

**Review of Current IFAD RB-COSOPS and Potential for
Future IFAD Investments in Agricultural Water
Management: Nigeria and Tanzania
Report submitted to AgWA and FAO**

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Acronyms

ACCOMEX	Agricultural Commodity Exchange Market (Nigeria)
AfDB	African Development Bank
AgWA	Partnership for Agricultural Water for Africa
ASDP	Agricultural Sector Development Programme (Tanzania)
ASSP	Agricultural Sector Services Programme
ASP	Agricultural Strategic Plan (Zanzibar, Tanzania)
ATA	Agricultural Transformation Agenda (Nigeria)
AWM	Agricultural water management
CAADP	Comprehensive Africa Agricultural Development Programme
CASP	Climate Change Adaptation and Agribusiness Support Programme in the Savannah Belt
CBARDP	Supplementary support for Community-Based Agricultural and Rural Development Programme (Nigeria)
CBNRMP	Community-Based Natural Resource Management Programme (Nigeria)
CBO	Community based organisations
CDD	Community driven development
COSOP	Country Strategic Opportunities Programmes (see RB-COSOP)
DAPRS	Developing Agricultural Policy and Regulatory System (Nigeria)
EAC	East African Community
ECOWAS	Economic Community Of West African States
FAO	Food and Agriculture organization of the United Nations
FMARD	Federal Ministry of Agriculture and Rural Development (Nigeria)
FMWR	Federal Ministry of Water Resources (Nigeria)
FO	Farmer organization
GDP	Gross Domestic Product
GEF	Global Environmental Facility
HDI	Human Development Index
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IMAWESA	Improved Management of Agricultural. Water in Eastern and Southern Africa
IWMI	International Water Management Institute

KM	Knowledge management
M&E	Monitoring and evaluation
MAFSC	Ministry of Agriculture, Food Security and Cooperatives (Tanzania)
MARKETS	Maximising Agricultural Revenue in Key Enterprises (Nigeria)
MDG	Millennium Development Goal
MKUKUTA	Swahili acronym for NSGRP (mainland Tanzania)
MKUZA	Swahili acronym for NSGRP (Zanzibar)
MUVI	Rural Micro, Small and medium Enterprise Programme (Tanzania)
MWI	Ministry of Water and Irrigation (Tanzania)
NAIP	National Agricultural Investment Plan (Nigeria)
NEEDS	National Economic Empowerment and Development Strategy: Meeting Everyone's Needs (Nigeria)
NIPS	National Economic Empowerment and Development Strategy: Meeting Everyone's Needs (Nigeria)
NPCA	Nepad Planning and Coordination Agency
NPAFS	National Programme for Agriculture and Food Security (Nigeria)
NPFS	National Programme for Food Security (Nigeria)
NSGRP	National Strategy for Growth and Reduction of Poverty (Nigeria)
PPP	Public private partnership
PRSP	Poverty Reduction Strategy Plan
PTA	Policy and Technical Advisory Division (of IFAD)
RAISE	Raising Agricultural Income with Sustainable Environment (Nigeria)
RB-COSOP	Result-Based Country Strategic Opportunities Programmes (see COSOP)
RBDA	River Basin Development Authority (Nigeria)
RUDMEDP	Rural microenterprise Development Programme (Nigeria)
RUFIN	Rural Finance Institution-Building Programme (Nigeria)
SADC	Southern Africa Development Community
SME	Small and medium-sized business
SO	Strategic objective
SPA	Seven point agenda (Nigeria)
SSA	Sub-Saharan Africa
SWAp	Sector Wide Approach
SUA	Sokoine Agricultural University

TAFSIP	Tanzania Agriculture and Food Security Investment Plan
URT	United Republic of Tanzania
USAID	United States Agency for International Development
VCDP	Value Chain Development Programme
WFP	World Food Programme
WUA	Water users association

Summary

This report was commissioned by FAO on behalf of AgWA. AgWA is a partnership for promoting agricultural water management (AWM) investments in sub-Saharan Africa (SSA). The AgWA secretariat is managed by FAO. AgWA has five roles: advocacy, partner harmonization, resource mobilization, generating and sharing knowledge, and capacity building. AgWA currently receives most of its support from IFAD and FAO.

The purpose of this report is to review the IFAD country investment programs in Nigeria and Tanzania in order to assess investments in AWM and to make recommendations for scaling up these investments. This has been done in the context of AgWA's five roles, in order to identify opportunities for AgWA to support AWM investments. The study is a desk study, in which available documentation on each of the two countries' own agricultural investment programs – especially for AWM – was analysed and compared to the IFAD country investment programs (as expressed in its Result-Based Country Strategic Opportunities Programmes [RB-COSOPs]). The Consultant was also asked to make recommendations to IFAD with regard to AWM investments in sub-Saharan Africa (SSA) and to AgWA on how it could support IFAD's programs.

The report provides quite detailed analyses of the AWM investments in Nigeria and Tanzania. Both countries place a very high priority on achieving higher rates of agricultural growth, and on expanding irrigation as a major driver of this growth. In both countries, IFAD has a track record of investing in small scale irrigation – in Tanzania it has an especially good reputation for these investments. In Nigeria, IFAD is currently not investing directly in AWM except as a component of one investment project. Neither the RB-COSOP nor the President's Report for that project provide adequate detail on AWM investments. This reflects the relatively low priority placed on AWM by IFAD in Nigeria. In Tanzania, IFAD invests most of its funds through a Basket Fund where funds from multiple sources are mingled and then invested based on an agreed program. AWM is an important part of this program, but because of the Basket Fund mode of operation, IFAD has little influence on the actual investments at field level.

In both countries the current RB-COSOP is already out of date and not well-synchronized with the current investment programs of the two governments. Therefore, it is time for IFAD in consultation with its partners to carry out a strategic planning exercise in order to identify its priorities over the next decade or so (this is planned for 2015 in Tanzania). Our main recommendation to IFAD is that in all its partner countries where AWM is an important investment sector, IFAD should consult with the government and other actors to identify whether there is an AWM investment niche for IFAD and if so what that niche might be; and to carry out in-depth analyses of the potential benefits and IFAD's comparative advantage given its modest investments, alternative investment sectors, and demand from partners. This report offers a seven-step guideline for analysing whether IFAD should invest in AWM or not in a specific country.

AgWA has the potential to play an important role in supporting IFAD's AWM investment programs in SSA generally, and specifically IFAD and the governments of Nigeria and Tanzania in strengthening AWM investment programs in both countries. The report makes specific recommendations for each of the two countries, organized in terms of the five AgWA roles. The report also makes a broader recommendation to AgWA. The five AgWA roles or 'pillars' remain valid, but we recommend ordering them in terms of the greatest potential for AgWA to make a difference. The order, beginning with the role where AgWA has the greatest comparative advantage is as follows: 1) generating and sharing knowledge,

2) capacity building, 3) advocacy, 4) partner harmonization, and 5) resource mobilization. “Advocacy” is in fact cross-cutting; none of the five pillars stands alone — they are a package. We believe AgWA can make substantial contributions to generating and sharing knowledge and capacity building, working with African and international organizations. It can also partner with others to play a key role in advocating more and higher quality AWM investments and more effective policies. On partner harmonization and resource mobilization, it can make a contribution but perhaps in a supporting role with other partners.

IFAD is currently a strong AgWA partner (along with its host, FAO). IFAD is a major investor in small scale irrigation in terms of innovative investments aimed at relatively disadvantaged rural people. Although its AWM investments are not as large as those of some other international finance institutions, AWM accounts for some 25 percent of IFAD’s total investment portfolio. It is therefore very significant. Surprisingly, its knowledge management and capacity building program for eastern and southern Africa – IMAWESA — is not being continued. This leaves a gap in terms of assisting IFAD to learn and share lessons, promote innovation, and contribute effectively to capacity building. Therefore, our main recommendation to AgWA is that it approach IFAD about developing a strong Africa-wide AWM knowledge generation and management, capacity building and advocacy program, aimed in the first instance at supporting IFAD’s own AWM investment programs, but with a longer term goal of attracting wider support and scaling up to be the premier AWM knowledge network for SSA.

Review of Current IFAD RB-COSOPS and Potential for future IFAD Investments in Agricultural Water Management: Nigeria and Tanzania

1. Introduction: Terms of Reference and Organization of the Report

This report was commissioned by the Food and Agriculture Organization of the United Nations (FAO) on behalf of the Partnership for Agricultural Water for Africa (AgWA). AgWA consists of interested African countries, development partners, and international, regional and national organizations having a common interest in and capacity to support Agricultural Water Management (AWM) investments in Africa. Its overall objective is to increase investment in agricultural water management development, thereby contributing to the Comprehensive Africa Agriculture Development Programme (CAADP) Pillar 1 (Land and Water Management) and to the achievement of the Millennium Development Goals (MDGs). AgWA is supported by the International Fund for Agricultural Development (IFAD) and other development partners. FAO provides its secretariat, currently located in Addis Ababa, Ethiopia.

AgWA has identified five priority areas for its work:

- *Advocacy*: Disseminate information on AWM and set the topic on top of the agenda of relevant policy makers and stakeholders;
- *Partner harmonization*: Providing a platform for closer collaboration, policy-dialogue and harmonization between partners;
- *Resource mobilization*: Increasing and sustaining the flow of resources (funds, people, political will) towards AWM;
- *Generating and sharing knowledge*; Facilitating knowledge-sharing and understanding of issues related to AWM; and
- *Capacity building*: Building the capacity for informed decision making at all levels of AWM.

FAO and IFAD are collaborating to identify potential opportunities to scale up AWM investments. IFAD normally prepares a country investment strategy in close partnership with the partner government and other stakeholders. These are called “Result-Based Country Strategic Opportunities Programmes” or RB-COSOPs. Recent guidelines (IFAD 2011) state that the duration of a country RB-COSOP is flexible depending on the country situation (they used to be for a fixed period of five years). They have also been broadened beyond providing a rationale for investment projects to include other options (e.g. loans, grants, policy dialogue, partnership, knowledge management, direct supervision and implementation support, and enhanced country presence) and pooled financing arrangements (joint assistance strategies and sector-wide approaches). Key features of the results-based RB-COSOP include alignment, joint ownership, synergy, results management framework, accountability, baselines, indicators, quantification, annual reporting, retrofitting, financing framework, project pipeline and cost effectiveness. These changes open the door to more fruitful collaboration between AgWA, IFAD, and partner countries.

Among other activities, AgWA, through FAO, is mapping the current state of AWM investments in African RB-COSOPs. This report is based on an in-depth analysis of two countries from southern/eastern and west Africa: Tanzania and Nigeria. The specific Terms of Reference are as follows:

1. Review the RB-COSOPs in Tanzania and Nigeria, identifying AWM components in them, taking into account the reconciliation of the five agreed components of AgWA, and benefitting from the result of a financial diagnostic analysis that will be carried out by an FAO-NRL¹ team in parallel, and compile recommendations for promoting pro-poor water for agriculture investments that can be supported by IFAD in Northern and Southern African Countries.
2. Conclude with recommendations for Tanzania and Nigeria for promoting pro-poor water for agriculture investments and for the identification of the potential roles of AgWA in supporting IFAD's water management investments in these two countries.
3. Based on the results of the mapping exercise of the IFAD RB-COSOP in African Countries, conclude with recommendations of the RB-COSOPs's scope and possibilities at Africa level.

The next section of the report briefly describes the methodology followed. The following two sections analyse the content of the current RB-COSOPs of each of the two countries to identify the level and types of AWM investments; and based on a broader analysis of the countries' potential for and priority given to AWM, examines whether there is a niche for IFAD in the future. In addition, each section discusses the areas where AgWA may have a comparative advantage in supporting investments in AWM. The final two sections offer specific recommendations to IFAD on AWM investments in sub-Saharan Africa and the potential roles of AgWA; and recommendations to AgWA itself.

2. Methodology

This report is based on a desk review. Recent analyses of RB-COSOPs have shown that agricultural water management has become more prominent in IFAD's corporate investment plans. IFAD's Policy and Technical Advisory (PTA) Division commissioned a series of studies of the changes in water content (mostly but not only AWM) of RB-COSOPs and more broadly IFAD's capacities, lessons learned and comparative advantage in AWM (e.g. Bullock 2012a, 2012b, 2013). The results have been synthesized into an official evaluation report (IFAD 2013a). According to this report, before 2006 IFAD did not deal with water management in a strategic and systematic manner. During 2006-2008, all 26 of the COSOPs prepared identified water as a constraint to agricultural production, and 13 of them mention some aspect of water as a Strategic Objective (SO)². During 2009-2012, 23 new RB-COSOPs were prepared³. Water is referred to at

¹ Natural Resources and Environment Department, Land and Water Division of FAO.

