FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

GENDER DIMENSIONS IN THE MANAGEMENT AND UTILIZATION OF WATER FOR AGRICULTURAL PRODUCTION AMONG SMALL SCALE HOLDERS IN KARAMOJA AND THE IMPLICATIONS FOR AGRICULTURAL PRODUCTION AND PRODUCTIVITY

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EXECUTIVE SUMMARY

Purpose of the report: the report presents desk review findings on the gender dimensions of water for agricultural production, with a focus on Karamoja sub-region in northeastern Uganda, under four thematic areas: i) the gender dimensions of leadership and technical roles at community level; ii) gender considerations in construction, repair and mantainence of water facilities; iii) gender roles in the use of water for agricultural production and productivity; and iv) the implications for agricultural production and productivity. The report seeks to inform the implementation of FAO's Gender Equality Policy (2013), whose purpose is to have a harmonized framework for coherent efforts towards mainstreaming gender issues in all its programmes and operations in Uganda.

Why Karamoja sub-region: when compared to other parts of Uganda, dryland poverty is peculiar to Karamoja sub-region in the sense that yields from crop and livestock production are lower than household food and income demands; aggravated by inadequate water system technologies for adapting to drought-induced crop and livestock failure. Although dams, valley tanks, irrigation pipes and other technologies have been set up government and non-government agencies with the potential to buffer crop and livestock watering deficits during agricultural droughts, it is still unclear whether interventions in the water sector can respond equally to the differing needs of women relative to men, in terms of smoothening the supply of food and availability of incomes. Both government and non-government actors need to acknowledge that increased agricultural production and productivity may largely depend on the level of utilization and control that female relative to male small holders have over water resources, rather than on increased availability and storage of water. And gender is a recurrent source of intra-community power differences that determine formal and informal ways of obtaining water for farming in both public and private places, as well as belonging to water user associations. This is why FAO-Uganda commissioned a study in September 2015 on gender dimensions in the management and utilization of water for production among Agricultural small scale holders in Karamoja, and its impact on agricultural production and productivity. The study was initiated by a desk review of literature that is presented in this report.

The key gender dimensions identified

- Equal participation of women and men in communal consultations works if capacity to voice gender-specific needs during the operations of water user committees and forums is enhanced.
- Planning requires gender analytical information on both water for consumption and production.
- Gender mainstreaming in project implementation goes beyond increasing the number of women involved to provision of gender expertise and data for influencing the project design, implementation strategy and evaluation indicators.
- Cultural restrictions on women's mobility and low education attainment can limit their involvement in construction and maintenance works.
- Pre- and post-construction support to communities has gender dimensions in terms of who accesses and completes training and how opportunities for paid labour are allocated.
- Men predominate the movement of livestock to water sources as women largely take on watering of crops and small-scale livestock alongside domestic chores.
- Discriminatory gender attitudes and practices in ownership and management of agricultural land and water plots disadvantage women, thus impacting on agricultural productivity.

Conclusions and Recommendations

Drawing from what is already known in the literature about the need for gender-responsive programming in agricultural water systems, it follows that interventions in Karamoja sub-region need to find innovative ways for reducing the likelihood of gender exclusion in data gathering and impact evaluation, design and planning of projects, as well as management and coordination. Women and men may have other ways to obtain water services, such as communal surface water wells, but even if they are effective, these are usually informal and are therefore typically less secure to enhance food production and productivity. As water resource management – and rights to land – are facing socio-political dynamics, ensuring women's participation is essential for gender equity in sustainable management of agricultural water systems.

Supporting the generation and availability of gender-disaggregated data on water for production: collaboration between FAO and relevant government agencies is key in spearheading efforts towards evidence-based gender programming and monitoring in the water for production sub-sector. By building on the existing initiatives, majorly the Uganda Water Supply Atlas; and the Northern Uganda Data Centre (NUDC), technical capacity development to undertake surveys and gender-impact evaluations, using gender responsive indicators and data collection instruments could be a priority.

Organizing a Gender and Water Forum, annually per district, as an activity for District Water Management and Coordination Committees: since there are efforts around organizing a Karamoja Water Forum, it is possible to plan and partner around the generation of district gender and water profiles, which contain information on women's relative to men's WfP needs and constraints with the purpose of: i) having better-monitored projects; ii) providing knowledge on what works at multiple scales; and iii) facilitating decisions about which district priorities to plan for and finance. The District Gender and Water Forums could also be used by women CBOs and representatives to collectively active engage local governments, CSOs and development partners on progress towards gender equity in WfP and mobilize support to strengthen their own participation and skills around water for production activities.

Changing the approach to gender training for government, CSO and development partner staff: technical personnel, who ought to not only have gender advocacy skills but also partnering and operational capabilities to change the way institutions access gendered forms of knowledge to influence decisions in planning and budgeting for WfP programmes. Expertise in mainstreaming gender into public-private partnerships, project appraisals and impact-evaluation is necessary, starting with water engineers and extension workers as well as agricultural economists at national level, down to chief administrative officers, water inspectors, contractors and CSOs, whose individual ingenuity and job description influences decisions in water resource management for agricultural productivity.

