drafts were circulated to include:

- All Directors and Assistant Directors of MAFS;
- FAO (Dar and Rome);
- UNIDO (Dar and headquarters);
- Tractor dealers;
- Agricultural machinery local manufacturers;
- Farmers who participated in the two stakeholders workshops;
- Various institutions such as Tanzania Engineering, Manufacturing and Design Organisation (TEMDO), Centre for Agricultural Mechanisation and Rural Technology (CAMARTEC), Tanzania Industrial Research and Design Organisation (TIRDO), Tanzania Bureau of Standards (TBS); and
- Ministry of Industries and Trade.

Comments from the consulted stakeholders are currently being incorporated before the Final Tanzania Agricultural Mechanization Strategy and Programmes Document is presented to the Ministry of Agriculture, Food and Cooperatives.

**National Irrigation Policy and Strategy**
The chronology of stages in the formulation of the National Irrigation Policy and Strategy were as follows:

**STAGE ONE: Formation of the Formulation Team**

1. Recruitment of the National Team Leader and initial Formulation Team
2. Recruitment of an International Expert, FAO Expert and other National Experts

The composition of the Formulation Team is as follows:

- International Expert (IE) - Institutions
- FAO Expert - Irrigation Policy and Strategy
- National Team Leader (NTL) – Irrigation Expert
- National Experts on:
- Water resources management
- Agricultural economy
- Institutions
- Private sector
- Sociology
- Legal (Land and Water)
- Environment and Health

**STAGE TWO: Inception of the Policy Formulation Process**
This was done in April 2006. A one-day sensitization workshop was held for key representatives of ASLM and key national stakeholders to present the objectives, scope, methodologies and work plan of the National Irrigation Policy and Strategy formulation prepared by the Formulation Team. Two meetings were held. The first meeting involved NPSC, National Experts, International Expert and FAO Technical Services Support. The objective of the meeting was:

- To orient and sensitise the Formulation Team on the scope, approaches and methodologies used in formulation of irrigation policies and strategies in general, drawing experiences from different countries;
- Preparation of the objectives, scope, approaches and methodologies to be used in the formulation process; and
- Preparation of the detailed work plan for the project.

The second meeting was a one-day launching and sensitization workshop for key representatives of ASLM and key national stakeholders to present the objectives, scope, methodologies and work plan of the National Irrigation Policy and Strategy formulation.

**STAGE THREE: Field Work**
The Formulation Team visited all the nine basins in the country, except Kigoma Zone (Lake Tanganyika Basin). Two field trips were made. The first trip was in May 2006 and the second was in August 2006. The categories of the stakeholders consulted in the two trips, with a check list of questions prepared for that purpose include:

- Basin Water offices and officers
- Tanzania Electric Supply Company Limited (TANESCO)
- Non-governmental organisations
- Irrigators organizations, committees and individual irrigators
- Large scale farms/farmers (e.g. coffee, sugarcane, flower and rice plantations)
- Private service providers in irrigation sub sector
- Research and training institutions
- Zonal irrigation and technical units
- Regional, district, ward and village authorities
- Irrigation programmes and projects

**STAGE FOUR: Institutional Evaluation**
The aim of this stage is to evaluate and recommend an appropriate institutional set-up for the irrigation sub-sector in Tanzania. The Formulation Team has planned to convene a stakeholders' meeting in Bagamoyo on 4-5 September 2006 to undertake strengths, weaknesses, opportunities, and threats

(SWOT) analysis of the current institutional set-up of the irrigation sub-sector. The workshop, to be attended by mostly irrigators, will go through an institutional evaluation report of the irrigation sub-sector in Tanzania prepared by the Formulation Team. Thereafter, the workshop will undertake institutional mapping including proposing roles and mandates of various institutions. The outputs of this workshop will lead to preparation of an institutional and evaluation report of the irrigation sub-sector.

**STAGE FIVE: First National Stakeholders Workshop**
The Formulation Team planned to convene this workshop from 8-9 November 2006. During this workshop, the Institutional and Evaluation Report of the irrigation sub-sector will be presented to the stakeholders for discussion and comments.

**STAGE SIX: Drafting the National Irrigation Policy**
After incorporation of the comments and recommendations from the National Stakeholders Workshop, the Formulation Team will prepare the Draft National Irrigation Policy, including main statements and main guidelines on the development and management of the irrigation sub-sector in Tanzania.

**STAGE SEVEN: Second National Consultation Workshop**
During this workshop, the Draft National Irrigation Policy will be presented for discussion and comments.

**STAGE EIGHT: Finalizing National Irrigation Policy and Drafting National Irrigation Strategy**
After incorporating comments and recommendations from the Second National Consultation Workshop and from other stakeholders consulted, the Formulation Team will finalise the National Irrigation Policy and prepare the Strategy Document and other supporting technical documents.