² Afghanistan, Burkina Faso, Cambodia, Cameroon, Ethiopia, Guatemala, Indonesia, Jordan, Morocco, Rwanda, Tanzania, Viet Nam and Yemen.

the SO level in 21 of these; 12 make water a specific SO (IFAD 2013a). Water is often “embedded” in larger projects, but Bullock (2013) estimates around 25 percent of IFAD’s global portfolio of US\$ 4.6 billion is invested in water management. The percentage may be even higher for Sub-Saharan African (SSA) countries⁴. This represents a “sea-change” in IFAD’s corporate program, and commits IFAD to investments for which it may not have sufficient internal technical capacity (Bullock 2013).

In this study, first, the RB-COSOPs of Nigeria and Tanzania⁵ are analysed to identify their SOs, main priority investment areas and the rationale for the choices made. The analysis identifies the extent to which AWM investments have been included in the program and their level of priority. This includes an examination of the content of existing and planned investment projects as listed in the appendices or on IFAD’s website – often AWM investments are embedded in broader investment programs. Tanzania’s RB-COSOP is from 2007, while Nigeria’s dates from 2010. We have tried to strengthen and update this analysis by using information available from IFAD’s website (www.ifad.org) including documents such as President’s Reports. These Reports are summaries of investment programmes that are submitted to IFAD’s Executive Board for approval. Unlike detailed programme documents, these are public.

Second, we examine selected key official documents regarding the priority given to AWM investments by each of the countries. These documents included, where available, policies, Poverty Reduction Strategy Papers (PRSPs), National Investment Briefs prepared for the Sirte Conference in 2008⁶, and other documents issued by governments, as well as the documents associated with the country CAADP compacts. We use FAO’s AQUASTAT statistical data but in some cases supplement these data from other sources (see Box 1). This work was supplemented from other sources where available; for example, AWM investment recommendations and business plans produced by the AgWater Solutions Project in Tanzania. In both countries we briefly examine recent AWM research results. It is not possible for this analysis to be comprehensive: both countries are characterized by a wide range of agro-ecologies, and both have decades or more of experience with irrigation projects. Nigeria is a large federation of states that have their own priorities. However, an attempt has been made to achieve sufficient depth as to make the recommendations valid and credible.

³ Chad, Congo, Haiti, Malawi, Pakistan, Peru, Philippines, Sudan, Syria, Azerbaijan, Cote d’Ivoire, Dominican Republic, Nigeria, Senegal, Sierra Leone, Bangladesh, China, D.R. Congo, India, Lao PDR, Mozambique, Vietnam and Zambia.

⁴ Delaney (2012) provides a detailed review of AWM projects and experiences in IFAD’s West and Central Africa Division. It demonstrates a very rapid expansion between 2006 and 2009 of AWM investments in this region.

⁵ AgWA and FAO chose these two countries.

⁶ High-Level Conference on: *Water for Agriculture and Energy in Africa: the Challenges of Climate Change*, Sirte, Libyan Arab Jamahiriya, 15-17 December 2008.

Box 1. A Note on Data

In both Nigeria and Tanzania, official documents often contain different and sometimes even contradictory statistical data. In this study, we have used several sources. Some basic data are drawn from the World Bank websites and FAO's databases, FAOSTAT (<http://faostat.fao.org/>) and, most important, AQUASTAT (<http://www.fao.org/nr/water/aquastat/main/index.stm>); but where other sources differ or appear more up-to-date we make use of these more recent figures to supplement AQUASTAT. In some cases IFAD's documents use different data than FAO; since this study is aimed at IFAD, its understandings are important and are used as well. The report also draws selectively on data contained in the two investment briefs prepared by FAO-AgWA (FAO 2014a, 2014b).

Third, we draw on a recent paper produced under a project implemented by the International Water Management Institute (IWMI) with IFAD support (Merrey 2013). That paper synthesizes the growing evidence of the importance of AWM investments for promoting agricultural development and rural poverty reduction and offers a range of potential innovative AWM investments, many drawn from the AgWater Solutions Project, which is explained below. It also has a chapter setting out an approach IFAD could use in its national programme planning processes to decide whether AWM investments should be considered as a major Strategic Objective, and if so, what kinds of investments should it consider (e.g. irrigation infrastructure and/or technology, market access for existing irrigated agriculture, institutional and policy support). Seven critical topics are identified as areas to be analysed as a basis for this strategic decision. Keeping AgWA's priorities in mind, these have been converted into nine criteria for assessing AWM content in RB-COSOPs as shown in Table 1.

Table 1. Criteria for Analysis of AWM⁷

Criterion/Question	Answers, comments
1. Context: Does the RB-COSOP provide a succinct but reasonably complete analysis of rural poverty and the role of agriculture, including performance, challenges and opportunities? [<i>yes/somewhat/no, and reasons for conclusion?</i>]	What are the main bullet points? Is water discussed as a major constraint? If so, what are the key points? What are the gaps if any? Is the analysis reasonably comprehensive and convincing?
2. Context: Within the context of the rural poverty-agriculture analysis, does the RB-COSOP provide a succinct but reasonably complete analysis of natural resources, including water and land: basic characteristics, challenges and opportunities? [<i>yes/somewhat/no, and reasons for</i>	What are the main bullet points? Are there significant issues identified related to AWM? Is the analysis reasonably comprehensive and convincing?

⁷ This table was prepared originally by this consultant as a draft guide for an assessment of all RB-COSOPs in sub-Saharan Africa, to be carried out by consultants to AgWA through FAO.

Criterion/Question	Answers, comments
<i>conclusion?]</i>	
3. Within the above context, does the RB-COSOP provide an analysis of the potential poverty, equity, and economic outcomes of AWM investments? [<i>yes/somewhat/no, and reasons for conclusion?</i>]	What are the key points made, if any? Is it consistent with the analyses of agricultural and natural resources challenges? Does the COSOP mention previous investment in AWM that are, or are not, being continued or are being substantially modified? If so what are they and what lessons if any are mentioned?
4. Does the RB-COSOP provide a convincing rationale for the priority investment areas at Strategic Objective (SO) that it has chosen? [<i>yes/somewhat/no, and reasons for conclusion?</i>]	What are the SOs chosen? Is the rationale for these choices convincing? (This would be in terms of the contextual analysis, the country's own priorities, what other donors are doing, and IFAD's own comparative advantage and priorities. Briefly explain.)
5. Do the RB-COSOP's Strategic Objectives (SOs) specifically include AWM? [<i>yes/somewhat/no</i>]	If yes, what is it? What specific AWM programs/projects are proposed to achieve the AWM SO, and what is their status as of the RB-COSOP preparation? If no, is there any discussion of why not? If no, is there any evidence AWM should have been chosen based on the analysis of the context?
6. If AWM is not specifically included in the SO, it may be included as a means to the given SOs. Is this the case? [<i>yes/somewhat/no</i>]	If AWM is not included as a means to achieving the SOs, is any reason given? If so what is it? If AWM investments are embedded in other programs as means to achieving broader SOs, what are they and how are they expected to contribute to the SOs?
7. What are the critical components of the proposed AWM investments, if any?	Brief summary key characteristics
8. Do the proposed AWM investments include specific attention to: policy dialogue and reform; equity issues including gender; capacity building; knowledge management?	List here briefly.
9. Do the proposed AWM investments include specific attention to the AgWA priority areas? advocacy to raise awareness of AWM; partner harmonization; resource mobilization (i.e. supporting implementation of a coherent national AWM investment program); generating and sharing knowledge; and capacity building? [<i>yes/somewhat/no</i>]	If so, briefly identify what is included.

Fourth, this report draws on work commissioned by FAO-AgWA that analyse agricultural and hydroelectric investments in the two countries (FAO 2014a, 2014b). These documents use a “financial diagnostic tool” to disentangle current and planned public investments over the short, medium and long terms.

Because this report is intended to provide recommendations to AgWA, the analysis of the two RB-COSOPs focuses on the five core AgWA functions and assesses whether, and how, AgWA could support future AWM planning processes for IFAD and its partners in the two countries.

3. Nigeria

3.1 Context

With nearly 169 million people in 2012, the Federal Republic of Nigeria has the largest population in Africa⁸. The population is growing rapidly, and in recent years the economy has also been growing at a rapid pace. Agriculture accounts for some 37.4 percent of total GDP and employs 30 percent of the economically active population⁹. It is therefore a critical sector for reducing poverty and promoting economic growth. The agricultural economy has been growing rapidly in recent years, but Nigeria, which was once an exporter of agricultural produce, is now a major importer. Small farms with low productivity have resulted in significant levels of food insecurity. Still, with an estimated 61 million ha of arable land and 39.2 million ha actually cultivated¹⁰, there is scope to double Nigeria's cultivated area and substantially increase irrigation which now accounts for just 7-10 percent of the cultivated area. In addition to its petroleum and mineral wealth, Nigeria has a huge agricultural potential (IFAD 2012; FAO-Aquastat¹¹; Nigeria Investment Brief 2008).

Nevertheless, poverty is widespread and has been increasing since the 1960s. About 68 percent of Nigerians are below the \$1.25 poverty line¹², including about 80 percent of rural people. Nigeria is ranked 153rd out of 186 on the Human Development Index (HDI), has high rates of under-five year old and maternal mortality, and has a relatively high gini coefficient (0.49), an indicator of inequity (IFAD 2010a; <http://hdr.undp.org/en/countries>; <http://povertydata.worldbank.org/poverty/country/NGA>). As usual, women are the worst off.

About 90 percent of Nigeria's food production is from small rainfed farms. They are largely subsistence farmers, who are frequently short of food; hunger and malnourishment compounded by ill health further reduces productivity. Rural infrastructure has been a low investment priority for decades. The productivity of agriculture is low – most agriculture is labour-intensive and characterised by low inputs and low outputs. In 2004, an FAO study estimated that the area

⁸ <http://povertydata.worldbank.org/poverty/country/NGA>.

⁹ An IFAD brochure on its Nigeria programme states (2012): agriculture as a percentage of GDP is said to be 40 percent (41 percent in the Nigeria investment brief [2008]). IFAD (2012) also gives far higher figures for the percentage of people engaged in agriculture.

¹⁰ The figures for total arable land and actually cultivated land vary; *The National Agricultural Investment Plan (NAIP) 2011-2014* (FMARD 2010) – the official agricultural development plan – claims 79 million ha are arable, of which 32 million are cultivated. The Nigeria Investment Brief prepared for the Sirte Conference (2008) says 33 million ha were cultivated as of 2002.

¹¹ In 2004, 218,340 ha were actually irrigated, of an area equipped estimated to be 293,117 ha and an irrigation potential of about 2.1-2.4 million ha (with a range: 1.5-3.2 million ha); See FAO-Aquastat; Nigeria Investment Brief 2008).

¹² <http://povertydata.worldbank.org/poverty/country/NGA>.

developed for irrigation was 364,000 ha, the area equipped for irrigation was 293,000 ha and the area actually under irrigation was 218,800 ha. Of the latter, 173,000 ha were under private small scale or *fadama*¹³ irrigation and 29,000 ha were on Federal Government irrigation schemes (Nigeria Investment Brief 2008)¹⁴.

Nigeria's total annual renewable water resources are estimated at 286.2 km³ of which annual internally produced resources amount to 221 km³. The four principal surface water basins are the Niger and Benue basin, the Lake Chad basin, the Eastern littoral (made up of Cross River and the Imo River), and the Western littoral, which consists of a number of smaller catchments such as Ogun, Oshun, Benin and Owena basins. Total annual water withdrawal was estimated at 8 km³ for the year 2000, i.e. 2.8 percent of the total available. Agriculture was the biggest water user with 5.5 km³, or 69 percent of the total water withdrawal. As these figures indicate, Nigeria has considerable scope to develop its water resources (AQUASTAT; Nigeria Investment Brief 2008).

Nigeria is an extremely diverse country in terms of cultures, climate, and agro-ecology. The southern "tropical rainforest climate" zone is wet with two rainy seasons (total 2,000-4,000 mm/year), and is warm year around. The tropical savannah climate or tropical wet and dry climate zone is a large area covering western to central Nigeria; it has one rainy season (1,500 mm/year average) and a long dry season. The Sahel climate or tropical dry climate zone predominates in the northern part of Nigeria, with lower annual rainfalls and higher temperatures than the other regions. There is also a smaller highland climate zone in the southeast¹⁵. There are more than 250 ethnic groups; the three largest account for about 62 percent of the population. All of this diversity means that one must be careful in generalizing about Nigerian agriculture and water management. The poorest regions are in the Niger Delta (southern tropical rainforest climate) and Sudan-Sahel in the north (Sahel climate), i.e. in the wettest and driest areas, respectively, of the country. Livestock is an important component of all agricultural systems¹⁶.