1.0 Introduction

Globally, the agricultural sector is the principal consumer of water resources, accounting for roughly 70% of all freshwater withdrawals, and over 90% in most of the world's least-developed countries. But water for agricultural production has been, and is likely to continue being unreadily available, since global projections indicate that water demand will be up by 50% in 2030, with agriculture alone requiring more than what can be sustained to feed the world even before industrial and domestic needs are met (World Water Assessment Programme, 2015). Placing emphasis on the development agricultural water systems[1] is therefore critical for Uganda, whose food productivity levels are still below the rate of population growth, largely rain-fed and increasingly being threatened by a myriad of challenges including under-utilization of water resources; prolonged droughts; and climatic variability. This is partly why the Second National Development Plan of the Republic of Uganda (NDP II, 2015-2020), which also adopted Sustainable Development Goal (SDG) # 2 (end hunger, achieve food security and improved nutrition, and promote sustainable agriculture), has prioritized investment in water for production. By and large, the focus is on construction of large and small scale water schemes for irrigation, livestock and rural industries, with a target to increase cumulative storage of water for production from 27.8 Million Cubic Meters (MCM) in 2012/13 to 55 MCM in 2019/20 (National Development Plan II, 2015). The national plan also entails a target of increasing agricultural exports to USD 4 billion by 2020 from the current USD 1.3 billion, while reducing the number of the labour force in subsistence production from 6 million in 2012/13, majority of who are women, to 3 million in 2019/20. To achieve these targets, however, there will be need to address the inconsistencies between policy statements and the ways in which public expenditure programmes in the water and agriculture sectors are linked and implemented.

1.1 Policy context of the water for production sub-sector in Uganda

While many sub-Saharan nations face stalled water reform, Uganda has made recognizable strides in initiating multi-sectoral responses and decentralized management of water resources. Hither to NDP II, government embarked on a series of policy and institutional reforms, aimed at providing an enabling environment for the international community, government ministries and departments, CSOs and the private sector, to effectively support sustainable development and management of water resources. The key legal instruments related to water resource development and management in Uganda include: Water Act (Capt.152), Local Governments Act (Cap.243), National Environment Act (Cap. 153), National Water and Sewerage Corporation Act (Cap 317), Land Act (Cap 227), and Public Health Act (Cap 281), and all these are reflected in the National Water Policy (NWP, 1999).

In 2002, GoU and development partners deemed it necessary to adopt a sector-wide approach to planning (SWAP), so as to mobilize the support of all stakeholders in increasing funding for the sector and ensuring participatory planning and sector performance assessments. Thus, in 2007 the Joint Water Supply and Sanitation Programme Support (JWSSPS) was put in place, coordinated by the Ministry of water and Environment (MWE), which houses the Directorate of Water Development (DWD).[2] The DWD spearheads delivery on the Water for Production Strategy and Investment Plan (2005-2015), whose

[1] Agricultural water systems include policies, stakeholders, financing mechanisms and infrastructure that seek to provide water for irrigation, livestock and the maintenance of the environment and ecosystem.

[2] UGANDA: Water Supply and Sanitation Programme (WSSP), 2011

interventions focus on: i) improved access to water for livestock; ii) promotion of water harvesting for small-scale supplementary irrigation; iii) promotion of small-scale aquaculture and culture-based fisheries in existing reservoirs; and iv) creation of an enabling environment for private sector investment in the sub-sector[3].

Interventions in the water sector are closely linked to the National Environment Management Policy, Agriculture Sector Development and Investment Plan, National Gender Policy and the National Agriculture Advisory Services (NAADS). This is why implementation is done in collaboration with the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF); Ministry of Education, Technology and Science (METS); Ministry of Gender (MGLSD); Office of the Prime Minister (OPM); Ministry of Local Government (MoLG); as well as sector departments within higher (district) and lower (sub-county) local governments. The private sector complements government efforts through development, distribution and maintenance of bulk water infrastructure, while CSOs mobilize local communities to achieve self-driven approaches for community ownership and sustainability of water for production infrastructure. With such a series of water for production sub-sector reforms, cutting across different agencies and policy domains; service delivery would be within the required coverage and accessibility. The decentralization of water management functions, however, has not been followed by the devolution of skills and adequate public financing to local governments. Districts are responsible for the implementation of rural water interventions but they lack capacity in terms of organizational set up, resourcing and staffing capacity. This is being compounded in rural areas by the constant creation of new districts. Furthermore, communities are responsible for operating and maintaining communal rural water supply facilities through the Water Management Committees' initiative, but they often lack the appropriate skills and knowledge (Water Aid, 2011).

1.2 Overview of water resource utilization for agricultural productivity in Uganda

Although rivers, lakes, and wetlands cover about 18 percent of Uganda's total surface (World Bank, 2014), only 2 percent of water is used for production, and access to water for crop and livestock is still low, yet the agriculture sector still plays the lead role in transforming the lives of women and men in rural households. In a bid to address the challenges, the Water and Environment sector has constructed 11 dams with a total storage capacity of 14.7 Million Cubic Metres (MCM) in the water stressed and cattle corridor belt and 959 small to medium size valley tanks, with total storage capacity of 3.108 MCM (NDP II, 2015-2020). However, these achievements are spread over different districts in the country, and therefore a region-wise disaggregation indicates that several gaps remain. The cumulative water for production storage capacity is currently meeting only 5.5 percent of the total demand of 499 million M3. Expansion of water storage capacity is below potential, and has been attributed to limited private sector players (investors and CSO), whereas on the contrary, there are glaring inconsistencies between policy statements and the ways in which plans, public and project-expenditure programmes are implemented. Therefore accelerating agricultural production in the country will require not only the construction of more water for production facilities but also ensuring proper management of public expenditure in the sector, regular maintenance of the infrastructure, and factoring the differences in community needs in the design and installation of facilities.