**STAGE NINE: Submission of the National Irrigation Policy and Strategy to the Cabinet**
The draft strategy document will be circulated to stakeholders for comments. After incorporation of the comments and recommendations, the National Irrigation Policy and Strategy Documents will be submitted to the Cabinet for approval.

**National Water Policy**
The chronology of stages in the formulation of the National Water Resources Management Policy were as follows:

**STAGE ONE: Formation of the Formulation Team**
The Multi-disciplinary Formulation Team was formed by the Ministry of Water and Livestock Development (MoWLD).

**STAGE TWO: Preparation and Circulation of NAWAPO Discussion Drafts**
The drafts were prepared and circulated by MoWLD to various stakeholders in 1999.

**STAGE THREE: Undertaking Water Related Technical Studies**
A number of technical studies were undertaken by consultants to provide input to the policy review process. The technical studies undertaken include: (i) floods and drought studies; (ii) catchment degradation studies; (iii) effluent treatment and water quality standards; and (iv) river modelling and water balance. The consultants, who included NORPLAN and the Water Resources Engineering Program of the University of Dar es Salaam, were engaged by MoWLD through the River Basin Management Project. Further input to the policy review process was obtained from DFID parallel funded project, named "Sustainable Management of the Usangu Wetland and its Catchment Areas".

**STAGE FOUR: Review of Other Relevant Documents and Other Sectoral Policies**
This was done by a team of experts contracted by MoWLD.

**STAGE FIVE: Review of Institutional and Legislative Frameworks of MoWLD**
The review of institutional and legislative frameworks of the Ministry of Water and Livestock Development was done, first internally by the Policy Formulation Team, MoWLD officials, Policy Harmonisation Team and later on by the Policy Coordination Committee made up of directors in

MoWLD. Later on the review was done nationally during the National Stakeholders Workshop held in Arusha in 2000.
MoW Policy Task Force-Coordinating Team and PCT as secretariat, undertook peer review of the outputs of all the building blocks of the water resources policy review process; with a view to enhancing the outputs of the building blocks and prepare draft policy for discussion at workshops. The implementation task force of a multidisciplinary team had the following mix of members:

- Environment Management Expert
- Natural Resources Management Expert
- Water Resources Expert
- International Basin Management Advisor
- Sociologist
- Water Supply and Sanitation Engineer
- Agricultural Expert
- Livestock Expert
- International Water Resources Economist
- Water Resources Management Policy Expert
- Water Law Expert
- Customary Law Expert
- International Basin Management Advisors
- Institutions and Community Participation Expert
- Education and Communications Expert

# 4. SYNTHESIS, CONCLUSION AND RECOMMENDATIONS

## 4.1 Synthesis

### *4.1.1 Key policies with implication on AWM*

The policies that were operational up to the mid 1990s marked enormous participation of the public sector in agricultural service provision. In other words the government engagement in the economic domains including agriculture was substantive compared to that of private sector. The public sector pursued a range of economic functions such as extension, input supplies and marketing through its parastatals. Although economic reforms had already started in mid 1980s via the structural adjustment programme, the public sector still dominated the functional scenery. Increased access to agricultural water was recognized as an important factor for increased agricultural productivity. But, agricultural water was envisioned for large scale irrigation. From the mid 1990s to date the private sector has increasingly been taking most of the functional roles that used to be the mandate of the public sector. This was the era of expanding private sector and shrinking of public sector in provision of economic services, including agricultural ones. The issues of sustainability and broadening definition of agricultural water were important features that have been receiving much attention in the policy area. Environmental concern has a bold implication on AWM as a certain amount (not absolutely known) of water that could have been used to produce food, has to be conserved for the environment. The concept of RWH for agriculture has featured increasingly in recent policies and commitments at high policy levels. Such policy commitments should combine with the best-bet technologies generated through empirical research to translate into meaningful investments in RWH at farm level. This will increase access to agricultural water by a wider section of smallholder farmers in areas plagued with low and stochastic rainfall. Generally, the policies necessary for implementation of AWM programmes and project on the grounds were increasing supportive.