Nigeria's government is a federal constitutional republic comprising 36 states and the federal capital, Abuja, and 774 local governments. The elected president exercises executive power through a cabinet of ministers he appoints. A bicameral legislature makes the laws and acts as a check on the power of the president. The Federal Ministry of Agriculture and Rural Development (FMARD) oversees agricultural research, agriculture and natural resources,

¹³ The term "fadama" is a Hausa name for irrigable land—usually low-lying plains underlain by shallow aquifers found along major river systems; <http://www.lsada.org/pages/fadama/whatfadama.html>.

¹⁴ *The National Agricultural Investment Plan (NAIP) 2011-2014* (FMARD 2010) gives a quite different and most likely erroneous figure: it claims the area irrigated is just 40,000 ha, 1 percent of the 3.14 million ha potential (FMARD 2010).

¹⁵ The Vision 2020 National Technical Working Group on Agriculture and Food Security (2009) discusses four broad climatic regions: very humid, humid, sub-humid and semi-arid, and emphasizes the great internal variation within these regions. AQUASTAT describes 3 broad ecological zones subdivided into eight agro-ecological zones.

¹⁶ This paragraph is largely drawn from Wikipedia (<http://en.wikipedia.org/wiki/Nigeria>). No proper livelihood zoning is available for the entire country.

forestry and veterinary research. It is also responsible for various parastatals and supervises and provides funding for research institutes. From April 2010 the Federal Ministry of Water Resources and Rural Development (FMWR) was separated from the Ministry in charge of agriculture. Among its many functions, the FMWR website lists two that are especially relevant here: formulation and implementation of the ‘Water Resources Policy Programme’, and development and support for irrigated agriculture for food security¹⁷. Each of the 36 states has its own ministries of agriculture and water, and considerable authority is devolved to the states and even local levels. IFAD deals with all three levels of government.

3.2 Government AWM policies and experiences

Nigeria has developed several important policy documents over the past decade. These include the National Water Policy (Federal Republic of Nigeria 2004), National Irrigation and Policy Strategy (NIPS; FMWR no date [2006?]), and its Poverty Reduction Strategy Papers. When the Nigeria Investment Brief (2008) was prepared for the Sirte conference, Nigeria’s national development agenda was largely driven by its then-PRSP, promulgated in 2004 as the “National Economic Empowerment and Development Strategy: Meeting Everyone’s Needs” (Nigerian National Planning Commission 2004). It was known by its acronym, NEEDS.

This has now been replaced by a new and even more ambitious plan. As before, agriculture remains central to the current government’s seven point agenda (SPA) and to achieving the National Vision 20:2020 goal to make Nigeria one of the 20 most advanced economies by 2020. The National Agricultural Investment Plan (NAIP) for 2011-2014 (FMARD 2010) is the major policy document guiding agricultural investments during the IFAD RB-COSOP period (2010-2015). It appears to have been developed at the same time the RB-COSOP was under development. This document articulates an ambitious program to increase the rate of agricultural growth to 10 percent per year by 2015. It was developed as part of the Economic Community of West African States (ECOWAS) CAADP process to harmonize agricultural investments in the region. The Plan is also referred to as the *Nigeria Agricultural Transformation Agenda (ATA)*. According to the CAADP Post Compact Nigeria Technical Review Panel (2010):

*The plan clearly states that one of the main prioritized activities is dealing with agriculture water management which includes irrigation and flood control infrastructure development and rehabilitation. The strategy identifies ground water as [an] additional source of water for agriculture. It is also encouraging that transboundary water resources management and integrated water resources management issues are raised. Conflict over land use is possible. Strategies to prevent conflicts are not outlined.*¹⁸

¹⁷ <http://www.nigeria.gov.ng/2012-10-29-11-06-51/executive-branch/110-federal-ministry-of-water-resources/129-federal-ministry-of-water-resources>.

¹⁸ Surprisingly, a summary prepared by the Minister of the Federal Agriculture and Rural Development Ministry emphasizes import substitution (especially for rice), stronger value chains, and encouraging private investment (but nowhere mentions AWM) (Adesina 2012).

NAIP is built around a five-point agenda or components. However, for some reason the components listed in the executive summary differ from those in the main text (FMARD 2010: compare page 11 and chapter 4). The executive summary articulates a five-point agenda mapped to the four CAADP principles as follows:

1. Developing Agricultural Policy and Regulatory System (DAPRS);
2. Establishing an Agricultural Commodity Exchange Market (ACCOMEX);
3. Raising Agricultural Income with Sustainable Environment (RAISE);
4. Maximising Agricultural Revenue in Key Enterprises (MARKETS);
5. Water, Aquaculture and Environmental Resource Management.

The water management agenda (fifth point in the strategic agenda) includes the development of 1,500 targeted RAISE (Raising Agricultural Income with Sustainable Environment) sites with small dams and irrigation infrastructure facilities (FMARD 2010). The financial allocation – and the gap in funding – for the water and environmental resource agenda is by far the largest among the five agenda items. Among the many specific objectives, increasing the irrigated area from 1 to 10 percent of cultivated land by 2015 is mentioned.

In chapter 4, a different set of five “principle” (or “core”) components are articulated:

1. Agricultural Productivity Enhancement;
2. Support to Commercial Agriculture;
3. Land Management and Water Control;
4. Linkages and Support for Inputs and Product Markets; and
5. Programme Coordination, Monitoring and Evaluation.

In the balance of this report we use the latter list of principle components and we focus on AWM; clearly these components include other dimensions of agricultural development and all are critical.

Component one is focused on raising crop production, which is central to the country’s food security. The National Programme for Agriculture and Food Security (NPAFS) is the coordinating instrument for all the projects important for achieving food security, poverty alleviation and overall improvement in the livelihoods of households in the agricultural sector (FMARD 2010)¹⁹. Three projects are especially important for scaling up AWM: (i) the National

¹⁹ These include the National Programme for Food Security (NPFS); National Fadama III Development Project; IFAD-assisted Community Based Agriculture and Rural Development Programme (IFAD-CBARDP) in seven northern states; IFAD-assisted Rural Finance Institution Building Programme; AfDB-supported Community Based

Programme for Food Security (NPFS), (ii) the National Fadama III Development Project, and (iii) the Multinational NERICA Rice Dissemination project. These projects address the policy goals of CAADP, namely investment in land and water resources, small rural infrastructure, food security and agricultural research and extension. For example, the core activity of the National Fadama Development Project (Fadama III), supported by the World Bank, is promoting small-scale private irrigation²⁰.

The description of component one includes the following goal: “Increasing functional irrigated land from 40,000 ha²¹ to 200,000 ha by 2013.” This seems extremely ambitious²²; indeed a technical review under the CAADP compact suggested it needs a “reality check” (CAADP Technical Review Panel 2010). Similar ambitious targets are found in the briefing note of the 19th meeting of the National Council on Water Resources (NCWR 2008). An “Action Memorandum of the Plan for Irrigation Development in Nigeria from 2008 to 2020” discusses a plan to develop 1.8 million ha of irrigation in the Niger-Benue Valley to boost food production and alleviate poverty. During the 2008-2020 period, over 854,000 ha of irrigation is proposed to be developed. (This Council uses 3.14 million ha as the irrigation potential of Nigeria—the higher end of the range of estimates.) The memorandum also mentions in passing in its last sentence, “the establishment of a National Irrigation Development Fund to manage part of the Natural Resources Fund.” We are not aware of the current status of this proposed fund.

Component 3, ‘Land Management and Water Control’, has multiple programmes and projects, most continuing from previous years. Most of the activities are aimed at improving the performance and sustainability of existing irrigation schemes. Included are efforts to restructure the River Basin Development Authorities along public-private-partnership (PPP) principles, and extension and upgrading of a number of larger-scale irrigation schemes.

The chapter on monitoring and evaluation (M&E) discusses rehabilitation of about 300 micro earth dams and construction of 200 new dams (including watershed management interventions) as a program under a “Community Development Fund” supported by Chinese technicians.

Overall, the NAIP is an ambitious plan for a relatively short period, with numerous dimensions. Irrigation is clearly important in terms of budgetary requirements and in its ambition to drastically increase the area irrigated (from a low base). While programmes related to soil fertility and land tenure are mentioned, there is no coherent discussion of a broader sustainable

Agriculture and Rural Development Programme (AfDB-CBARDP) in five northern states; Multinational NERICA Rice Dissemination Project; and IFAD-supported Community Based Natural Resource Management Programme (CBNRMP) in the Niger Delta (FMARD 2010).

²⁰ FMARD (2010) says Fadama III covers all 36 states, and is scheduled to be completed in 2013, as stated in the project appraisal document (World Bank 2008); the World Bank website lists December 31, 2017 as the closing year (<http://www.worldbank.org/projects/P096572/third-national-fadama-development-project-fadama-iii?lang=en>).

²¹ The source of this 40,000 ha figure is not clear; Aquastat lists 29,000 ha of public irrigation and 173,000 ha of private irrigation as noted above.

²² A draft policy document from the Federal Ministry of Water Resources uses a figure of 100,000 ha as a base; perhaps this figure includes non-functioning developed areas.

land and water management and AWM policy, or linkages and synergies among irrigation and other activities designed to increase output and profitability of agriculture. No coherent irrigation or AWM policy is presented in the NAIP.

However, there is a somewhat recent – but still draft – National Irrigation Policy and Strategy²³. It recommends integrated water resource management, consolidation of existing investments where commercially viable, institutional change and reform for the river basin development authorities (RBDAs), land and water legislation, and the development of beneficiary-led irrigation schemes. Its primary goal is to improve the performance of irrigation services. It is meant to support efforts by other irrigation service providers, for example FMARD and state organizations, and to provide an overall supportive policy context for reform and development. There is a strong emphasis on providing incentives to private irrigation development and services. It also includes a chapter on investment plans that are supportive of the thrust of the NAIP.

3.3 Recent research on irrigation in Nigeria

The International Food Policy Research Institute (IFPRI) manages the Nigeria Strategy Support Program (<http://nssp.ifpri.info/>). This programme sponsors agricultural research and workshops, often including research on irrigation. IFPRI has carried out some recent research that is quite useful. A recent national survey study on farm household typologies and how they use irrigation systems identified three main types of irrigation system: 1) labour-intensive diverted stream irrigation of rice; 2) supplementary irrigation of coarse grains and legumes using groundwater; and 3) dry season irrigation of vegetables. The study provides considerable detail and emphasizes the need to understand the uses of irrigation in specific areas and the key constraints to scaling these up and improving their productivity (Takeshima and Edeh 2013). Another report builds on this analysis and examines the types of small-scale private irrigation in Nigeria and the constraints to its further expansion (Takeshima et al. 2010). About 95 percent of the area currently benefiting from water management falls under this category, though most of it uses traditional technologies to lift water from surface sources. There is clearly a huge scope for expansion, but the study identifies a number of knowledge gaps. These include knowledge on 1) water resources, 2) perceptions of risks, 3) transaction costs associated with irrigation investments, and 4) effectiveness of public support institutions.

There is a need for increasing the capacity for agricultural research in Nigeria, including AWM research (CAADP Technical Review Panel 2010; Sanyal and Babu 2010). There are many institutions and universities with important AWM capacity, but there is a large gap between that capacity and the need. Developing stronger collaboration among these institutions would increase their effectiveness. We suggest that it would be useful to commission a review of the work that has been done to date, the major conclusions emerging from that work, the gaps that

²³ We found this document in draft (FMWR no date [2006?]; see <http://enplan.org/draftNIPS.pdf>); according to the Nigeria Investment Brief (2008) it was adopted in 2006, but its list of references does not include this document.

need to be filled, and the capacity requirements for meeting long term research needs. This could be a basis for preparing a longer term AWM research and development program, linked to other regional and international partners working in this area. We recommend collaboration with other partners because there is a large potential for Nigerian research institutions to both benefit from and contribute to AWM research and knowledge sharing.

There are potential roles for AgWA. It could mobilize African and international experience and expertise to assist with the review of the status of AWM research and development, development of a longer term program linked to other partners, and continued support for sharing experiences and capacity building²⁴. We return to potential kinds of AgWA support to Nigerian AWM below.

3.4 COSOP focus

Since 1985, IFAD has supported ten programmes and projects with a total cost of US\$788.3 million of which IFAD loans covered US\$ 360.8 million, directly benefiting nearly 3.78 million beneficiaries²⁵. These projects and programmes cover the entire country as is shown in the map reproduced from the IFAD Nigeria website page (Figure 1). The current IFAD Results Based – Country Strategic Opportunities Programme (RB-COSOP) covers the period 2010-2015 (IFAD 2010a). The FMARD is the lead partner for IFAD. This has implications for agricultural water management investments because until 2010 agriculture and water resources were in one ministry. As noted above, the FMWR now has substantial responsibility for irrigation, most likely overlapping with the FMARD. Under the current arrangements, it is split such that IFAD and other AWM partners must work with both ministries; nevertheless, as discussed above, AWM is a priority investment area for the FMARD.