[3] Uganda National Water Development Report, 2005

2.0 Purpose of the Report

The report presents desk review findings on the gender dimensions of water for agricultural production, with a focus on Karamoja sub-region in northeastern Uganda under four thematic areas: i) the gender dimensions of leadership and technical roles at community level; ii) gender considerations in construction, repair and mantainence of water facilities; iii) gender roles in the use of water for agricultural production and productivity; and iv) the impact of water accessibility on women's relative to men's role in agricultural production. The report seeks to inform the implementation of FAO's Gender Equality Policy (2013), whose purpose is to have a harmonized framework for coherent efforts towards mainstreaming gender issues in all its technical work, assessment of results; and strengthening member countries' capacity to develop, analyze and use gender-relevant information in policy analysis, project planning and evaluation. It further intends to provide information that will assist FAO to align its support to the Water and Sanitation Sub-sector Gender Strategy (2010-2015), formulated by the Ministry of Water and Environment.

3.0 Methodology

A comprehensive review of existing documents related to design and implementation of water for production initiatives was undertaken, with a specific focus on Karamoja sub-region in Uganda. The overall aim was to gain an understanding of the gender dimensions and considerations in the water for production interventions. The literature reviewed included policy documents, reports from project activities, and communiqués of municipal and government agencies (annex 1). This category of literature was carefully analyzed by reflected on and extracting texts from the documents to stimulate thought and gain relevant insights, while aggregating the information using thematic questions that were derived from the purpose of the report. Peer-reviewed materials including academic journals and case studies were also was systematically selected using search criteria on Web of Science and Google Scholar. The search criteria included sub-themes on water for production, gender and agriculture, livelihoods, poverty, economic growth, and water resource management. The findings presented were validated through a stakeholder workshop, comprising of staff from MWE, MGLSD, relevant district local government community development officers and from selected around key issues identified (Annex 2).

4.0 Why the focus on Karamoja sub-region

When compared to other parts of Uganda, dryland poverty is peculiar to Karamoja sub-region in the sense that yield levels in current crop and livestock production system are lower than household food and income demands; aggravated by inadequate water system technologies for adapting to drought-induced crop and livestock failure. The coping strategies amongst communities mainly include crop and livestock variety diversification, matching labor inputs to expectations of the season, livestock grazing on failed plots, asset sales for food purchases, food transfers and migration employment. On the other hand, government, CSOs and development partners have responded by increasing water availability in the region: five (5) big dams have been completed in the sub-region namely; Kailong dam in Kotido district with a capacity of one million litres of water; Kawumen and Longolomit dams in Kabong district with a capacity of 1.4 and 1.2 billion liters of water respectively; Arechek dam in Napak district with a capacity of 2.2 billion liters; and Kabebe dam in Moroto district that has a capacity of 2.3 billion liters of water. The target is to ensure that each of the 130 parishes in the Karamoja has a functioning dam, alongside boreholes, wind mills and ponds (Office of the Prime Minister. 2015).

Although water system technologies have the potential to buffer crop and livestock watering deficits during agricultural droughts, thereby contributing to dryland poverty alleviation among smallholder farmers in Karamoja, it is still unclear whether interventions in the water sector can equally respond to the differing needs of women relative to men, in terms of smoothening the supply of food and availability of incomes, if they invest much of their labour and time into crop and livestock production. Both government and non-government actors need to acknowledge that increased agricultural production and productivity may largely depend on the level of utilization and control that female relative to male small holders have over water resources, rather than on increased availability and storage of water. And gender is a recurrent source of intra-community power differences that determine formal and informal ways of obtaining water for farming in both public and private places, as well as belonging to water user associations. This is why FAO-Uganda commissioned a gender analysis study in September 2015 on gender dimensions in the management and utilization of water for production among Agricultural small scale holders in Karamoja, and its impact on agricultural production and productivity. The study was initiated by a desk review of literature that is presented in this report.

4.1 The status of agricultural water resources in Karamoja sub-region

Karamoja sub-region is located in the north eastern region of Uganda, and it comprises seven (7) Districts: Nakapiripiriti, Moroto, Kotido, Kaabongo, Napak, Amdat and Abim Districts. The sub-region lies on Latitude 1¢ª30¡¯and 4¢ªN and Longitude 33¢ª30¡¯ and 35¢ªE and covers an estimated area of over 27,200km^2 (NEMA, 2010). The sub-region is characterized by semi-arid conditions with highly variable climate characterized by sporadic rainfall and high temperatures all year round. The annual rainfall generally ranges between 350-1000 mm (Nalule, 2010). Intermittent variability of rainfall in Karamoja often produces undesirable effects on agricultural production; with crop production being a high risk activity in the region with intermittent dependence on food aid. Livestock herding is similarly affected by the exerting influence of variability on water and forage resources as well as pest and disease prevalence in the region. The dry spells and drought patterns in the sub-region often elicit a food insecurity situation (OCHA, 2008), leading to provision of food aid. However, in the recent past, most of the drought events in Karamoja are largely artificial owing to development policies that favor settlement at the expense of pastoralism (Levine, 2010). The sub-region is part of the greater 'cattle corridor' of Uganda that stretches from south western, through the central to north eastern parts of the country. The landscape of Karamoja generally consists of plains punctuated by inselbergs in the central plains and mountains and undulating landscape in the east. The land thus rises from east to west and subsequently several streams and rivers flow from east to west into the plains of Teso. Major rivers include: Dopeth, Kitorosi, Moroto, Acolcol, Okere and several other seasonal streams. Most of these rivers discharge dries up once the rains have ceased to exacerbate the water scarcity problem which is typical and hence an inherent phenomenon of dryland ecosystems.