### *4.1.2 Key institutional frameworks with implication on AWM*

Legislative and regulatory frameworks seldom change as much as policies do, since legislation is subjected to amendments. For so long, and within the study period of 1985-2005, AWM-related laws have not changed radically. For example, the water-related institutional frameworks have been shaped by the Water Utilization (control and regulation) Act of 1974 as amended in 1981, 1989 and 1999. This Act prescribes a range of aspects including among others, issues of water permits, basin approach for IWRM, water users association, etc. Tanzania is a country with legal pluralism, meaning that the legal system is composed of statutory and customary laws. Legislatively, the land tenure system recognizes both customary and statutory rights. Customary law is therefore a body of customs, usages and norms that are found in a particular society; it also includes rules and regulations. Whereas, in land laws customary rights are codified and secured by the formal law, in water resources this has not been the case. However, the government has recently released three draft bills on new water laws which are still at a consultation stage since June 2004. These were the Water Resources Bill, the Urban Water Supply and Sewerage Bill and the Rural Water Supply and Sanitation Bill. Of the three sets of legislations, the Water Resources Development Act (2004, Draft) concede to the administration of both informal, local and customary water use permits (formerly water rights) and to the formal ones and, unlike earlier legislation, provides for a possible interface between the two systems of access to water. Application of statutory laws governing water management at the grassroots level has never been smooth under different circumstances. Subjection of local users to water rights and fees as per statutory requirements is incomprehensible to local users. This is because of the open access right they have enjoyed since time immemorial, perceiving water resources as God therefore should be free.

Land laws sought to improve the ownership rights of women under 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. Despite endless debate, the reality is that generally women have access rights to land. In this regard, the central question remains access or ownership rights to AWM. With developing land markets, secure access to land by women and other groups such as youths, is increasingly seen as economic empowerment which will make them own land through market exchange.

Water administration is effected through the basin management approach. The country is divided into nine basins through Act No.10 of 1981, which was an amendment of the Principal Act No. 42 of 1974. The basin water office is declared to be the body responsible for water administration. The policy declared that the existing Water Act and regulations need to be reviewed and conflicting water-related

laws and regulations be identified and harmonized. In the review the mandates of basin water offices will be strengthened to enable these offices to: (a) enforce and follow-up on existing legislation, regulations and operating rules governing water use and control of pollution; (b) become the legal authority to collect the various water use charges; (c) facilitate the establishment of lower level water management organizations which will bring together users and stakeholders of the same source,; and (d) become centres for conflict resolution in water allocation, water use and pollution.
There are other regulatory frameworks which might seem to be distant in AWM but have serious implication in implementation of actions on the ground. One of these which featured in the problems faced by the AWM programmes visited is the public procurement procedures. Most of the projects faced serious delays in commencement because of the lengthy and bureaucratic procurement procedures. Delay in project implementation has a far-reaching effect on the project performance as it impacts on time value of money and timing of activities. The procurement Act now has serious implication on AWM than ever because most of the donor grants are channelled through the government via what is termed as 'basket funds'. This is in compliance with arrangements stipulated in the national assistance strategy aimed at rationalizing utilization of development support from donors. As per act the public procurement and disposal principles and methods are too bureaucratic and demanding. Some lengthy and demanding procedures are entailed in the award of contracts; qualification of suppliers, contractors and consultants; and tendering. The red-tape modality of procurement encourages corruption and nepotism.

### *4.1.3 Impact of policy and institutional frameworks on performance of AWM*

Policies were generally supportive of improved management and access to agricultural water by smallholder farmers, but institutional frameworks were inhibitive in one way or another. Among the institutional and quasi-policy problems were input supplies, bureaucratic procurement procedures, imperfect market institutions, poor extension and outreach services, poor group management, lack of participation, and technical deficiency in water infrastructure design. The term 'quasi-policy' problems is used to express the feeling that actually there is little evidence to blame policies as most issues are well presented in policy documents but the institutions and organizations that develop and implement the actions would be held accountable for much of on-ground failure. For example, policy cannot be blamed for acceptance of substandard works by the contractors or consultants, etc.

### *4.1.4 Stakeholders participation in policy formulation process*

The development of the National Irrigation Policy, TAMS as well as the review of NAWAPO were all done under projects financed by international donor agencies (FAO for TAMS and the National Irrigation Policy and the World Bank for NAWAPO). However, whereas FAO provided international experts to assist in the formulation of TAMS and the National Irrigation Policy, the review of NAWAPO was solely done by the national experts.
Although wider consultation processes undertaken during the development and review of policies and strategies sought to deepen participation in and ownership of the policy and strategy by actors at levels of government and the citizenry – poor and non-poor, the civil society, community entities and development partners -_ the process had a number of weaknesses. These weaknesses need to be rectified so as to make the future consultations for policy review or formulation more elaborate and inclusive than the previous cases of national policy formulation processes. The weaknesses associated with the consultation processes for the studied policies and strategies are:

- Participatory structures were formed on an ad -hoc basis;
- Collaboration with stakeholders was less frequent and joint decision-making on relevant aspects of pro-poor policy was limited;
- Whereas the consultation process for the review of NAWAPO took long enough (almost four years, 1999 – 2002), the development processes of NIP and TAMS are compressed (about one year duration). This tight timeframe for consultation limits the participation of stakeholders;
- Civil society organizations' involvement and their impact on the outcome of the formulation processes have been very limited;
- There were inadequate resources to implement policy formulation consultations;
- Trade unions were not involved in the policy formulation processes;
- Poor people were inadequately involved and heard as there was no forum specifically created to hear the "Voices of the Poor";

- The details of the policy formulation process were not documented in the policy document or anywhere else (except for the National Strategy for Growth and Reduction of Poverty); and
- There are poor dissemination strategies for the policies and strategies after they have been endorsed by the cabinet or sectoral ministries, as the case may be. Even the National Water Policy, which was widely and extensively disseminated, is still not known to many grass root stakeholders.