The RB-COSOP is based on two Strategic Objectives (SOs):

1. Improve access by rural poor people to economically, financially and environmentally sustainable production, storage and processing technologies, market access, and support services; and
2. Strengthen community involvement in local planning and development, and promote government support for rural infrastructure.

The RB-COSOP states these are consistent with IFAD's own strategic framework as well as with the CAADP, the MDGs on hunger and poverty, and government policies. Based on the website (<http://operations.ifad.org/web/ifad/operations/country/home/tags/nigeria>), the current portfolio consists of four programmes²⁶. These are listed in Table 2, which also identifies their

²⁴ The World Bank, IWMI and the Nigerian government have recently announced a five year collaborative program for research and capacity building in irrigation; details are currently sparse. See <http://wle.cgiar.org/blog/2014/02/01/world-bank-iwmi-africa-come-together-nigeria-irrigation/>.

²⁵ <http://operations.ifad.org/web/ifad/operations/country/home/tags/nigeria> These figures are from the statistics sidebar on this site, accessed 30 January 2014; other sources such as IFAD (2012) provide different figures.

²⁶ A recent IFAD (2012) brochure also lists four, but the two lists are not identical.

approximate location and goals, the extent to which they have an AWM component and links to NAIP goals. As with all RB-COSOPs, this one has a brief discussion of past experiences, lessons learned including conclusions of a 2007-2008 Country Programme Evaluation, and how it is coordinated with and supports government policies and other development partners' programs. Previous interventions are said to have followed three inter-related approaches: “(a) an area-based, demand-led, community-driven, beneficiary-focused and participatory approach; (b) a commodity-based approach to enhance productivity, production, post-harvest handling/value-addition and food security; and (c) a regional and natural resources management approach that combines the community-based approach with a rural focus.” The RB-COSOP says the current one builds on past successes and lessons learned (IFAD 2010a).

Figure 1. IFAD’s Current Project and Programme Areas in Nigeria



Source: <http://operations.ifad.org/web/ifad/operations/country/home/tags/nigeria>

Key: see Table 2.

Since IFAD is a relatively modest development partner in financial terms, the RB-COSOP states that it tries to target specific geographic areas and groups within those areas. Its 2010-2015 programmes address the main agro-ecological zones, and within these zones, areas with high poverty rates and high rates of “productive poor” in the poorest states and within them the poorest local governments. IFAD targets subsistence- and market-oriented smallholder men, women, and youth, other small-scale actors as well as key individual larger-scale actors in the value chain, and “self-targeting” of those most in need of assistance based on communities’ suggestions. In practice, IFAD has one or more programs operational in nearly the entire country.

Agricultural Water Management in the RB-COSOP

In the analytical portions of the RB-COSOP, the emphasis is on broad issues such as access to credit and markets, governance and corruption, conflict, public health challenges, limited technological innovation, environment (unspecified), inadequate rural infrastructure (in general), and land tenure. All of this is indisputably important and is consistent with the NAIP. However, there is an absence of deeper analysis of the most pressing issues facing agriculture and rural poverty in Nigeria and matching them to IFAD’s own priorities and comparative advantage. Discussion of the latter, i.e. IFAD’s comparative advantage, is in broad terms such as emphasis on community-driven development, rural poverty focus, and gender. Given the diversity of agro-ecological zones and therefore livelihood zones, it is surprising that there is no specific discussion of challenges such as rainfall variability and water scarcity in the more arid regions, and the need for dry season irrigation in the wetter climates. It is also interesting to note that in the main text of the RB-COSOP words like “water management” and “irrigation” rarely occur. The analysis of agriculture mentions the low percentage of irrigated area and the poor performance of irrigation but does not go further. The section on opportunities for intervention mentions “off season use of irrigated land” as part of a longer list. The RB-COSOP “Results Management Framework” in Appendix iii has no mention of AWM²⁷.

It is only when one gets to Appendix vi on the project pipeline that irrigation is mentioned — again in passing with regard to the Community Based Agricultural and Rural Development Programme (CBARDP) implemented in the arid and semi-arid zones; but this project is no longer active. Irrigation is more prominent in the discussion of the then-planned Value Chain Development Support Programme, which is an active programme now called the Value Chain Development Programme (VCDP). Among many activities, that project proposes to contribute to increasing agricultural productivity in four areas: expansion and efficient management of small scale irrigation systems, promotion of conservation agriculture, plus two activities related to livestock productivity. However, in the RB-COSOP (and even the President’s Report (IFAD 2010, 2012a), these AWM activities do not appear in the description; the real focus is on strengthening access to markets and commodity chains. Nevertheless, the detailed project description includes specific AWM investments (IFAD 2012c; see Table 2).

²⁷ The previous COSOP Results Framework (Appendix iv) had mentioned “natural resources management” several times.

Table 2. Main Programmes Currently Supported by IFAD in Nigeria

Programme	Location	Goals	AWM content	Link to NAIP Agenda
<p>Value Chain Development Programme (VCDP)*</p> <p>Total project cost: US\$ 104.7 million Approved IFAD loan: US\$ 74.4 million Approved IFAD grant: US\$ 472,000 Approval date: 03/04/2012 Duration: 2013 - 2019</p>	<p>South eastern and mid-western sections (6 states)</p>	<p>“The programme development objective is to increase, on a sustainable basis, the incomes and food security of poor rural households engaged in production, processing and marketing of rice and cassava in the targeted LGAs [Local Government Areas.” IFAD 2012a)</p>	<p>Only vaguely mentioned in RB-COSOP and President’s Report, but the detailed project description(IFAD 2012c) includes: <u>Irrigation and water control</u>: (i) rehabilitate selected irrigation systems (2,500 hectares); (ii) protect 30,000 hectares of land from seasonal flooding, through construction of dykes and drainage canals; and (iii) strength the capacity of 14008 water user Farmer Organizations to maintain and manage these structures. Improvement of water supply. The Programme will also construct 36 cassava and rice VC-linked new water supply schemes and rehabilitate 24 existing ones.</p>	<p>Linkages and Support for Inputs and Product Markets; Land management and water control; and Productivity Enhancement (NAIP)</p>
<p>2) Rural Finance Institution-Building Programme (RUFIN)</p> <p>Total project cost: US\$ 40 million Approved IFAD loan: US\$ 27.2 million Approved IFAD grant: US\$ 400,000 Co-financing: Ford</p>	<p>12 states within several of the six geopolitical zones of Nigeria: the north, the middle belt, and the south</p>	<p>“The purpose is to develop rural financial services and enhance the access to these services by the rural population so as to expand and improve the productivity of agriculture and rural micro- and small enterprises” (IFAD 2006)</p>	<p>None mentioned</p>	<p>Linkages and support for inputs and product markets (NAIP)</p>

Programme	Location	Goals	AWM content	Link to NAIP Agenda
Foundation (US\$ 0.5 million) Approved 2006, signed 2008, effective 2010. Duration: 2010 - 2017				
3) Continuation of Community-Based Natural Resource Management Programme – Niger Delta (CBNRMP) Extended with new financing from previous COSOP. Effective 2005, it was scheduled to be completed Sept. 2013 (IFAD 2012b). Total cost: US\$ 78.4 million Approved IFAD loan: US\$ 15.0 million Duration: 2005 - 2015	Niger Delta in south (tropical rainforest climate) (9 states)	The goal of the CBNRMP is: “Standard of living and quality of life improved for at least 400 000 rural poor people of the Niger Delta states with emphasis on women and youth.” The purposes of the programme are: (i) rural community and service provider capacity for community development strengthened; and (ii) community development fund established and effectively disbursing.	None mentioned The introduction in the President’s Report (IFAD 2002) states: “Enabling the rural poor to overcome their poverty by strengthening their capacity and support institutions, and improvements in their access to and effective management of land, water and common property resources on a sustainable basis”. This is not spelled out anywhere because local investments are intended to be community-defined and driven. A recent Supervision Report mentions access to domestic water but there is no discussion of agricultural water or irrigation (IFAD 2012b).	Productivity enhancement; potentially Land management and water control (NAIP)
4) Climate Change Adaptation and Agribusiness Support Programme in the Savannah Belt (CASP) (This is a follow-on to the Community-Based Agricultural and Rural	Savannah Belt (7 states)	“The overall goal of the CASP is to reduce rural poverty, increase food security and accelerate economic growth on a sustainable basis. The programme development objective is to increase	CASP seeks to address risks that address production and rural assets. Taking a landscape approach, communities will be encouraged to implement landscape rehabilitation activities through the provision of technical assistance. More	Productivity enhancement; Land management and water control; Linkages and support for inputs and product markets (NAIP)

Programme	Location	Goals	AWM content	Link to NAIP Agenda
Development Programme [CBARDP] completed in May 2013. According to IFAD's website this project is not yet signed. Total cost: US\$ 93.55 million IFAD loan: US\$ 70 million Grants: US\$ 0.48 million, and Adaptation for Smallholder Agriculture Programme (ASAP) grant: US\$ 15 million		incomes, enhance food security and reduce vulnerability for smallholder farmers, particularly women and youth, and create jobs in the participating states” (IFAD 2013b).	specifically, this subcomponent will demonstrate erosion control and rangeland management techniques.	

* In the RB-COSOP, Rural Microenterprise Development Programme (RUMEDP).

Sources: IFAD 2006; 2010a, 2012a, 2012b, 2012c; 2013b; FMARD 2010; IFAD website

(<http://operations.ifad.org/web/ifad/operations/country/home/tags/nigeria>).

In the final appendices of the RB-COSOP, there are “key files” which summarize information and analysis developed in its preparation. Key file one, “Rural Poverty and Agricultural Sector Issues”, lists nine broad “priority issues” of which one is “access to productive natural resources”. Under the heading of major issues, it highlights irrigation and dependence on rainfed production among others. Specifically, it lists inadequate attention to small scale irrigation and not “promoting” farmer managed irrigation systems within existing river basin schemes” (p. 31)²⁸. But the “actions needed” hardly do justice to these points, mentioning promoting community-driven development (CDD) approaches, water users associations (WUAs) and a number of tangentially related issues. Finally, the RB-COSOP mentions three priority policy areas to be addressed: farmers’ organizations and rural communities, local government capacities including in planning and managing common property, and rural finance institutions. These policy areas are critically important for sustainable and productive irrigated agriculture.

Conclusions regarding AWM in the Nigeria RB-COSOP

Given the large range of complex challenges to achieve rural development and poverty reduction in Nigeria, and IFAD’s own priority interests, we are not questioning the importance of the challenges on which IFAD has chosen to focus. Nevertheless, in view of the critical importance of natural resource management challenges and the huge potential for better use of water resources to enhance the productivity of agriculture in Nigeria, it is surprising that there is no evidence that IFAD considered a greater focus on AWM as one of its options. AWM investments are important vehicles to improve access by rural poor people to rural infrastructure, strengthen community involvement in local planning and development, and through increased production they promote food security. Table 3 summarizes briefly our assessment of this COSOP using the criteria listed above in Table 1. *The conclusion is that there is an opportunity for IFAD to consider including significant AWM investments in the future, building on its priorities for equity, community driven development, and market value chains.*

Table 3. Analysis of AWM Content in Nigeria RB-COSOP

Note: Please refer to Table 1.

Criterion/Question	Answers, comments
1. Context: Does the RB-COSOP provide a succinct but reasonably complete analysis of rural poverty and the role of agriculture, including performance, challenges and opportunities? [<i>yes/somewhat/no, and reasons for conclusion?</i>]	No. The analysis is based on focus areas already chosen by IFAD, and the discussion of roles, performance etc. of agriculture does not appear to be based on an independent in-depth analysis.
2. Context: Within the context of the rural poverty-agriculture analysis, does the RB-COSOP provide a succinct but reasonably complete analysis of natural resources, including water and land: basic characteristics, challenges and	No. This is missing entirely from the analysis. There is no clear analysis of natural resources, the high degree of variability among the zones, the challenges of soil degradation, inadequate and unreliable rainfall, the available water resources

²⁸ “Address rural infrastructure (rural roads, potable water supply, power, education and health)” is also listed as an “action needed.”