In an attempt to cope with the perennial water shortages associated with dry spells, droughts and erratic rainfall, migration of animal herds in search of water and forage resources is undertaken as the key adaptive coping strategy to the devastating effects of droughts in the region. This, however, resulted to inter-clan and ethnic conflicts that further precipitated proliferation of small arms in the region to guard pastoralists' herds from cattle raids masterminded by 'superior' pastoral communities (Mugerwa et al. 2014). In a bid to tackle the water scarcity problem, the Government of the republic Uganda and development several partners have undertaken several water development projects for Karamoja, including drilling of boreholes, construction of multi-purpose dams, valley tanks and ponds (table 1). Today, numerous water sources exist in the sub-region and offer numerous benefits to the communities

in Karamoja and beyond (Kenya and Southern Sudan). These initiatives have been undertaken as part and partial of the Comprehensive Disarmament Programme for Karamoja.

Table 1: Some of dams in Napak, Nakapiripiriti, Kotido and Moroto Districts

Name of water source	District	Sub-county	Parish
Namatata Dam	Nakapiripiriti	Namalu	Kokuwam
Kodike Dam	Nakapiripiriti	Namalu	Loperot
Nakicumet Dam	Napak	Matany	Nakicumet
Lomamururak Dam	Napak	Iriiri	Iriiri
Natumkasikou dam	Moroto	Rupa	Nakadeli
Kobebe dam	Moroto	Rupa	Mogoth
Nangoloapolon dam	Kotido	Nakapelimoru	Watakau
Kailong dam	Kotido	Kotido	Lokomebu

Source: Swidiq Mugerwa et al. 2014 and author's reviews

Six sources of water exist in Karamoja for livestock depending on season and type of livestock. Boreholes, wind mills and ponds fall in the first category of water sources utilized mainly to water small stock (goats, sheep and donkeys) mainly by small herders. Goats and sheep watered in these facilities are mainly those that remain within the manayattas. Valley tanks, dams (Figure 1) and rivers (Figure 2) and river beds provide the second category of water sources for livestock in Karamoja (Plates 1-4). Rivers are mainly utilized during rains while during desperate periods, river bed sand dugout wells are utilized to water livestock in the major rivers. Dams have proven to be useful sources of water for livestock; in Moroto and Napak; Kobebe and Nakicumet dams respectively have proven most important dams. Since their construction, these dams have barely dried. They have thus become convergence points for livestock when the water scarcity problem intensifies in the surrounding districts. Kobebe dam for example hosts the Matheniko and some Tepeth pastoral communities from Rupa sub-county and slopes of mountain Moroto respectively located in Moroto District, Jie pastotoral community from Kotido District and Turkana pastoralists from Kenya while Nakicumet dam provides for the Bokora and the Pian pastoral communities from Napak and Nakapiripiriti (particularly those from around Lorengdwat and Nabilatuk sub-counties) respectively.

Figure 1: Nakicumet dam in Napak District

Source: Mugerwa et al. 2014

Figure 2: River Moroto as seen from Moroto district

4. 2 Water for production interventions in Karamoja sub-region

Water for production (WfP) structures in Karamoja are relatively lower than what is required to meet the demands associated with livestock keeping and commercial crop farming. Water reservoirs are especially needed in the green belt, especially in the western part of the region, where livestock concentrates during the dry periods. Table 2 provides the water for production situation in the different districts, based on data from the Uganda Water Supply Atlas 2010. However, the WfP sector is rapidly growing, and therefore the data presented may not comprehensively reflect the situation due to absence of accurate information, for instance the number of actual non-functional facilities is known to be higher than indicated in the table 2. Water for production programmes and activities are mainly supported by development partners, including but not limited to EU, DFID, DANIDA and World Bank and are implemented by the District Local Governments and Civil Society Organizations, with technical direction and supervision of the relevant line Ministries and overall coordination of the Department of Disaster Preparedness and Management Office of the Prime Minister. The Assistant Commissioner for programmes in Karamoja, heads the OPM regional office, and is responsible for coordination and monitoring of the implementation of Special Government policies and programmes for Karamoja. The coordination is done through various meetings such as the Karamoja Inter-Agency (KIA) meeting.

Table 2: WfP situation analysis by district

	Dams & Valley Tanks	Shallow Wells			Deep boreholes			Dams			Valley tanks		
District	% in-use	In-use	Not in-use	Total	In-use	Not in-use	Total	In-use	Not in-use	Total	In-use	Not in-use	Total
ABIM	50	6	7	13	121	22	143	2	2	4	0	0	0
KAABONG	100	15	3	18	192	35	227	1	0	1	1	0	1
KOTIDO	97	1	0	1	171	53	224	32	1	33	4	0	4
MOROTO & NAPAK	83	3	0	3	330	105	435	5	1	6	0	0	0
NAKAPIRIPIRITI & AMDAT	89	27	5	32	169	55	224	2	0	2	6	1	7

Source: Uganda Water Supply Atlas 2010

The key water for production activities in Karamoja sub-region include:

- Assessing the status of existing dams and valley tanks in the 7 districts
- Mobilization of community participation in programmes
- De-silting of valley dams and tanks using equipment and community labor
- Formation of Community Production Water Source committees
- Constructing strategic water reservoirs along streams
- Providing household water storage facilities
- Constructing Water storage facilities for community (Manyatta)
- Promoting water harvesting techniques (dams, wind, river, gravity, springs, wind mills).