To improve the policy formulation process it is recommended that:

- The policy review and development process should, as much as possible, be internally funded to eliminate chances of international donors imposing certain conditions, thereby influencing the outcome of the process. This will enhance the sense of ownership of the policy to the Tanzanians themselves;
- Temporary participation structures should be formed to enable the majority of the poor people to air their views. Zonal, regional and district level meetings with the people could go a long way in realizing active and effective participation of the poor people;
- Enough funds should be mobilized and sufficient time and resources should be allocated in order to collect views from and involve as many segments of the society as possible;
- Trade Unions should be more involved and consulted in policy review and formulation processes as they represent the labour force of Tanzania;
- Policy review or formulation process should be backed up by some technical studies to generate data required to bridge knowledge gaps and enhance understanding of some complex issues;
- Duration of the national stakeholders workshops should be increased to enable participants achieve the objectives of the workshops. The experience so far shows that at the conclusion of the workshops the issues that are discussed and the draft documents that have been reviewed are left to the formulation teams for finalization although some of the tasks are usually planned to be completed during the workshops. This trend increases the workload of the formulation teams and at the same time denies the participants the chance to shape the final documents (outputs) of the workshops;
- Details of the process followed during the formulation of policies or strategies should be included in the policy document itself, preferably as an annex. This will ease the task of other policy formulation teams as they will learn from the experiences of the previous teams and will thus be able to make necessary modifications or adjustments to strengthen and overcome weaknesses of the formulation process; and
- A proper and efficient mechanism should be put in place to, first translate the policies into Swahili (like the NAWAPO) and then to disseminate the policies widely and extensively through radio and TV programmes, newspaper articles, workshops and seminars and the Internet.

### *4.1.5 Steps in policy formulation process*

Despite the fact that the formulation process differs from one policy to the other, generally, the formulation of all the policies studied adopted a participatory and consultative process in order to bring on board various actors in the formulation process. The first step was, in most cases the formation of the Policy/Strategy Formulation Team together with their terms of references. The second step is stakeholders' consultations. The involvement of stakeholders in the formulation process is in two stages, namely participation in the interviews conducted by the formulation teams in the field and in attending stakeholders' workshops. In stage one of the participatory process, consultations and interviews were held and data collected from various relevant stakeholders such as ordinary people, regional, district, division, ward and village leaders, machinery, equipment and input supply chain, financial institutions, NGOs, government ministries such as Ministry of Agriculture, Food and Cooperatives, Ministry of Livestock Development, Ministry of Water, Ministry of Regional Administration and Local Governments, Ministry of Industries, Trade and Marketing, Ministry of Planning, Economy and Empowerment, Ministry of Science, Technology and Higher Education, and Ministry of Finance. The field surveys used a questionnaire interview, which was administered to the stakeholders. Different questionnaires were prepared and administered to different categories of stakeholders.

The second stage involved holding of technical and stakeholders' workshops. In most cases, two national stakeholders' workshops were held. The objective of the first stakeholders' workshop was to synthesize the information collected by the formulation teams, discuss the problems facing the sub-sector, agree on the key issues to be addressed by the policies and propose possible solutions to the issues raised. A

position or issue paper is normally presented and forms part of the resource materials for the First Stakeholders Workshop. The summary of key issues presented in the paper is intended to initiate a brainstorming exercise to allow more comprehensive lists of issues to be developed by workshop participants. After comments from the first stakeholders' workshop have been incorporated, a draft policy or strategy document (as the case may be) is prepared by the formulation team. Thereafter, the Second National Stakeholders/Consultation Workshop is convened. The objective of the second stakeholders' workshop is to present the draft policy or strategy to the stakeholders for discussion and comments. This is followed by incorporation of comments from the second stakeholders' workshop by the formulation team. The draft policy or strategy document is then circulated to stakeholders for further comments. Incorporation of stakeholders' comments is then followed by preparation of the final policy or strategy documents, which are sent to the cabinet (for policy) and responsible ministry (for strategy) for approval.
In some cases, technical conferences or workshops were used to provide more inputs to the policies and strategies being formulated (for example, during the formulation of the Tanzania Agricultural Mechanisation Strategy (TAMS) and the National Water Policy (NAWAPO)). A number of technical studies were also undertaken to provide input to the review process of the National Water Policy.