Criterion/Question	Answers, comments
opportunities? [<i>yes/somewhat/no, and reasons for conclusion?</i>]	that could be better used, etc.
3. Within the above context, does the RB-COSOP provide an analysis of the potential poverty, equity, and economic outcomes of AWM investments? [<i>yes/somewhat/no, and reasons for conclusion?</i>]	No. There are occasional references in passing to the importance of irrigation and the challenges faced; and AWM is mentioned explicitly for one programme but the focus is not clearly articulated.
4. Does the RB-COSOP provide a convincing rationale for the priority investment areas at Strategic Objective (SO) that it has chosen? [<i>yes/somewhat/no, and reasons for conclusion?</i>]	Somewhat. There is no doubt the RB-COSOP has identified important areas such as market and credit problems, corruption, weak institutions, etc. But the SOs lack sufficient focus, given the modest resources IFAD can invest in a very large and diverse country.
5. Do the RB-COSOP's Strategic Objectives (SOs) specifically include AWM? [<i>yes/somewhat/no</i>]	No.
6. If AWM is not specifically included in the SOs, it may be included as a means to the given SOs. Is this the case? [<i>yes/somewhat/no</i>]	No. Although AWM is clearly important in one programme (VCDP) and is mentioned in 2 others, it is not articulated in the RB-COSOP as one of the means to achieve the SOs.
7. What are the critical components of the proposed AWM investments, if any?	None articulated in the RB-COSOP. (The VCDP specifically discusses rehabilitation of small scale rice schemes and strengthening water users' associations.)
8. Do the proposed AWM investments include specific attention to: policy dialogue and reform; equity issues including gender; capacity building; knowledge management?	Not applicable.
9. Do the proposed AWM investments include specific attention to the AgWA priority areas? advocacy to raise awareness of AWM; partner harmonization; resource mobilization (i.e. supporting implementation of a coherent national AWM investment program); generating and sharing knowledge; and capacity building: [<i>yes/somewhat/no</i>]	No applicable.

Source: This analysis.

3.5 Conclusions and recommendations: Role of AgWA

Both the RB-COSOP and the NAIP state that their final year is 2014. IFAD's normal procedures include period reviews of RB-COSOPs and in the past, preparation of a new RB-COSOP after five years. We assume that the Nigerian Government is preparing a follow-on programme to NAIP. Therefore we believe that the timing may be propitious for AgWA to support these processes.

We have recommended that IFAD examine in depth the potential for playing a more central role in AWM development as part of its future portfolio. On the other side, we recommend the Nigerian Government consider asking IFAD to play a stronger role in its future AWM

investment programmes. As noted in section 1, AgWA has identified five potential roles in supporting the development and scaling up of profitable sustainable AWM investments in Africa. Table 4 summarizes specific ideas as to how AgWA could support IFAD and the Government of Nigeria to: a) analyse the options and make an evidence- and demand-based decision on whether IFAD should invest in AWM in Nigeria; and b) if it does invest, how AgWA can support the development and even implementation of such a programme.

Table 4. Potential AgWA Roles in Supporting IFAD to Develop an AWM Investment Program in Nigeria

AgWA Role	Potential support to IFAD on AWM
Advocacy	<ul style="list-style-type: none"> • Facilitate studies and dialogue on the critical role AWM can play in supporting Nigerian agricultural development, possibly integrated with CAADP processes; • Facilitate analysis of the potential value added for IFAD to invest more in AWM and support advocacy for such investments; • Assist Nigeria to develop a national AWM strategy; • Help establish a monitoring and evaluation framework in order to present more ‘concrete’ results from AWM at national level (through the application of AgWA tools it is possible to elaborate an AWM baseline and monitor and evaluate the development of the AWM projects).
Partner harmonization	<ul style="list-style-type: none"> • Support the Nigerian government’s own efforts to further harmonize international financing agencies’ and bilateral donors’ investment plans with its own plans; • Facilitate closer collaboration of IFAD with other AWM investors under which each party builds on its unique comparative advantage; • Provide an AWM platform for dialogue between country institutions and donors; • Support development of a common AWM programme and co-financing approach, with cross supervision and joint evaluation between donors.
Resource mobilization	<ul style="list-style-type: none"> • Support analysis of the likely benefits of higher AWM investments designed to support the larger agricultural development investment program; • Host and facilitate through FAO, NPCA, ECOWAS and others high-level dialogues (including federal and state finance and economic development ministries) on the potential benefits of AWM investments; • Increase and mobilize capacity and funds for project formulation and facilitate access to financial support.
Generating and sharing knowledge	<ul style="list-style-type: none"> • Lead a commissioned study to review AWM research to date, gaps that need to be filled, capacities for AWM research and the capacity requirements for the long term, and use this information as a basis for a long-term AWM research and development program; • Facilitate stronger linkages with regional and international AWM research partners; • Support the development of a strong knowledge management (KM) program to make research results in multiple media to potential users; • Strengthen the research-policy dialogue in order to promote AWM research results and best practices among decision-makers; • Strengthen national and regional AWM associations and networks. • Take the lead in implementing Livelihood Zoning at national and state levels in order to improve targeting of AWM investments and monitoring their outcomes (see below on Tanzania).

AgWA Role	Potential support to IFAD on AWM
Capacity building	<ul style="list-style-type: none"> • Using its African and international network, facilitate the development and implementation of training programs to fill identified gaps; this should be focused on strengthening in-country training capacity for long-term sustainability and scaling up; • Encourage and support participation by Nigerian AWM researchers, trainers and policy makers in international workshops and training programmes.

4. Tanzania

4.1 Context

With an area of 945,200 km² and a population of about 47.8 million, the United Republic of Tanzania (URT) is the largest country in eastern Africa. It is a tropical country, with highly diverse agro-ecological zones. Its population is growing at a moderate rate (1.7 percent/year in some sources, 2.9 percent in others), and its GDP/capita is about \$600 (2012 figures). This makes it one of the poorest countries in the world. Different sources give contradictory figures on poverty rates. The IFAD RB-COSOP (IFAD 2007a) says that in 2000, 58 percent of the population was below the dollar-a-day poverty line. The most recent PRSP (URT Ministry of Finance and Economic Affairs 2010), using Tanzania’s own national poverty line, claims it was 36 percent in 2001 and was still 34 percent in 2007. By 2012 this had dropped to 28.2 percent²⁹. The World Bank states that 67.9 percent of the population was below the US\$ 1.25 poverty line in 2007, a modest but real improvement over the 2000 rate (84.6 percent)³⁰. In 2006, 38 percent of the children under age five were malnourished, a figure that is quoted in later documents as well. The World Food Program (WFP 2013) reports this figure had declined marginally to 35 percent in 2010. This makes Tanzania one of the ten worst affected countries globally and the third worst in Africa (URT and NPCA no date [2011?]). About 80 percent of the poor live in rural areas where agriculture accounts for 75 percent of rural household incomes (Tanzania Investment Brief 2008). Agriculture accounts for about 27 percent of the value added to GDP and it contributes 40 percent of Tanzania’s export earnings (according to WFP; other sources give lower figures—see below). Ironically, while Tanzania is (or was until very recently) a net agricultural exporter, those who are most food insecure are those who depend most on their own food production (WFP 2013)³¹.

Tanzania ranks 152nd among 195 countries on the Human Development Index (HDI)³². A note on the IFAD website (<http://www.ruralpovertyportal.org/country/home/tags/tanzania>) states, “the incidence of poverty varies greatly across the country but is highest among rural families living in arid and semi-arid regions that depend exclusively on livestock and food crop production. The

²⁹ <http://data.worldbank.org/country/tanzania>.

³⁰ <http://povertydata.worldbank.org/poverty/country/TZA>.

³¹ The WFP (2013) report provides a number of different measures of food insecurity, including energy deficiency, diversity of diets, chronic versus transitory food insecurity, etc. It thus paints a nuanced picture of the state of food security in Tanzania.

³² <https://data.undp.org/dataset/Table-1-Human-Development-Index-and-its-components/wxub-qc5k>.

people of the central and northern highlands are nutritionally the most deficient, while the coastal and southern highland zones register the severest levels of poverty. From the point of view of policy and strategy design, no region is significantly better-off than the other, and all are very poor by any international standard.”

The Tanzanian government is based on a President and a National Assembly, all of whom are elected every five years. The National Assembly covers both Union and Mainland affairs. A separate elected legislative authority governs Zanzibar. At the national level, the President appoints a Prime Minister and cabinet from among the National Assembly members. In recent decades, the Tanzanian government has evolved from a centrally-controlled system to increasingly strong local governments. The country is divided into 30 regions, 25 on the mainland and 5 on Zanzibar. There are 169 districts, also referred to as local government authorities; 34 of these are urban units. Under the Government’s decentralization policy, the districts receive resource allocations directly from the national treasury for local administration and development projects. Most of these public institutions suffer from inadequate technical capacity and require support for capacity-building.

Government business and implementation of regional programmes is carried out through the Prime Minister’s Office on the mainland, and in Zanzibar, its Ministry of Regional Administration. The Ministry of Agriculture, Food Security and Cooperatives (MAFSC), the Ministry of Livestock Development, and the Zanzibar Ministry of Agriculture, Livestock and Environment are the major line ministries for agricultural development. The Ministry of Industry, Trade and Marketing is responsible for the development of agricultural markets and small- and medium-sized enterprises (SMEs). Water resources and irrigation come under the Ministry of Water and Irrigation, though this is about to change. The expectation is this Commission will be able to expedite implementation of the country’s irrigation development program.

In 2013 the Parliament adopted a new National Irrigation Act (URT 2013). Among its provisions is the establishment of a National Irrigation Commission, from July 2014. The Commission will be an independent department under the ministry in charge of irrigation and is intended to implement the newly adopted irrigation policy. The President will appoint the chair of its governing board as well as its Director General; various ministries will appoint most of the other members; two will represent Irrigation Organizations (whose legal status is also specified in the Act. The Act is very detailed and comprehensive and represents a major change in the institutional framework for irrigation development and management.

Tanzania is highly dependent on foreign assistance. Its GDP growth rate has been moderately high at around 7 percent per year since 2005. There are important structural changes underway in its economy based on its growing tourism, mining and more recently oil industries, and its participation in a variety of regional and international trade partnerships. These include its membership in the Southern African Development Community (SADC), the East African Community (EAC), and recent partnership agreements with the European Union (IFAD 2007a).

These and other developments are reasons for a high degree of optimism about Tanzania's long term growth.

Nevertheless, agriculture remains by far the dominant sector of the Tanzanian economy. It contributes 28 percent of the country's GDP and generates 21 percent of its export earnings. About 75 percent of its working population work in the agricultural sector. Most farmers are small scale, cultivating in total over 10.8 million ha³³. Agricultural productivity is low like that of Nigeria; for example 70 percent is based on hand-hoes. Eighty five percent of the cultivated area is devoted to food production, especially maize (the most important staple crop), as well as rice, millet, sorghum and other crops.³⁴

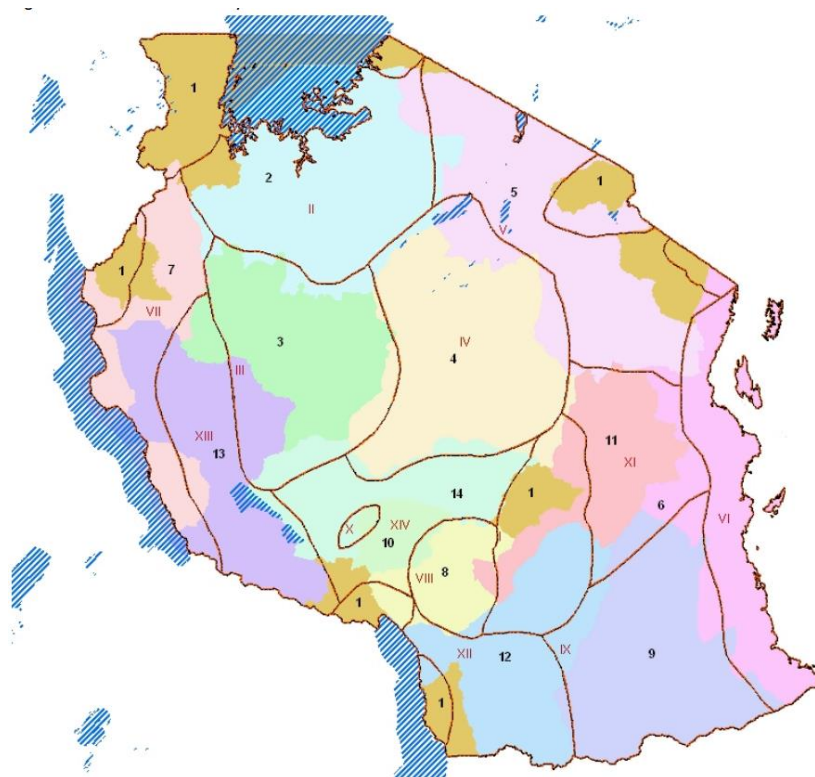
Total renewable water resources for the country have been estimated at 93 km³/year of which 84 km³/year are generated internally (AQUASTAT). Tanzania has five major drainage systems which are further subdivided into nine river and lake basins for water resource management purposes (Tanzania Investment Brief 2008). Two major river basins, the Pangani and Rufiji, are characterized by competition for water both at macro level between hydropower and other uses (especially agriculture) and locally, among agricultural users. Nevertheless, with annual withdrawals estimated at 5.142 million m³ (of which agricultural water use accounts for 86 percent, mainly for mainland irrigation), there remains a huge potential for irrigation development (Tanzania Investment Brief 2008).