Source: Office of the Prime Minister (OPM) 2014

However, much of the emphasis in water for production is the development hardware facilities (construction) at the expense of the software considerations, in particular gender concerns that can have detrimental effects on sustainability of interventions. For instance, conflicts over access and watering rights tend to be closely associated with men's role in securing the health of animals and safety from theft by neighboring tribes and communities. This means that interventions that change the control, use of and access to water resources inevitably raise gender issues and opportunities. For example, the if the management of the wells is handed over to (male) community leaders without consulting women in the planning of the new resource or its continued management, the systems and equipment set up can be impractical for women, and since they are the ones primarily responsible for collecting water from the well, the equipment can be mishandled at peak times (Green and Baden, 1994). Similarly, the involvement of women through water user associations and supporting women in taking up leadership roles, can ease the mobilization of part-time casual workers to de-silt and/or pay for de-silting of dams (Quisuimbing, 1994). Therefore water source development and their maintenance ought to be based on a gendered analysis of the women's relative to men's needs and roles in the use of water sources for grazing and crop farming, and in strengthening customary institutions for managing water sources.

5.0 The gender dimensions of leadership and technical roles in planning for water resources

Equal participation of women and men in communal consultations works if capacity to voice gender-specific needs is enhanced: water projects are now increasingly working with district, sub-county and parish water-user committees as well as local community-based organisations, religious and cultural leaders, to ensure that representation of both men and women is promoted during the composition of water user associations. Interactions with district staff and representatives from MWE indicated that women have taken up key positions on water user committees. However, not much documentation was available in regards to whether the operations of water user committees in Karamoja sub-region have provided for equal enhancement women's relative to men's leadership and technical capacity to articulate gender concerns in water resource management, and influence decisions on design of technologies and plans. Nonetheless, water use committees could be good news for grassroots women and men since community-based approaches imply consultation and acknowledgement of the different needs of different groups of people. However, communal consultation processes can risk having women representatives at the table without necessarily translating into gender responsive projects. This is because women often feel unable to speak out in public consultations and/or may have no experience of doing so, because they usually rely on technical support and coaching from CBOs and fellow women in order to articulate their concerns in the presence of the male folk. These conditions may be at play in Karamoja, and yet active engagement with local governments, CSOs and development partners would be an opportunity for women to form and strengthen their own community organizations for empowerment and skills development around water for production activities. The opportunities for change, however, may lie in the Karamoja Water Forum, which is known across the districts and comprising of water officers and representatives from development partners, who could take up the idea of organizing a Gender and Water Forum, annually per district, as a sub-element within their broader activities.

Gender planning requires information on both water for consumption and production: information on water for consumption entails the roles of women relative to men in the collection, storage and domestic use of water in mainly cooking and cleaning chores, whereas water for production in the agricultural context would detail gender differences in access, utilization and management of water resources in the processes crop and livestock production. The key in-country sources of information on water for production in Karamoja include: Uganda Demographic and Health Survey; National Service Delivery Surveys; Uganda Water Supply Atlas; and the Northern Uganda Data Centre (NUDC), which specifically provides the specialized support for data collection, analysis and management to policy makers, supervisors and development partners. The NUDC is also relied on for design matters, such as technical site evaluations and cost estimations. Socio-economic scoping for the different WfP interventions is also partly based on the aforementioned sources, for purposes of evaluating community demand and support for the proposed technology, resettlement risks, environmental assessments and conflict sensitivity. This is complemented by regular impact evaluations undertaken by development partners for their country response strategies, including UN agencies, EU, DFID extra. Although several attempts have been made to generate water and sex-desegregated data, for example the Gender Facts and Figures provided by UBOS, most of the information available speaks to water for consumption and not so much on production. Besides, such data is reported in piece-meal amounts, scattered across different ministries and agency departments and therefore not synthesized for innovative use in on-going government processes such as planning cycle and annual sector performance reviews. If WfP interventions are to be planned in a gender responsive manner, data on the asset control and ownership, decision-making and community leadership by gender is necessary, followed by periodic gender-impact assessments on how WfP interventions have changed the conditions that cause gender inequality in agricultural productivity within the sub-region.

Gender mainstreaming in project implementation goes beyond the numerical involvement of women: some country-specific experiences have indicated that gender mainstreaming approaches that combine increasing the number of women in a water ministry or department with provision of the required data-based gender analysis, is critical in influencing the project design, implementation and evaluation (Shatanawi, 2007). In Karamoja, Water and Sanitation Coordination Committees do exist, and these comprise of DWD, water sector partners, private companies, and water associations; which usually consist of pump mechanics and apprentices on water for production technologies. Meetings are held quarterly by the DWO and chaired by the CAO (OPM, 2014). From these meetings, issues are consolidated into a report by each district and taken to the Karamoja Water Forum for a regional and local assessment. What was clear from project reports and consultations with district personnel is that the number of women representatives on District Water and Sanitation Coordination Committees and the Sub-County Water Supply and Sanitation Boards (SWSSB) should be 1 percent, as provided for by the water sector's 10 golden indicators. However, district gender and water profiles with analytical data on women's relative to men's needs in project implementation and coordination were unavailable. The reality therefore might be that experts with no gender-lens in their approach to agricultural water systems, often make project decisions and this may risk treating gender issues as simply cross-cutting or requiring unavailable resources. If gender concerns are not identified at project design, implementation and coordination usually puts the rights and privileges of women at risk and may therefore in fact end up being more dependent on men. It might be necessary therefore to equip District Water and Sanitation Coordination Committees and the Sub-County Water Supply and Sanitation Boards (SWSSB) with a deeper level of gender analysis on what works, how and why, in ways that blend with the economic and environmental factors used to guide the design of projects, so that gender officers and water experts are positioned to broaden opportunities for influencing the decisions made.