## 4.2 Conclusions

### *4.2.1 Policies with implications to AWM*

For several past decades of the policies, increased access to agricultural water was recognized as an important factor for increased agricultural productivity and economic development. But, agricultural water was envisioned from the perspective of large scale irrigation. Recently, other components of AWM, particularly RWH for crop and livestock production have been recognized in the policy arena. However, such policy recognition of RWH as a viable option for increased access of agricultural water, particularly in dryland areas, has not yet translated into meaningful farm-level public investment. Most of the programmes and projects on AWM analyzed in this study explicitly lacked the components of RWH. For example, of nine programmes on AWM only two (~20%) IFAD-funded projects that were conducted in marginal dryland areas had elements of runoff harvesting from ephemeral streams. Where *in-situ* technologies were incorporated in the projects, they meant soil conservation rather than soil moisture management.

The concept of IWRM has become the centrepiece of policies governing water resource utilization. Under the paradigm of IWRM, water resource is recognized as being demanded for competitively among various sectors including the environment. But, operationalization and efficacy of IWRM is challenged by lack of clearer water allocation criteria. Should allocation be based on the 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, to be valued? Or, should water be treated as a social or economic good? If water is to be considered as an economic good and hence has to be paid for, how will the very poor access water for food, their basic survival right? The allocation of water resources among multiple demand sectors such as hydropower, agriculture, domestic uses, livestock, and other enterprises such as brick making, and the environment, is certainly a policy challenge.

The water policy puts across a positive issue of separating water rights from land titles during water allocation. This means, 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 borrowing or renting it, can still be granted the water right.

### *4.2.2 Institutional frameworks with implications to AWM*

The analysis of institutional frameworks has revealed that customary rights of access to water, though recognized in policies, are not articulated in statutory water laws. This is contrary to land resources where customary tenure is articulated in the formal law. There is however, still a large group of small farmers without a water right but who claim to have a right-based custom or the 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 water resources by the water

authorities. It also undermines the effective functioning of the allocation and reallocation of water under the present right system, as traditional users remain outside the control of the water authorities.
The right to survive is a human right and access to food is the primary pre-condition for such survival rights. Therefore, access to agricultural water to produce basic food should be one's right. The Food and Nutrition Policy of 1992, and the Food Security Act, No. 10 of 1991 underscore access to food as a critical national issue. Also, the Water Policy of 2002 is determined to ensure water for food security is readily available (pp. 20, section 3.1-e). However, this is contrary to institutional frameworks which impose water permits (rights) which also envisage water fees. In addition to the costs paid as water fees, the formation of WUAs and the application procedures, the applicant bears significant transaction costs in compliance. This has a serious implication on access to agricultural water by poor smallholder farmers. Mainstreaming of environmental concerns in IWRM and enforcement on issues such as water for environment and protection of wetlands is still a challenge. This is because the national wide scientific knowledge on water-environment/ecosystem interaction is very limited, if not nonexistent. In this respect, administrative decisions on water-related environmental issues have remained ad hoc overridden by the *'precautionary principle'* which is articulated in the national environmental law. It is now common to hear aspects like environmental flows, river base flows requirements, and protection of wetlands and sensitive areas, and the like. But we do not really know how much water is needed by the environment, and how the wetland can be eco-efficiently utilized. Arguably, this is a developmental confusion as our policies recognize sustainable transformation of natural resources in the primary sectors to reduce poverty.

The implication of institutional frameworks on AWM is more far-reaching than believed. The effects of some regulations might seem distant to issues of AWM, but this study has proved otherwise. For instance, the public procurement procedures emerged to be the critical problem which affected AWM programmes and projects. Bureaucratic procedures embedded in the public procurement processes entailing aspects involved in tendering and contracting, caused serious delays in project implementation.

### *4.2.4 Impact of policy and institutional frameworks on performance of AWM programmes and projects*

It is important to highlight the general performance of the programmes and projects before enlisting the impacts of policy and institutional frameworks on the performance. The performance of the projects was a mixture of success and failure. Some projects recorded increased yield and incomes of smallholder farmers. For example, the smallholder development project for marginal areas in Chikuyu irrigation scheme realized yield increment from 1.2 tons/ha before project intervention to 4.0 tons/ha after the project. Interventions of the Traditional Irrigation and Environmental Organization have influenced the willingness of individual farmers to invest in AWM. This involves investments in water storage facilities and relatively expensive water saving technologies such as drip irrigation and pipe conveyance. Nevertheless, the implementation of AWM programmes and projects has never been free from problems emanating from policies and institutional frameworks.