As part of the AgWater Solutions Project, FAO led the development of a livelihood zones map of Tanzania with a view to identifying the best areas for AWM investments aimed at poverty reduction, and what type of investment would be most appropriate (Perfect and Majule 2010; FAO and AgWater Solutions no date). The mapping combined the use of various GIS databases and consultations with Tanzanian experts. Figure 2 shows the 14 major livelihood zones identified, while Table 5 summarizes their main characteristics and the potential for poverty reduction through AWM investments. The reports contain other data matching specific interventions with these zones.

³³ FAOSTAT gives a figure of 13.3 million ha including permanent crops; see <http://faostat.fao.org/site/377/default.aspx#ancor>. FAO (2014b) uses 10.8 million ha.

³⁴ See: <http://data.worldbank.org/indicator/NV.AGR.TOTL.ZS>;
<http://faostat.fao.org/site/611/DesktopDefault.aspx?PageID=611#ancor>;
<http://faostat.fao.org/site/550/default.aspx#ancor>.

Figure 2. Map of Livelihood Zones in Tanzania



Source: Perfect and Majule 2010:4. (Figure 1)

Table 5. Relevance of Promising AWM Solutions by Livelihood Zone in Tanzania

Livelihood zones			Criteria			
LZ	Name	Description	Rural poverty prevalence	Water as a limiting factor	Potential for water development	Priority for poverty reduction
LZ 1	Coffee-banana humid tropics	Highlands, humid, high rainfall, bimodal	Low (31%)	Low	High	Low
LZ 2	Cotton-paddy-cattle midlands	Cotton-paddy-cattle midlands	High (45%)	High	High	High
LZ 3	Tobacco-cotton zone	Tobacco-cotton zone	Low (28%)	High	High	Moderate
LZ 4	Semi-arid sorghum livestock zone	Unimodal, semi-arid sorghum livestock zone	High (50%)	High	Moderate	High
LZ 5	Pastoral zone	Pastoral zone	Moderate to high (39%)	High	Moderate	High
LZ 6	Tree crops-fishing coastal zone	Coastal zone-tree crops (cashew, coconut, fishing, spices, tourism)	High (43%)	Low to moderate	High	Moderate

Livelihood zones			Criteria			
LZ	Name	Description	Rural poverty prevalence	Water as a limiting factor	Potential for water development	Priority for poverty reduction
LZ 7	Lake Tanganyika zone	Lake Tanganyika zone	High (43%)	Low	High	Moderate
LZ 8	Plantation zone	Plantation zone (trees, pyrethrium, tea)	Low (28%)	Low	High	Low
LZ 9	Maize-cassava-cashew-simsim zone	Maize-cassava-cashew-sesame	High (53%)	High	High	High
LZ 10	Rice zone	Rice zone	Low (21%)	Low	High	Low
LZ 11	Sisal-sugar cane-cattle zone	Sisal, sugar cane, cattle	Low (29%)	Low	High	Low
LZ 12	Maize-tobacco zone	Maize-tobacco zone	High (41%)	Low	High	Moderate
LZ 13	Rice-maize unimodal zone	Unimodal rainfall (rice, maize, pulse, banana, trees, fishing, tourism, cotton, mining)	Low (26%)	Moderate	High	Moderate
LZ 14	Rice-maize bimodal zone	Bimodal rainfall (rice, maize, banana, fishing, tourism, cotton, mining)	Low (25%)	Low	High	Low

Source: Perfect and Majule 2010:15 (Table 2).

While the mainland of Tanzania has considerable water resources that are yet to be mobilized, farmers and pastoralists remain highly vulnerable to drought and intra-seasonal variations in rainfall. As noted above, Tanzania has an estimated potential cultivated area of 44 million ha, of which only about 10.8 million are currently cultivated. An additional 10 million ha is pastureland. Sources vary on both the irrigation potential and the current area under irrigation. Recent estimates of the area irrigated ranged from 330,000 ha to 370,000 ha (2009 figure), mostly on the mainland³⁵ (URT and NPCA no date; URT Ministry of Finance and Economic Affairs 2010); a more recent estimated area irrigated is 450,392 ha (FAO 2014b). Some sources repeat fantastic figures of 29.4 million ha and even 44 million ha of potential³⁶. FAO's AQUASTAT has a more realistic figure of 2.1 million ha derived from an early Tanzanian government assessment³⁷; the Tanzania Investment Brief (2008) states that, of the estimated 29.4 million ha previously mentioned, 2.3 million ha are classified as high potential, 4.8 million ha as medium potential and 22.3 million ha as low potential. Clearly, with about 88 million m³ of

³⁵ In Zanzibar the potential irrigated area is 8,500 hectares, but only 700 hectares are currently under irrigation (URT and NPCA no date).

³⁶ Tanzania National Investment Brief 2008, URT 2011b and the draft Irrigation Policy [URT 2009] use the former figure. Evans et al., eds. 2012: 2 repeat the latter figure).

³⁷ see http://www.fao.org/nr/water/aquastat/countries_regions/tanzania/index.stm.

unused water resources, and only about 450,000 ha out of the high potential irrigated area of some 2.1 million ha, there is huge scope to develop irrigated agriculture. The recent Poverty Reduction Strategy Paper (PRSP) proposes to increase the irrigated area to one million ha by 2015, to supply 25 percent of the domestic food demand from irrigation farming (URT Ministry of Finance and Economic Affairs 2010), an ambitious goal³⁸.

4.2 Government AWM policies and experiences

Tanzania has an unusually complex set of policies and plans to promote agricultural growth. First, the plans for the mainland are separate from those aimed at Zanzibar – for good reason since the two entities are so different (this also reflects the high degree of de-centralization of Zanzibar). Because nearly all the AWM potential is located on the mainland, this discussion largely focuses on the mainland. The IFAD RB-COSOP reflects government policies and plans as of the mid-2000s: the first National Strategy for Growth and Reduction of Poverty (NSGRP, usually referred to using its Swahili acronym, MKUKUTA³⁹), and the equivalent plan for Zanzibar (MKUZA). These documents identify three “clusters of outcomes”: 1) economic growth and the reduction of income poverty, (2) improvement in the quality of life and social well-being, and 3) governance and accountability. IFAD’s RB-COSOP addresses the cluster one target; it seeks to increase the agricultural sector annual growth rate from 3.2 percent per year in 2009 to 6.3 percent by 2015 (IFAD 2007a).

There is now a more recent development policy, NSGRP II or MKUKUTA II, covering 2010/11 to 2014/15 (URT Ministry of Finance and Economic Affairs 2010). MKUKUTA II retains the same outcome clusters, but seeks to sharpen the focus and improve the overall management of the program. MKUKUTA II targets increasing agricultural growth from 2.7 percent in 2009 to 6 percent in 2015, a modest reduction in aspiration from MKUKUTA I. These medium-term plans all aim to achieve goals articulated as Tanzania’s Development Vision 2025 and the MDGs, of transforming Tanzania into a middle income country by 2025.

For the agricultural sector itself, Tanzania had developed the Agricultural Sector Development Programme (ASDP) (and for Zanzibar, the Agricultural Strategic Plan (ASP) (URT no date [2002?]; Tanzania Investment Brief 2008). The ASDP is a more detailed plan to achieve MKUKUTA goals, among others by raising the agricultural growth rate to 10 percent per year, a figure that seems extremely ambitious and inconsistent with the MKUKUTA II target. More recently, based on its CAADP compact, the government with the support of various stakeholders has formulated the Tanzania Agriculture and Food Security Investment Plan for 2011-12 to 2020-21 (TAFSIP), an enhanced version of the ASDP (URT 2011a). TAFSIP does not replace other planning documents, but seeks to coordinate and harmonize “the resources needed to accelerate implementation of existing initiatives and to launch new initiatives which address

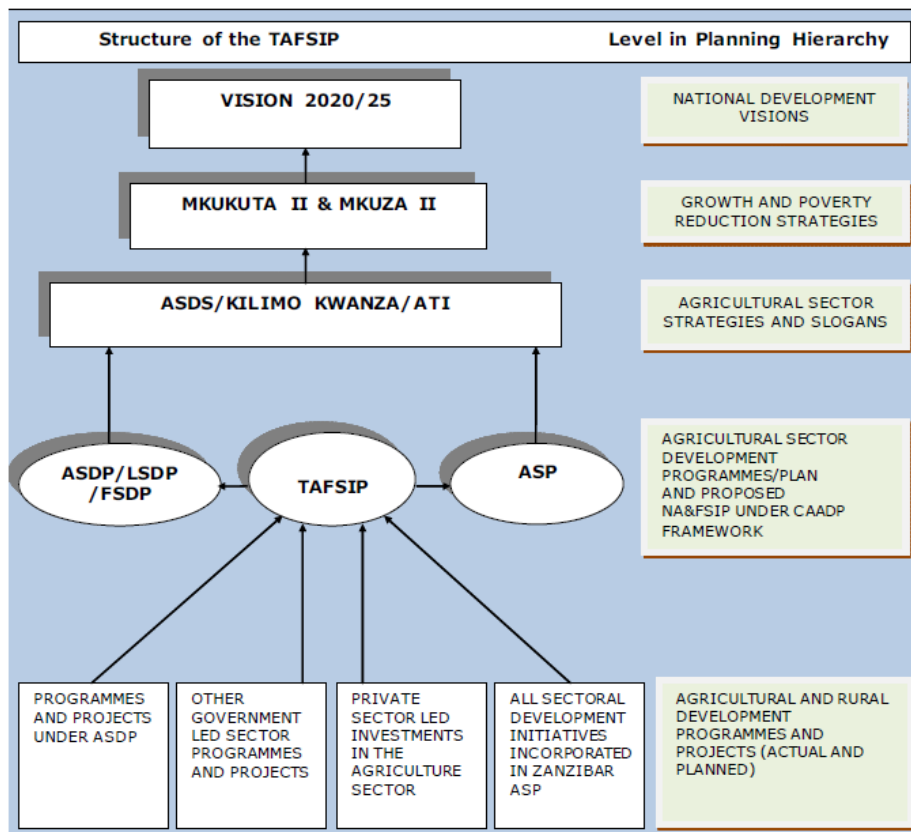
³⁸ Evans et al., eds. 2012 claims the goal is to achieve an irrigated area of 7 million ha by 2015, and raise paddy yields by a factor of four, from 2 to 8 t/ha in the same period. This source is riddled with errors.

³⁹ URT Vice President’s Office 2005.

national, regional and sectoral development priorities.” It expands the projected scope and costs of ASDP but retains the same basic development model, i.e. a model focused to a large extent on productivity and inputs with a continuing strong role for the state.

However there is also an additional strategy for a Tanzanian public-private sector-led agricultural strategy, *Kilimo Kwanza*. Emphasizing markets and value chains, it was launched in 2008. It too has some official status, but the CAADP/TAFSIP plan is now dominant and has been endorsed by the US/G8 “New Alliance for Food Security and Nutrition;” it is the vehicle for substantial American and other international support (Cooksey 2013⁴⁰). Figure 3 shows the position of the various documents in the national planning hierarchy. TAFSIP places a very high priority on irrigation development; it contains financial planning figures but not specific targets in terms of area⁴¹.

Figure 3. Position of TAFSIP and Other Documents in the Tanzanian National Planning Hierarchy



Source: URT 2011: Figure 1.

⁴⁰ Cooksey 2013 is a critic of this development, claiming it places much greater emphasis on promoting large-scale commercial agriculture, not smallholder agriculture. We do not address this controversy here.

⁴¹ A TAFSIP Working Paper on irrigation development uses the 1 million ha target but includes a note that this may need to be scaled back (URT 2011b).

The ASDP makes a distinction between local level and national level support. Specifically for irrigation, the distinction is between subsidies to local authorities for small scale irrigation (and more generally, local services and infrastructure), and direct investment in larger scale irrigation and other services and infrastructure. Among other changes reflected in more recent documents, TAFSIP raises the proposed level of investment in irrigation substantially (with a strong emphasis on rice), even though ASDP already included very ambitious targets. (There is a substantial funding gap between plans and available funds constituting some 50 percent of the total requirement; see URT and NPCA no date [2011?]). To support these investments, a separate irrigation policy has been drafted by the Ministry of Water and Irrigation (MWI) (URT 2009); it was recently finalized. This policy is largely focused on public investments in irrigation schemes, with little attention to the potential for supporting private-sector small scale irrigation (though collaboration with the private sector is mentioned in the 2013 National Irrigation Act as a function of the new Commission). We return to the latter in the next section.

4.3 Research on irrigation in Tanzania

Tanzania has a relatively strong research and training capacity in water resources management generally and in AWM in particular. Two universities, University of Dar es Salaam and Sokoine University of Agriculture (SUA) have strong faculties in these areas. Further, both have strong regional and international partnerships, including their active participation in WaterNet (<http://www.watnetonline.org/>), a regional consortium of universities and training institutions who collaborate in integrated water resources management. This capacity is an important asset for Tanzania's AWM investment programs. Both have produced substantial bodies of research – too great to review here.