6.0 Gender considerations in construction and maintenance of water facilities

Cultural restrictions on women and low education attainment can limit their involvement in construction and maintenance works: women as compared to men in Uganda generally, have the least expertise in technical construction, maintenance and repair, partly because of their low levels of entry into water engineering professions in vocational schooling and universities. The available statistics indicate that during academic year 2008/09, enrollment in Bachelor of Science in construction management was 87 percent for boys and 12 percent for girls at Makerere University, and for Gulu University that is nearer to the Karamoja sub-region, enrollment in science-related courses was 81 percent for boys and 19 percent for girls in academic year 2010/11 (MGLSD, 2014). Some of the underlying reasons for gender-disparities in education attainment include family demands on girls for domestic work, early marriages, teenage pregnancies and son-preference. In Karamoja, unequal treatment of boys and girls is widespread due to discriminatory attitudes and opinions toward female gender roles in both the public and private sphere. Over 50% of the women in Karamoja married before turning 18 against 12% of men (UBOS, 2015). This cultural trend has an insidious impact on girls' ability to sustain engagement with education entities that may offer them skills for job opportunities in the water engineering and construction sector.

Conversely, certain construction and or maintenance roles such as excavation, desilting, bank slanting and cattle ramp construction are seldom a sphere for female labour due to cultural restrictions on women's physical integrity. But when the systems and equipment setup is impractical for women's chores and realities, dismantling of infrastructure can happen at peak times and other women can resort to going for and braving the queues at long distance water sources. This can lead to dilapidated water service delivery structures, stagnation in the number of deaths associated with water-borne epidemics, and reduced schooling time for girls, since they have to participate in not only water collection but also caring for the sick at home. There is evidence that points to how strategies on involving women in apprentice programmes for managing, repair and maintenance of infrastructure works for women and the nation at large. In Morocco, a World Bank Rural Water Supply and Sanitation Project succeeded in increasing girls' school attendance by 20 percent over four years, in part by reducing the traditional burden on them to fetch water and building their capacity on how to use boreholes at peak hours (Fisher, 2006).

Pre- and Post-construction support to communities is gendered in terms of training and employment: mobilizing community labour contributions and training of water user committees on mantainence and repair are part of the broad range of responsibilities for local governments, in a bid to foster greater community ownership (Uganda Water and Environment Sector Performance Report, 2014). Project evaluation reports on Karamoja, however, have shown that operation and maintenance remains one of the challenges in the region. In Nepak district for example, the functionality rate of hand pumps is 70%, and 30% is due to non-active water user committees, lack of spare parts, poverty and poor maintenance culture. However, there is general willingness from communities to contribute labour, if paid, in for example manual excavation and de-stilting a valley tank (Water, Environment & Geo Services Ltd, 2012). However, no explicit gender strategy was found on ensuring that both women and men are equally employed and trained in mantainence and repair. Although the proportion of women compared to men laborers may vary, mainly due to hindrances associated with the domestic division of labour and because of a culture where waged work is a male-privilege, gender training can be offered to technical

staff and supervisors involved in the design and maintenance of infrastructure on how to attract and compose women-only work teams, where culture offers the opportunity to showcase the resultant benefits to household welfare across the community. For instance, reports from Office of the Prime Minister (figure 3) indicate that youth (male and female) have been involved in a Cash for Work programme, which provides paid labour to communities. Given this context, it is possible to have a gender responsive employment policy for contractors of local water systems, at equal cost and quality, with a focus on direct and indirect employment for an equal number of women and men, targeted at easier maintenance, since the intended users will be involved in labour supply.

Figure 3: Youth work on a water pond in Lotome Sub County, Napak District

Source: OPM, 2015

7.0 The gender division of labour in the use of water for agricultural production and productivity

Men predominate the movement of livestock to water sources as women largely take on watering of crops and small-scale livestock: like most of the pastoral groups in eastern Africa, the Karamojong practice mobile livestock herding (cattle, sheep, goats and donkeys) and crop cultivation. The main crops grown include: ground nuts, beans, red sorghum, millet, maize, simsim, sunflower, cassava and white pea. Fruits are also planted including mangos, papaya, orange, jackfruit, bananas, avocado, jute, guava, and passion fruit. The most common vegetables are potatoes, tomatoes, cabbage, onions, eggplants, carrot, pumpkin and spinach[4]. Evidence from studies in Karamoja suggests that an increasing dependency on crops as opposed to livestock herding due to increase in vulnerability and food insecurity (Levine, 2010; Mubiru, 2010). Men, often energetic youth locally known as *karachunas*, and their livestock seasonally move between wet and dry season grazing areas (Grade et al. 2009). During such times, women, children and elders remain behind in the *manyattas* (semi-permanent homesteads) rearing goats and sheep and operating back yard gardens using water from bore holes and ponds (figure 4). But in terms of time use, women usually combine communal livestock watering with collecting fodder, bathing, feeding, cleaning, shed, delivering milk, socializing, taking rest and medicine administration. Within the domestic sphere, cooking, feeding, child caring, washing utensils, and clothes, house cleaning also have water use implications for women and the provision of food, which implies that there is a close interconnections between water for domestic and agricultural production.