The following policy and institutional problems came into play to undermine the delivery of expected outputs:

- As noted earlier, bureaucratic public procurement procedure curtailed the timely start of the projects which affected project activities.
- Where the government had a share to contribute in the project budget, the disbursement of the funds was not timely and always less than the promised amount.
- The issue of linkage to markets was not included in the design of AWM projects, especially those undertaken in the first policy period (1985-1996/97). Such supply-biased AWM effort did not assure farmers of meaningful returns from their investments (labour, land and water). Disconnection to profitable markets undermined farmers' participation, so even where productivity was improved it was not sustained after the project. This is because of lack of demand pull effect that would have assured farmers profitable returns to investment.
- Though the policies and institutional frameworks urge for local participation, full participation of farmers has remained a problem. Farmers are engaged at some point in the course of the project and are always left out during design, or their views are overruled by the technocrats. For example, in the Usangu Village Irrigation Project, farmers were engaged in at the implementation state during construction of an intake. Although the project started with prior discussion with leaders,

the leaders did not convey the message to farmers. The project staff overruled farmers on where to build an intake, so as a result the farmers abandoned the modern intake. The modern intake is known to farmers as 'FAO's canal'. Farmers refused to use it and it has silted completely. Farmers are using the traditional one which is located in a place where they suggested the modern one be built.

- PADEP programme has shown the best novel way of local participation. In the programme, all sub-project proposals are prepared and written by farmers under the guidance of the district and ward facilitators. Such proposals are really responding to the needs and circumstances of smallholder farmers. This modality of participation has built the capacity of farmers in project design and planning.
- Participation of private sector, NGOs and CBOs in localities where the projects are implemented is still limited. The project staff hardly involves other development stakeholders in the implementation process. For example, the private sector, NGOs and CBOs might be more competent than the project staff in facilitating some activities.

#### *4.2.4 Stakeholders' participation in policy formulation process*

Stakeholders' participation has been the strong component in the formulation process of policies used by this study to draw lessons. Stakeholders were involved from different domains, ranging from technocrats, donors, private sector, public sector, farmers and the general public. From the general public, special groups such as persons with disabilities, persons living with HIV/AIDS, widows, youth and women were involved in the nation-wide consultation process.

#### *4.2.5 Steps in policy formulation process*

As indicated in the synthesis in section 4.1.5, various steps were followed in the policy formulation process. Based on the three cases used to draw lessons, there is no standard format of policy formulation. Policies are formulated differently, though they may have some common steps, such as consultation workshops which are conducted differently. Even worse, the process and steps in policy formulation are rarely documented, and when done, the documentation is patchy and hard to trace. This means it is difficult to adapt the past policy formulation processes in the future.

### 4.3 Recommendations

Based on the conclusions above the following policy-relevant recommendations are made:

- To fast-track significant and rapid growth in the agriculture sector which is required in poverty reduction, AWM interventions should, apart from conventional irrigation, embark on other components of agricultural water such as RWH and water innovations in rainfed systems.
- 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. This should be determined scientifically and localized to ensure the poor have a guaranteed and secured access to water needed to produce basic food. Then, water permits and pricing can apply to the surplus production above the basic production. Where investments have been made externally, farmers might need to pay for the costs of water delivery.
- Customary rights to water which are widespread in AWM in the country should be mainstreamed in the formal water laws as in the case of land. This will increase access to water by smallholder farmers, reduce conflicts between holders of customary rights and formal rights, and will ease water administration by basin authorities.
- The paradigm of 'local participation' has to be reviewed. A mere presence of farmers in the dialogues that overrule their opinions is not what is meant by participation, neither is participation of farmers at certain stages especially during implementation as opposed to planning. The PADEP approach has to be adapted in future AWM programmes. Smallholder farmers have to identify sub-projects and be facilitated to develop proposals and action plans.
- Reforms are needed in the regulatory frameworks such as public procurement procedures to make them less bureaucratic. The tendering, contracting and pre-qualification requirements are lengthy and highly procedural. One body can be formed in the agricultural ministry to deal with agriculture-related procurements, as compared to now where they are handled under the Ministry of Finance. Agriculture projects are sensitive to time as some activities might need to commence either in a rainy season or before the rainy season.

- Participation of stakeholders in policy formulation process in vital in determining how the policies will be actualised. Although a good mix of stakeholders was involved in the policy formulation process, the participatory structures were formed on an ad hoc basis. This is because, there is not yet in place a standard model, framework or guidelines to apply in policy formulation including selection of stakeholder for consultation. Therefore, we recommend that a standard way be developed that can be adapted in the formulation of different policies. This model can be developed jointly by the policy experts and an inter-ministerial policy formulation committee.
- Documentation of the steps followed in policy formulation process is important. The details of the process followed during the formulation of policies and strategies should be included in the policy document itself, preferably as an annex. This will ease the task of other policy formulation teams as they will learn from the experiences of previous teams to improve theirs.

## 5. REFERENCES

CAAMSCLP. 2005. Conservation Agriculture and Appropriate Mechanization for Sustainable Crop and Livestock Production (CAAMSCLP). Project Progress Report (June-Dec 2004). TCP/URT/3002.