For the purpose of this report, Tanzania has another important asset: it was one of the major participating countries in a research program managed by IWMI in which FAO was also a major partner. This is the AgWater Solutions project (<http://awm-solutions.iwmi.org/?reload>). Tanzanian partners, including researchers from the two universities discussed above, played critical roles in this project. The AgWater Solutions Project produced a wide range of analyses and detailed business plans for new AWM investments in Tanzania. These were based on both research and considerable consultation with multiple stakeholders. The project identified, evaluated and recommended a variety of AWM solutions that have great potential for improving smallholder livelihoods and for scaling up in different contexts; the project also provided AWM business models for promising solutions with very clear investment opportunities. These solutions included technologies, supporting policies, institutions, financing arrangements and associated business models. Its starting point is not the supply side (the potential) but the demand side – the needs of farmers. It uses a participatory livelihoods and AWM mapping approach (implemented by FAO) to achieve this. As discussed above, 14 livelihood zones are identified and mapped, and for each the major production systems, population, types of farmers, main development constraints, the main water-related constraints

and opportunities, and the number of potential beneficiaries are identified (see Perfect and Majule 2010; FAO-AgWater Solutions no date; and other reports on the website).

The AgWater Solutions Project selected a smaller number of potentially promising types of AWM investments based on expert consultations for further study; it mapped these in terms of biophysical suitability and livelihood-based demands. The project examined a wide range of potential AWM investments, and then focused on small low-cost motor pumps (lifting devices), communal river diversion schemes, *in situ* rainwater harvesting, and terracing and bunds (conservation agriculture is also mentioned in some reports)⁴². The project then identified the potential locations and scale of these investments, and quantified costs and potential benefits.

The relatively strong national research capacity and the outputs of the AgWater Solutions Project offer a firm foundation for AgWA collaboration in Tanzania, building on these assets⁴³. We return to a discussion of the potential to build on the outputs of this project below in section 4.5.

4.4 RB-COSOP focus

The current RB-COSOP for Tanzania was developed in 2006 and covers the period 2007 to 2013 (IFAD 2007a). Clearly much has changed in the Tanzania policy context since that time⁴⁴. We first briefly review the main thrust of the RB-COSOP and in the following subsection, the role of AWM in the document. When it was developed, the RB-COSOP was closely aligned with, indeed explicitly supported, the agricultural sector plans of the time (i.e. MKUKUTA I and the ASDP). A critical point to understand is that IFAD's programme for this period moved beyond the traditional investment through discrete projects model to providing budgetary support to the Tanzanian government's agricultural development plans. Tanzania's agricultural development plan to a greater degree than most countries' programs is financed through budgetary support combining Tanzanian government funds and donor funds through a Basket Fund; special projects (such as from USAID) and private sector funds are separate. IFAD remains even today one of the donors whose support is largely through contributing to the Basket Fund (along with the World Bank, Government of Japan, Irish Aid, European Union, AfDB, and others) (URT and NPCA no date; IFAD 2008a). This approach imposes some limitations of the ability of IFAD to influence specific outcomes on the ground, as is discussed in the RB-COSOP. These limitations include the risk of benefit capture by unintended beneficiaries, delays in the effective start of projects, and the weak access of the rural poor to sustainable financial services.

To explain further, IFAD still develops specific investment programmes following its normal formats. The Tanzania operations website page lists five programmes (Table 6)

⁴² The list varies somewhat among the many publications from the project.

⁴³ USAID is supporting the Feed the Future Innovation Lab for Small Scale Irrigation, in which IWMI is a partner with Texas A&M University and others; this project is intended in part to follow up on the Tanzania Agwater Solutions work. See <http://borlaug.tamu.edu/projects-by-region/sub-saharan-africa/feed-the-future-innovation-lab-for-small-scale-irrigation/>.

⁴⁴ In fact, much of the information on the IFAD website pages for Tanzania is several years out of date, making it more difficult to understand its current programmes.

<http://operations.ifad.org/-web/ifad/operations/country/home/tags/tanzania>). The most relevant one is the Agricultural Sector Development Programme (ASDP; IFAD 2008a). This programme has a substantial AWM component, though it is not well-described in the President's Report. A supplemental loan of approximately US\$56 million (on top of a previous loan of \$36 million) is contributed to an "ASDP Basket" with other financial institutions' and government funds (the entire program is budgeted at US\$315.6 million). From this Basket, funds flow to specific ministries (including but not only Ministry of Agriculture, Cooperatives and Food Security (MAFSC) and MWI). The expectation is that the funds will benefit IFAD's target group of poor rural women and men, because this target group is the same as for the large ASDP. In addition, the President's Report (IFAD 2008a) mentions a separate grant-assisted project covering 10 regions, facilitated by two national umbrella farmer organizations.

By the time the RB-COSOP was developed, IFAD had supported 13 development projects for a total contribution of US\$213 million since 1978⁴⁵. The main investment areas at that time included rural finance, irrigation, markets and mixed farming in Zanzibar. The rural finance project was rated highly at its completion except for some concerns about sustainability (IFAD 2012d); and the agricultural marketing systems development project was a source of lessons on linking producers to markets and encouraging rural entrepreneurs. These projects have provided important foundations for the current investment program⁴⁶.

The most recent irrigation project, completed as the RB-COSOP was being developed, was the "Participatory Irrigation Development Project" (PIDP). At its completion, PIDP was rated very highly on all dimensions with the exception of some questions on environmental impacts. Through implementing 56 irrigation schemes, the programme reached more than 25,000 beneficiaries, 59 percent more than expected; this included reaching many more women than targeted. Most of its planned outputs were achieved or even exceeded; and important lessons were learned and capacities built for participatory planning and implementation of irrigation schemes, establishing sustainable water users associations, and supporting technologies that are appropriate to the context (IFAD 2007b; 2008b). These and other positive outcomes and lessons from the PIDP are highlighted in a study by IMAWESA (Senzanje and Matete 2008). That study especially documents the effectiveness of capacity building and training, strengthening procurement practices, enabling farmers to achieve better access to markets, and technical innovations. Given this high level of success and the importance of the lessons emerging from the programme, it is not clear why IFAD has not chosen to continue to emphasize AWM investments in Tanzania.

Nevertheless, the RB-COSOP (IFAD 2007a) states the government appreciates IFAD's focus on the rural poor, and that other development partners recognize IFAD's strengths in small scale irrigation, rural finance, and promoting farmers' organizations (FOs). The RB-COSOP

⁴⁵ The figure is now 15 projects with a total IFAD contribution of \$359.8 million; <http://operations.ifad.org/web/ifad/operations/country/home/tags/tanzania>.

⁴⁶ <http://operations.ifad.org/web/ifad/operations/country/home/tags/tanzania>.

acknowledges that continuing to support pilot interventions and generating innovations in a Sector Wide Approach (SWAp) environment will be challenging, as it will no longer be engaging directly with target groups. However, the RB-COSOP proposes to try to strengthen the participation of small FOs and civil society organizations in the SWAp planning. The RB-COSOP retains a strong emphasis on promoting access by rural women and men to natural resources including land and water.

The RB-COSOP identifies four SOs:

1. Strategic objective 1: Improved access to productivity-enhancing technologies and services;
2. Strategic objective 2: Enhanced participation of farmer organizations in ASDP planning;
3. Strategic objective 3: Increased access to sustainable rural financial services;
4. Strategic objective 4: Increased access to markets and opportunities for rural enterprises.

Under each of these, the RB-COSOP explains how existing projects are mapped to the SOs, and how it will make the transition from project to SWAp funding. SO 1 explicitly includes irrigation investments. In its discussion on promoting innovations, the RB-COSOP indicates that in some cases it is using targeted grant funds to complement the funding through the government. It also discusses the challenges of targeting its main clients — poor rural women and men — when contributing to the general ASDP program. According to the RB-COSOP, an assessment was to be made in 2009 of its success, and an independent evaluation was to be implemented in December 2013, the final month of the RB-COSOP. No information on the status of these reviews is available on the IFAD website as of February 2014. Table 6 provides basic information on the current IFAD investment programmes in Tanzania.

Agricultural Water Management in RB-COSOP

The RB-COSOP proposes to support AWM investments under SO 1, “improved access to productivity-enhancing technologies and services”. It is contributing some \$40 million to “on-farm investments (including irrigation), advisory services and capacity building” (IFAD 2007a)⁴⁷. Therefore, it is clear that IFAD hopes to continue its investments in the AWM sector, though its investment strategy limits its direct influence on policies and implementation. One way the RB-COSOP mentions it will try to have influence is through “adaptation and mitigation measures during the RB-COSOP period” focused on strengthening the resilience of rural people to climate change. Quite how IFAD proposes to achieve this is not clear. Table 7 provides a summary analysis of the AWM content in the Tanzanian RB-COSOP⁴⁸.

⁴⁷ This may be the \$36 million earlier loan to the ASDP. The figures vary among different documents.

⁴⁸ IFAD is in the early stages of designing a project on irrigation sugar cane, in which AfDB and others will finance major infrastructure investments and IFAD will focus on supporting small scale outgrowers (meeting with CPM on 30 May 2014).

Table 6. Current IFAD Programmes in Tanzania

Programme	Location	Goals	AWM content	Link to MKUKUTA Agenda
<p>1. Agricultural Sector Development Programme (ASDP)</p> <p>Total cost: US\$ 315.6 million Approved IFAD loan: US\$ 56.0 million Co-financing: Basket Funding by multiple donors and government Duration: 2009 - 2016</p>	National	i) to improve farmers' access to and use of agricultural knowledge, technologies, marketing systems and infrastructure, all of which contribute to higher productivity, profitability and farm incomes; and (ii) to promote private investment based on an improved regulatory and policy environment.” (IFAD 2008a)	Substantial but given that funding is challenged through the Basket Fund for the SWAp, this cannot be targeted or quantified	Cluster outcome 1: economic growth and the reduction of income poverty
<p>2. Agricultural Sector Services Programme (ASSP)</p> <p>Total cost: US\$ 114.4 million Approved IFAD loan: US\$ 25.0 million Co-financing: Basket Funding (US\$ 72.7 million) Duration: 2007 - 2014</p>	National	<p>“... improve agricultural productivity by:</p> <ul style="list-style-type: none"> • promoting farmer's organizations to prioritize and manage development needs • strengthening linkages between farmers and local and central government as well as the private sector • improving access to relevant agricultural knowledge and technologies • promoting policy changes in favour of poor farmers”⁴⁹ 	None discernible	Cluster outcomes: 1) economic growth and the reduction of income poverty; and 2) governance and accountability
<p>3. Agricultural Sector Development programme-Livestock Support for Pastoral and Agro-Pastoral Development</p> <p>Total cost: US\$ 29.1 million Approved IFAD loan: US\$ 20.6 million</p>	Central Tanzania and Zanzibar (Pemba)	<p>“... targets the poorest members of herder and agro-pastoralist groups;</p> <ul style="list-style-type: none"> • helping farmers identify and manage their own development needs • improving livestock production through research and technology • improving marketing systems and infrastructure for 	Some investment in water management for livestock and domestic use	Cluster outcomes: 1) economic growth and the reduction of income poverty, 2)

⁴⁹ http://operations.ifad.org/web/ifad/operations/country/project/tags/tanzania/1273/project_overview. The only document available is the President's Report (IFAD 2004); that document does not state these objectives *per se*.

Programme	Location	Goals	AWM content	Link to MKUKUTA Agenda
Co-financing: Belgian Survival Fund for the Third World (BSF) (US\$ 4.8 million); Duration: 2007 - 2015		livestock products <ul style="list-style-type: none"> • strengthening national and local government institutions to improve services to livestock farmers • promoting a participatory approach to natural resource management within local administrations • investing in improved health care and water management⁵⁰ 		improvement in the quality of life and social well-being, and 3) governance and accountability
4.Rural Micro, Small and medium Enterprise Programme (MUVI is the Swahili acronym) Approved IFAD loan: US\$ 19.5 million Approved IFAD grant: US\$ 450,000 Co-financing: Development Cooperation Ireland (US\$ 0.9 million) Duration: 2007 - 2014	6 of the 21 regions in mainland Tanzania: Iringa, Manyara, Mwanza, Pwani, Ruvuma and Tanga	3 goals: 1. To improve the awareness of rural entrepreneurs of market opportunities and how these can be exploited through the development and implementation of a communication strategy (including radio linkages to poor and remote areas) and the training of the entrepreneurs to improve their businesses; 2.To improve the coordination and cohesion of selected value chains, through the creation and strengthening of backward and forward linkages for the selected chains; 3.To strengthen public and private sector institutions to provide efficient and effective support to rural enterprises ⁵¹ .	None	Cluster outcome 1: economic growth and the reduction of income poverty
5.Marketing Infrastructure, Value Addition and Rural Finance Support Programme Total cost: US\$ 170.5 million Approved IFAD loan: US\$ 90.6 million Co-financing: AfDB US\$62.9 million Duration: 2011 - 2018	National	“The objective is to enhance the incomes and food security of the target group sustainably through increased access to financial services and markets” (IFAD 2010b).	None	Cluster outcome 1: economic growth and the reduction of income poverty

Sources: <http://operations.ifad.org/web/ifad/operations/country/home/tags/tanzania>; IFAD 2008a, 2010b.