[4] http://fic.tufts.edu/assets/Livelihood-Dynamics-in-Northern-Karamoja.pdf

Figure 4: gender-role distribution in the use of water for agricultural production

Source: http://news.bbc.co.uk/media/images/46009000/jpg/_46009202_dam_0409.jpg

Gender dimensions in agricultural land and water plots: female relative to male labour participation rates and productivity in agriculture varies with the land-owning status of small-holder households. Gender roles around agricultural land range from that of managers to landless laborers. A study undertaken by UBOS (2015) showed that 54 percent of the population in Karamoja supported unequal rights on land for men and women. This kinds of gender attitudes and practices imply that decisions about what to plant and rear, what inputs to use, when and how much to harvest, what the gains from the harvest will be used for, and how to transport and market the produce, are controlled by males. It also means that the managing land on which water facilities are located may be for the most part the responsibility of men, despite the Land Act (2004) aimed at improving women's access to land and at granting them the right to manage their property. Therefore water for production interventions need to pay attention to the gendered dimension of land tenure by assessing the existing land tenure system, the basis of plot allocation in the case of (new) irrigation and other water resource schemes, as well as the type of land rights conferred by water for production projects.

8.0 The implications for agricultural production and productivity

Programming on food production and water resource management in Karamoja has been around the rhetoric that women provide most of the labour and therefore their participation in interventions is assured, through mainly CBOs and community consultations. This has obscured the intra-household dynamics and power differences in the allocation of responsibilities and resources, as well as the ways in which community-based organizations often exclude women through formal or informal membership rules and practices as well as control from local elites. Female labour participation in agriculture is not merely higher than males, but rather varies across different farming practices, between 20 to 50%, and across activities within the food production value chain (Food and Agriculture Organisation, 2011). Although Karamoja women and men play complementary roles in ensuring production of food for the household (women focus on crop farming and small livestock, and men ensuring an increase in cattle and other livestock), women are often disadvantaged by statutory and/or customary laws that restrict women's property and land rights and make it difficult for them to engage in higher-productivity interventions and agricultural extension services brought about by government and development partners. Property restrictions on women also reduce their incentive to engage in environmentally sustainable farming practices and make long-term investments in land rehabilitation and soil quality. A combination of the aforementioned factors contributes to lowering the productivity of female small holders.

Similarly, the uses of water are partly determined by the household gender division of roles and the position in making intra-household decisions on allocation of resources, including land, livestock, crop harvest and finance. In most of the Karamoja sub-region, actual participation of men and women in water for production activities may be a function of intra-household decisions in the allocation of labour and resources, the wealth and status of the farming household, and of off-farm labor opportunities for men and women. Households with a greater number of livestock and land under cultivation may often have greater control of over water for production facilities and may register higher food produce than those with less livestock and small-size crop farms. Thus the demand for water for food productivity may differ depending on the socioeconomic status of the household. Since women in Karamoja are mostly responsible for the planting and processing of crop-food products and for the preparation of food resources in households, water-related hazards, such as floods and long periods of droughts, can damage not only the fields producing crops, but also food stores, thus driving up the cost of food staples. Such an increase in cost can disrupt food supply and impact a woman's ability to make a living from existing resources. Additionally, women's mobility is usually under men's control which limits alternative strategies for coping with stress on family resources. Therefore in case water-related hazards occur, the level of women's relative to men's exposure is likely to be unequal because of differences in roles and entitlements within and outside the household. This means that interventions and programmes in water infrastructure development are not gender neutral – because they impact on men and women differently, which requires gender responsive strategies that are meaningful for social inclusiveness and economic growth in the agricultural sector.

9.0 Conclusions and Recommendations

Drawing from what is already known in the literature about the need for gender-responsive programming in agricultural water systems, it follows that interventions in Karamoja sub-region need to find innovative ways for reducing the likelihood of female exclusion in data gathering and impact evaluation, design and planning of projects, as well as management and coordination. Women may have other ways to obtain water services, such as communal surface water wells, but even if they are effective, these are usually informal and are therefore typically less secure to enhance food production and productivity. As water resource management – and rights to land – are facing socio-political dynamics, ensuring women's participation is essential for gender equity in sustainable management of agricultural water systems.

Supporting the generation and availability of gender-disaggregated data on water for production: collaboration between FAO, MAAIF, UBOS and MWE is key in spearheading efforts towards evidence-based gender programming and monitoring in the water for production sub-sector. By building on the existing initiatives, majorly the Uganda Water Supply Atlas; and the Northern Uganda Data Centre (NUDC), technical capacity development to undertake surveys and gender-impact evaluations, using gender responsive indicators and data collection instruments could be a priority. Therefore strategic engagement of relevant MDAs and development partners will be part of the indicator-development, survey implementation and reporting processes. The leadership of OPM, as leader of government business and performance monitoring, in partnership with MGLSD may be sought early and at different stages of intervention, for purposes of organizing and coordinating dissemination forums, at which government, CSOs, private sector and development partners will gain access to survey results and generate knowledge for action. Gender-disaggregated data on WfP is a precondition for drawing the attention of key actors in government programming and rationalizing gender-equitable design and financing for interventions.

***Organizing a Gender and Water Forum, annually per district, as an activity for District Water Management and Coordination Committees*:** since there are efforts around organizing a Karamoja Water Forum, it is possible to plan and partner around the generation of district gender and water profiles, which contain information on women's relative to men's WfP needs and constraints with the purpose of: i) having better-monitored projects; ii) providing knowledge on what works at multiple scales; and iii) facilitating decisions about which district priorities to plan for and finance. The District Gender and Water Forums could also be used by women CBOs and representatives to collectively active engage local governments, CSOs and development partners on progress towards gender equity in WfP and mobilize support to strengthen their own participation and skills around water for production activities.

Changing the approach to gender training for government, CSO and development partner staff: technical personnel, who ought to not only have gender advocacy skills but also partnering and operational capabilities to change the way institutions access gendered forms of knowledge to influence decisions in planning and budgeting for WfP programmes. Expertise in mainstreaming gender into public-private partnerships, project appraisals and impact-evaluation is necessary, starting with water engineers and extension workers as well as agricultural economists at national level, down to chief administrative officers, water inspectors, contractors and CSOs, whose individual ingenuity and job description influences decisions in water resource management for agricultural productivity.