DUVI-II. 1991, 1992, 1993, 1994. Development of Usangu Village Irrigation -PHASE II (DUVI-II). Project Document (10th June, 1991), Technical Progress Reports of the National Sociologist (May-Oct 1992; May-Dec 1993; Jan-Jun 1994), Final Report of the Design Engineer/Planner (December, 1993). URT/91/005.

Ellis, Frank & Ntengua Mdoe. 2002. 'Livelihoods and rural poverty reduction in Tanzania', LADDER Working Paper No 11, February 2001, Overseas Development Group, University of East Anglia, Norwich, UK.

Gondwe, Z. S. 1986. Agricultural policy at the crossroads. Land Use Policy: 31-36.

Isinika, A.C. and K. Mutabazi (2005). Gender Dimensions of Land Conflicts: Examples from Njombe and Maswa Districts in Tanzania. A paper presented at an International Seminar on "Tanzania – Critical Analysis" by Nordic Institute (NAI) and the Swedish university of Agricultural Sciences, Uppsala, the Department of Rural Development Studies – September 5 – 6, 2005 at NAI, Sweden, with support from Sida. Pp 23.

Isinika, A.C., Ashimogo, G.C. and Mlangwa, J.E.D. 2003. Africa in Transition Macro Study Tanzania. Final Technical Report. Sokoine University of Agriculture, Morogoro, Tanzania. 93 Pp.

Kabudi, P.J. 2005. Challenges of legislating for water utilisation in rural Tanzania: drafting new laws. In: Proceedings of the International workshop on African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa, 26-28 January 2005, Johannesburg, South Africa. Pp 4-1–12.

KATC. 2002, 2004, 2006. The Kilimanjaro Agricultural Training Centre (KATC) PHASE II. Minutes of the meeting of the Project Consultation Team (Dated May 29, 2002). The Mid-Term Evaluation Report (Dated May 25, 2004), The Terminal Evaluation Report (Dated May 19, 2006). KATC PHASE II.

Maganga, F. 2002. "Incorporating customary laws in implementation of IWRM. Some insights from Rufiji River Basin" paper presented at the 3rd waternet/warfsa symposium Water demand management for sustainable development, Dar es Salaam, 30-31 October 2002.

Meinzen-Dick and R. Pradhan 2001. Implications of Legal Pluralism for Natural Resource Management, IDS Bulletin, 32, 4: 10 – 17.

Mzandah, Habiba. 2000. "Gender and Property Ownership in Land. University of Dar-es-Salaam." A research Paper submitted for partial fulfilment of the Bachelor of Laws Degree 1999/2000.

PADEP. 2005. Participatory Agricultural Development and Empowerment Project. Semi-Annual Progress Report (July-Dec 2005). IDA Credit No. 3770 – TA.

PIDP. 2002. Participatory Irrigation Development Program (PIDP). Annual Report (January-December 2001). URT/99/F03; Loan number: I-511-TZ.

RBMSIIP. 2004. River Basin Management and Smallholder Irrigation Improvement Project. Implementation Completion Report. TZ-PA-38570; IDA CREDIT NO. 2900-TA (Project ID).

Rockstrom, J. 2000. Water Resources Management in Smallholder Farms in Eastern and Southern Africa: An Overview. Journal of Physics and Chemistry of the Earth 25(3): 275-283.

SDPMA. 1995/96, 1998. Smallholder Development Project for Marginal Areas (SDPMA). Loan number: S-024-TZ.

SHERFSP. 1997. Southern Highlands Extension and Rural Financial Services Project (SHERFSP). Mid-Term Review Report. IFAD Loan No. I-324-TZ (Project ID).

Sokile, C.S., Kashaigili, J.J. and Kadigi, R.M.J. 2003. Towards an integrated water resource management in Tanzania: the role of appropriate institutional framework in Rufiji Basin. Physics and Chemistry of the Earth, Parts A/B/C, 28(20-27), 1015-1023.

Sokile, C.S., Mwaruvanda, W. and van Koppen, B. 2005. Integrated Water Resource Management in Tanzania: interface between formal and informal institutions. In: Proceedings of the International workshop on African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa, 26-28 January 2005, Johannesburg, South Africa. Pp 28-1 – 13.

Sungusia H. G. 1999. "The Nyerere doctrine of land value and the enactment of Land Act (1999)." University of Dar-es-Salaam. Course Work Paper II.

Tibaijuka, A. and F. Kaijage. 1995. "Land Policy in Tanzania: Issues for Policy Consideration." Paper prepared for the National Conference on Land Policy Organized by the Ministry of Lands, Housing and Urban Development, Arusha, 16 – 19 January, 1995.

Tibaijuka, A. K.; Kaijage, F.; Mgongo, F.; & Nshala, A. 1993. "The Implications of the regulation of land tenure (established villages) act, 1992" for peasant land tenure security and natural resources management and conservation in Tanzania. Land Tenure Studies Group. University of Dar-es-Salaam.