⁵⁰ http://operations.ifad.org/web/ifad/operations/country/project/tags/tanzania/1306/project_overview. The President’s Report (IFAD 2005) states the goals slightly differently.

⁵¹ http://operations.ifad.org/web/ifad/operations/country/project/tags/tanzania/1363/project_overview.

Table 7. Analysis of AWM Content in Tanzania RB-COSOP

Criterion/question	Answers, comments
1. Context: Does the RB-COSOP provide a succinct but reasonably complete analysis of rural poverty and the role of agriculture, including performance, challenges and opportunities? [<i>yes/somewhat/no, and reasons for your conclusion?</i>]	There is an analysis of rural poverty and the role of agriculture, but at a broad level. It is probably adequate for the purpose given IFAD’s decision to invest most of its resources through a SWAp.
2. Context: Within the context of the rural poverty-agriculture analysis, does the RB-COSOP provide a succinct but reasonably complete analysis of natural resources, including water and land: basic characteristics, challenges and opportunities? [<i>yes/somewhat/no, and reasons for your conclusion?</i>]	No. While the RB-COSOP does discuss the importance of irrigation, it does not provide an analysis of resources or the challenges and opportunities within this sector. Nor is it specific on what its own lessons and achievements have been when investing in irrigation.
3. Within the above context, does the RB-COSOP provide an analysis of the potential poverty, equity, and economic outcomes of AWM investments? [<i>yes/somewhat/no, and reasons for your conclusion?</i>]	No. The previous COSOP had seen irrigation as a key intervention area. However in the current RB-COSOP, there are only very brief mentions of the importance of irrigation, IFAD’s positive irrigation experience under PIDP, and IFAD’s reputation for small-scale irrigation; and SO1 includes irrigation. The RB-COSOP does not analyse AWM investment outcomes at all.
4. Does the RB-COSOP provide a convincing rationale for the priority investment areas at Strategic Objective (SO) that it has chosen? [<i>yes/somewhat/no, and reasons for your conclusion?</i>]	Yes. IFAD has chosen four SOs that are linked to specific goals of the Tanzanian agricultural development investment plans at the time. However, choosing four broad SOs may be diluting its own influence in sectors where it has a comparative advantage – small scale irrigation, rural finance, and farmers’ organizations.
5. Do the RB-COSOP’s Strategic Objectives (SOs) specifically include AWM? [<i>yes/somewhat/no</i>]	No, not explicitly; but SO 1 is interpreted in the text to place a high priority on irrigation.
6. If AWM is not specifically included in the SO, it may be included as a means to the given SOs. Is this the case? [<i>yes/somewhat/no</i>]	Yes. It is clearly included as a means to achieving SO 1. The RB-COSOP notes that under this SO it will contribute to the sector-wide ASDP, which “funds on-farm investments (including irrigation)”.
7. What are the critical components of the proposed AWM investments, if any?	Not applicable, since IFAD is investing as part of the SWAp; it therefore cannot target specific components.
8. Do the proposed AWM investments include specific attention to: policy dialogue and reform; equity issues including gender; capacity building; knowledge management (KM)?	The discussion in the RB-COSOP does include policy and equity and to some extent capacity building. KM is not included explicitly, perhaps because the RB-COSOP pre-dates IFAD’s emphasis on this.
9. Do the proposed AWM investments include specific attention to the AgWA priority areas? advocacy to raise awareness of AWM; partner harmonization; resource mobilization (i.e.	By investing through the SWAp, IFAD is committing itself to partner harmonization. It is not clear that there is a clearly coherent national AWM investment program (the draft Irrigation

Criterion/question	Answers, comments
supporting implementation of a coherent national AWM investment program); generating and sharing knowledge; and capacity building: [yes/somewhat/no]	Policy only partially achieves this); research and capacity building are mentioned as IFAD priorities; it seems to be using some grant funds for this.

Conclusions and recommendations: Role of AgWA

The current COSOP is for the period 2007-2013. The PRSP (MKUKUTA II) is also up to 2014-15. During the past seven years, as discussed above, Tanzanian agricultural planning has gone through considerable transformation; the COSOP is now out of date. We understand that an external program evaluation is being carried out in 2014 and in 2015 IFAD will begin developing a new RB-CCOSOP (meeting with CPM on 30 May 2014). Clearly there is a need to reconsider IFAD's investment priorities in view of the large changes that have taken place. The timing may be right as we expect that MKUKUTA II will also be reviewed and revised soon for the next planning period. AgWA could be of assistance in this process.

Both the Government of Tanzania and IFAD place a very high priority on AWM investments. However, since IFAD has chosen as its major investment strategy to provide resources through a Basket Fund managed as part of the government's own budgetary process, its ability to prioritize AWM or any other sector is limited. Assuming this investment strategy continues (which in all likelihood it will), how can AgWA support IFAD's AWM investments? Our answer is to work directly with the Ministry of Agriculture, Food Security and Cooperatives and the Ministry of Water and Irrigation (including the new National Irrigation Commission) in partnership with IFAD to promote investments that build on the AgWater Solutions Project recommendations. That Ministry collaborated closely in the AgWater Solutions project; the Deputy Secretary of the Ministry played a key role in the dialogue process, organizing strategic national planning meetings and linking the dialogue process to higher-level policy processes. Therefore, there is already considerable official interest in and support for the investment proposals emerging from that project⁵². Two local universities, SUA and Dar es Salaam, played critical roles in these dialogue processes as well as in implementing the studies. We recommend building on this foundation and to the extent possible involving the Universities, ministries and other participants in those processes to update, highlight and activate AWM investments that build directly on the AgWater Solutions Project. Table 8 makes specific recommendations based on AgWA's five roles.

It is also important to note that the "Improved Management of Agricultural Water in Eastern and Southern Africa" (IMAWESA) programme has been active in the region. IMAWESA is an IFAD-supported programme implemented by IWMI to support knowledge management (KM) and capacity building for AWM in the Eastern and Southern Africa region (<http://imawesa.info/>).

⁵² This needs to be validated; the AgWater Solutions Project was implemented at the time TAFSIP was being developed and there is no evidence of any mutual interactions.

It has been active in Tanzania. It has also been a partner in AgWA, as part of the sub-regional group that had been initiated in the early stages of AgWA (the current status of this group is probably moribund). IMAWESA was especially strong in three of AgWA's five roles: advocacy, generating and sharing knowledge, and capacity building; unfortunately IMAWESA's funding from IFAD has ended; therefore its future is uncertain. Since AgWAs current phase is coming to a close, it should consult IFAD about what arrangements are being made, if any, for filling the void that would be left without IMAWESA. Both IMAWESA and WaterNet could be important partners to AgWA if it will be providing the kinds of support summarised in Table 8.

Table 8. Potential AgWA Roles in Supporting MAFSC and IFAD AWM Investment Programs in Tanzania

AgWA Role	Potential support to MAFSC, MWI AND IFAD on AWM
Advocacy	Consult with Tanzanian partners in AgWater Solutions and the MAFSC to find out the current status of the solutions and business plans emerging from that project; Develop a joint plan to update and build on the plans; Hold a workshop to provide information and encourage investments by donors, government (including local), community-based organizations (CBOs), and nongovernmental organizations (NGOs) leading to a longer-term approach. This could form a basis for IFAD's investments in AWM during the next planning cycle.
Partner harmonization	Since many major donors provide their support through the SWAp, AgWA may have less of a role in this area. A possible exception is to gain partners' support for including innovative investments such as those recommended by the AgWater Solutions Project. Provide a AWM platform for dialogue between countries and donors; Develop a common AWM programme and co-financing approach, with cross supervision and joint evaluation between donors.
Resource mobilization	Support MAFSC to encourage development partners to make AWM investments, both those through SWAp and independent projects; Support a special consultation with potential Tanzanian and regional (EAC) private sector investors in a small scale private irrigation services and supply industry; Assist Tanzania to develop or improve national AWM strategies.
Generating and sharing knowledge	Strengthen national and regional AWM associations and networks, for example by working with Tanzanian universities and research and training institutes and their regional and international partners to increase their capacity in knowledge management (KM) and targeted communication of results; Support efforts to increase resources available for AWM research and KM; Help establish and strengthen a monitoring and evaluation framework in order to present more 'concrete' results from AWM at national level. This would be directly linked to the <i>MKUKUKTA II monitoring master plan</i> (URT Ministry of Finance 2011).
Capacity building	Support identification of critical capacity needs to scale up AWM investments, and the mobilization of resources to implement them; this includes private sector AWM businesses, NGOs and CBOs and government entities; and Help strengthening of agricultural water curriculum in technical training institutes and in universities.

5. Recommendations to IFAD for AWM Investments in Eastern and Southern Africa

The third point in the Consultant's Terms of Reference is: "Based on the results of the mapping exercise of the IFAD RB-COSOP in African Countries, conclude with recommendations of the RB-COSOPS's scope and possibilities at Africa level" (see above). The Consultant has not received this report; therefore these recommendations to IFAD are based on the analysis of the two RB-COSOPs for Nigeria and Tanzania, and his general knowledge of IFAD's investment programs in Africa.

It is not necessary that IFAD choose to invest in AWM in all SSA countries, or even in those countries where AWM is an important component of the Government's investment programmes. However, IFAD has a great deal of global experience with AWM investments, and is recognized for this experience as well as for its strong focus on investments that enable poor rural women and men to improve their livelihoods. Therefore, IFAD should give serious consideration to investing in AWM wherever this is prioritized by the government. We noted that neither of the two RB-COSOPs analysed had included a serious assessment of the potential for AWM investments as part of its preparation; there is no analysis of natural resources including water, the potential for its development, the other actors involved in the sector, or the current policies and investment plans in this area. This is especially surprising given that IFAD had previously made AWM investments in both Nigeria and Tanzania; and both countries have placed a very high priority on AWM investments – especially expanding irrigation.

Therefore, our main recommendation is that in all its partner countries where AWM is an important investment sector, IFAD should consult with the government and other actors to identify whether there is an AWM investment niche for IFAD and if so what that niche might be; and carry out in-depth analyses of the potential benefits and IFAD's comparative advantage given its modest investments, alternative investment sectors, and demand from partners. The criteria proposed in Table 1 may be of assistance in planning this analysis.

6. Final Recommendations to AgWA

This Consultant was involved in the early planning stages of AgWA (as a consultant to the World Bank). He carried out an assessment of the institutional landscape in Africa of institutions with capacity for research, training and technical assistance in AWM. The finding was that there is a great deal of expertise in Africa but a mechanism is needed to mobilize these resources (Merrey 2010). He also contributed to the development of ideas on the governance of AgWA as an African AWM partnership. While AgWA has not evolved precisely as had been envisioned in 2010-2011, nevertheless it constitutes a potentially important institutional mechanism to mobilize expertise in support of CAADP's Pillar 1 and more generally of AWM investment programs in SSA.

The five AgWA roles or ‘pillars’ remain valid, but we recommend ordering them in terms of the greatest potential for AgWA to make a difference. The proposed order, beginning with the role where AgWA has the greatest comparative advantage, is as follows: 1) generating and sharing knowledge, 2) capacity building, 3) advocacy, 4) partner harmonization, and 5) resource mobilization. In fact, as noted in a recent workshop, ‘advocacy’ is cross-cutting; in fact the five pillars are a package. We believe AgWA can make substantial contributions to generating and sharing knowledge and capacity building, working with African and international organizations. It can also partner with others to play a key role in advocating more and higher quality AWM investments and more effective policies. On partner harmonization and resource mobilization, it can make a contribution but perhaps in a supporting role with other partners.

IFAD is currently an important AgWA partner (along with its host, FAO). IFAD is a major investor in small scale irrigation – not in total dollar terms but in terms of innovative investments aimed at relatively disadvantaged rural people. Indeed, AWM accounts for about 25 percent of its total global investment portfolio. Surprisingly, its knowledge management and capacity building program for eastern and southern Africa – IMAWESA — is not being continued. This leaves a gap in terms of assisting IFAD to learn and share lessons, promote innovation, and contribute effectively to capacity building. Therefore, our main recommendation to AgWA is that it approach IFAD about developing a strong Africa-wide AWM knowledge generation and management, capacity building and advocacy program, aimed in the first instance at supporting IFAD’s own AWM investment programs, but with a longer term goal of attracting wider support and scaling up to be the premier AWM knowledge network for SSA.

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