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Annex 2: SUMMARY REPORT OF THE STAKEHOLDER VALIDATION WORKSHOP

1 Introduction

On 6th November 2015, a half-day workshop was held to share and validate the preliminary literature gathered around gender dynamics in the utilization and management of water for agricultural production, with a specific focus on Karamoja sub-region, found in the north eastern part of of Uganda. The workshop was attended by a cross-section of stakeholders from government Ministries, Departments and Agencies (MDAs) and Civil Society. The list of workshop participants is attached. This report summarizes the main points raised based on the presentation made by the consultant.

2 Objectives of the Workshop

The workshop was convened to:

- Brief participants on the FAO gender policy and why the subject of gender considerations in water for agricultural production matters for programming;
- Provide participants with a summary of the preliminary literature gathered around gender dynamics in the utilization and management of water for agricultural production, with a specific focus on Karamoja sub-region.
- Identify issues that require the consultant's attention in view of the preliminary findings
- Gather inputs from participants on the preliminary findings and further recommendations for the exercise.

3 Introductory Remarks

Massimo, the Deputy Country Representative FAO, expressed gratitude to the participants for accepting to attend the workshop. He noted that the FAO is undertaking a study in order to validate the assumption that when water availability increases in a community and or household, then agricultural production and productivity will be enhanced, to equally benefit women and men, and ultimately increase incomes and ensure food security.

Stella, the Gender Officer FAO, higlighted the key components of the organisation's gender policy. She also pointed out how important increased accessibility to water for agricultural production is in regards to women's economic empowerment (WEE) in Karamoja sub-region, especially in terms of reducing time and labour spent on searching for water, either for domestic consumption or watering crops and ensuring livestock health. She stressed that the study has two components: i) review of literature; and ii) a household survey and focus group discussions in all the 7 districts of Karamoja; and the report combining the findings from both components would be released in due course.

Presentation by the consultant (Buyana Kareem): the consultant laid out the gender dimensions in water for agricultural production, with a focus on four areas: i) the distribution of leadership and technical roles at community level; ii) women's relative to men's role in construction, repair and mantainence of water facilities; iii) gender roles in agricultural production and productivity; and iv) the impact of water accessibility on women's relative to men's role in agricultural

production. From the preliminary gathering and review of relevant literature, the consultant highlighted the following:

- Women's participation is promoted in communal consultations on designs and plans but there is not much documentation on whether capacity to articulate gender-specific needs and influence planning decisions has been realized.
- Community leaders are usually males and often rely on gender planning information that is limited to water for domestic consumption.
- Men usually have a higher political clout and technical control over decisions regarding design, planning and budgeting at community level.
- Cultural restrictions on women's physical integrity and low education attainment limit their involvement in construction and maintenance works.
- when the systems and equipment setup is impractical for women's chores and realities, dismantling of infrastructure can happen at peak times and other women can resort to going for and braving the queues at long distance water sources.
- Pre- and post-construction training on mantainence and repair for communities is the responsibility of local governments but data on how women and men are equally involved is lacking.
- Men predominate livestock herding and women largely take on crop cultivation but the proceeds from both are in men's control
- Ownership and management of agricultural land is a male sphere, and therefore decisions about what to plant and rear, what inputs to use, when and how much to harvest, what the gains from the harvest will be used for, and how to transport and market the product, is many times a male privilege.

The consultant, however, noted that there is need for gender disaggregated data on utilization and management of water for agricultural production, in order to validate the above literature review findings.

6 Key points raised by workshop participants

In the ensuing discussion, moderated by the Assistant Commissioner at the Ministry of Gender, labour and Social Development, MGLSD (M/S Kyomukama Maggie), the participants raised the following key points:

- Information from both the literature review and the survey should have been presented at the same time for an indepth understanding of the gender realities in the utilization and management of water for agricultural production in Karamoja.
- There is need for greater involvement of a cross-section of district and sub-county technical staff, especially CDOs and production officers, through key informant interview across the 7 districts in Karamoja.
- The gathering of data on gendered utilization and management of water for agricultural production should not be limited to Karamoja sub-region alone, but rather the country at large, for purposes of informing policy.

- There is for greater involvement of CSO staff working in Karamoja such as Oxfam GB, IRC, ACIDI VOCA extra, in the collection of information.
- More information on mainstreaming gender into water interventions could have been obtained from the Ministry of Water and Environment in regards to gender mainstreaming guidelines for extension workers, water user committees and associations, operation and mantainence frameworks.
- The functionality of women's roles and representation on water user committees needs to be further examined through interactions at community level.
- There is need to understand the economic, environmental and technical engineering aspects that influence the design and location of water facilities, and how these could be reconciled with relevant socio-cultural and gender issues.
- Patriarchal norms that determine the social standards for division of roles in farming, land ownership and usage of water facilities require deeper analysis using primary sources of data.
- The conflict sensitivity of water for production interventions at household and community level, and its gender dimensions ought to be given attention and further study.
- The study should go beyond the focus on gender division of labour in water for agricultural production, and include analysis of power relations, the gender dimensions of the subsistence and commercial aspects of agricultural production.

7. Closing Remarks

Mr. Joel, the Principal Sociologist from the Ministry of Water and Environment made the closing remarks. He thanked FAO for organizing the working and for the consultant's presentation. He noted that participants look forward to further engagement on how the issues raised were addressed, and how the report could inform interventions in Karamoja sub-region.