United Republic of Tanzania, URT. 2001a. Poverty Reduction Strategy Paper. Dar es salaam, Tanzania.

United Republic of Tanzania, URT. 2001b. Rural Development Strategy. Dar es salaam, Tanzania

URT. 1983. National Agricultural Policy. Dar es Salaam.

URT. 1995. National Land Policy. Dar es Salaam

URT. 1997a. National Agriculture and Livestock Policy. Dar es Salaam.

URT. 1997b. National Environmental Policy. Dar es Salaam

URT. 2003. National Water Policy. Dar es Salaam

URT. 2004. River basin Management and Smallholder Irrigation Improvement Project No. 9. Review of customary water law regimes: Issues for reform of water laws. Mawenzi Advocates Chambers & Ministry of Water and Livestock Development. Dar es Salaam.

URT. 2005. National Strategy for Growth and Reduction of Poverty. Dar es Salaam.

World Bank. 2000. Agriculture in Tanzania since 1986, Follower or Leader of Growth? World Bank Country Study. Washington D.C. USA. Pp 167.

**APPENDIX**
**Selected policies which imply on smallholder AWM**

| SN | Name | Date | Purpose |
|---|---|---|---|
| 1 | Agricultural Policy | 1983 | Geared towards an agriculturally led economic growth. With the thrust of food self-sufficiency, improved nutrition, standard of living and raising the proportion of monetary agriculture through the paradigm of socialism and self-reliance |
| | | 1997 | Improve the well being of the people whose principal occupation and way of life is based on agriculture. This has to be achieved amidst macro-economic reforms since mid 1980s. |
| 2 | Water Policy | 1991 | The 1991 policy was overridden by an emphasis that the central government is sole investor, implementer and manager of the water projects, both in rural and urban areas. The policy also emphasized that the central government has a responsibility of protecting water sources while environmental protection was not accorded its due importance. Among other things, overly expressed aspects include the regard of water as a basic need and achieving equitable access to and adequate sustainable supply of clean safe water both in rural and urban areas by ensuring universal access to clean safe water supply within a distance of 400 meters from people's homes. Generally, the issue of AWM was marginally addressed compared to domestic water supply. |
| | | 2002 | The 2002 policy came into being after revising the shortcomings of the 1991 water policy. The main objective of this revised policy is to develop a comprehensive framework for sustainable development and management of the nation's water resources, in which an effective legal and institutional framework for its implementation will be put in place. |
| 3 | Environmental Policy | 1997 | Among other things the formulation of the 1997 environmental policy was driven by the Rio Declaration on Environment and Development, and Agenda 21, as adopted by the Plenary in Rio de Janeiro, on June 14, 1992. The policy seeks to provide the framework for making fundamental changes that are needed to bring environmental considerations into the mainstreams of decision making. It further provides for sectoral and cross-sectoral policy analysis in order to achieve comparability among sectors and interest groups and exploit synergies among them. |
| 5 | Land Policy | 1995 | The overall aim of a National Land Policy is to promote and ensure a secure land tenure system, to encourage the optimal use of land resources, and to facilitate broad based social and economic development without upsetting or endangering the ecological balance of the environment |
| 6 | National Strategy for Growth and Reduction of Poverty | 2005 | NSGRP is a second national organizing framework for putting the focus on poverty reduction high on the country's development agenda. The NSGRP is informed by the aspirations of Tanzania's Development Vision (Vision 2025) for high and shared growth, high quality livelihood, peace, stability and unity, good governance, high quality education and international competitiveness. It is committed to the Millennium Development Goals (MDGs), as internationally agreed targets for reducing poverty, hunger, diseases, illiteracy, environmental degradation and discrimination against women by 2015. It strives to widen the space for country ownership and effective participation of civil society, private sector development and fruitful local and external partnerships in development and commitment to regional and |

| | | | |
|---|---|---|---|
| | | | other international initiatives for social and economic development.<br><br>The NSGRP builds on the Poverty Reduction Strategy Paper (PRS(P)) (2000/01 -02/03), the PRS Review, the Medium Term Plan for Growth and Poverty Reduction and the Tanzania Mini - Tiger Plan 2020 (TMTP2020) that emphasize the growth momentum to fast -track the targets of Vision 2025. The NSGRP is expected to last 5 years, i.e. from 2005/06 to 2009/10. The end point of the strategy coincides with the targets of the National Poverty Eradication Strategy (NPES - 2010); it is two thirds of the way towards the MDGs (2015) and 15 years towards the targets of Vision 2025.<br><br>The strategy requires increased commitment and resources from domestic stakeholders and development partners in the medium term. To increase the effectiveness of aid, Tanzania will pursue the principles laid down by the Tanzania Assistance Strategy (TAS) and Joint Assistance Strategy (JAS) for harmonization alignment of aid modalities. |