

Gender Responsiveness of Provisioning and Management of Water and Sanitation Facilities in East African Universities

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Abstract

Water and sanitation facilities in higher education institutions plays a fundamental role in economic activity and human well-being including education. However, there is lack of gender based evidence on the provisioning and management of water and sanitation facilities in higher education institutions in East Africa. This study assessed gender responsiveness in the provisioning and management of water and sanitation facilities at the two East African Universities namely Makerere University in Uganda and University of Dar es Salaam in Tanzania. The study adopted a cross-sectional gender focused study design. Forty (40) in-depth interviews and twenty-four (24) focused group discussions with University managers and student's leaders were conducted. Findings indicated that gender perspectives were inadequately integrated in the provisioning and management of water and sanitation facilities. Inadequacies and gender differences were created with female students and those with special needs receiving limited access to and utilization of water and sanitation facilities than their male student's counterparts.

Keywords: gender responsiveness, provisioning and management, water and sanitation, facilities, Makerere University, and University of Dar es Salaam.

1.0 Introduction

Gender responsiveness in the provisioning and management of water and sanitation facilities plays a pivotal role in human well-being (Sahoo et al., 2015 and UN 2014). Gender refers to a "Person's self-representation as male or female, or how that person is responded to by social institutions based on the individual's gender presentation" (Howard et al., 2017: 9-11). In this study, gender was used to understand the relations in water and sanitation resources provisioning and management at Makerere University and University of Dar es Salaam. In higher education institutions, like elsewhere in the world, female and male students use domestic water for multiple uses (drinking, washing, and cooking). Students also need water for sanitation, which encompasses more than water for defecation and urination but includes washing, bathing, menstrual management, and changing and laundering clothes (Kebirungi et al, 2015b and Sahoo et al., 2015). The multiple uses and gendered competing needs of water have led to scarcity of water which has affected negatively the status of sanitation facilities (Dolatyar, 2016; Kebirungi et al. 2015 and Martin-Carrasco, 2013). Therefore, understanding gender relations in water provisioning and management identifies and spells out responsibilities of women and men (Bhattacharya, 2016 and UN 2014).

Since the 1977 United Nations Water Conference at Mar del Plata, involvement of women and men in the provisioning and management of water and sanitation and access-related inquiries has been recognized globally. This was followed with other international programs including the International Drinking Water and Sanitation Decade (1981-90), the International Conference on Water and the Environment in Dublin (January 1992) and the 1995 Beijing Platform for Action.

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These agendas explicitly recognize the central role of women in the provision, management and safeguarding of water. Reference is also made to the involvement of women and marginalized social groups in water management in Agenda 21 (chapter 18) and the Johannesburg Plan of Implementation (2002), a resolution on the International Decade for Action, 'Water for Life' (2005-2015) which calls for women's participation and involvement in water-related development efforts (GWTF, 2005-2015 and UNEP, 2012). Women participation is key to successful integrated approaches towards sustainable management of water resources (UNEP, 2012). Several scholars (Agrawal, 2014; Giest and Howlett, 2013; Gruby & Basurto, 2013; Kebirungi et al., 2015b; Mansbridge, 2010; Pahl-Wostl and Kranz, 2010; and Wiek & Larson, 2012) highlight the need for integrating water resource management principles; issues of gender and awareness creation; stakeholder participation; and involvement of women and marginalized social groups in water management.

Despite the emphasis on women's participation in water resource management, women are still under-represented in the 'water and sanitation world', (GWTF, 2005-2015; Raina and Wichelns, 2014; and Sugden, 2014). Cultural attitudes, social norms, historical and systemic gender discrimination, against women professionals in the water and sanitation professionals have contributed to women's invisibility in water provisioning and management (Sugden, 2014). The situation applies to Higher Education Institutions (Kebirungi et al., 2015a and Kebirungi et al., 2015b).

For the institution of higher learning, the exclusion of women and gender perspectives in water and sanitation resource management further hampers delivery of water and sanitation resources (Ahlers and Zwartveen, 2009 and Mollinga, 2008). In the context of East African Universities (EAUs), University stakeholders, majority of whom are students may not be aware of the importance of gender and gender relations and the benefits accrued in the provision, safeguarding and management of water and sanitation infrastructure to meet female student's practical and health needs for example (Clement 2010; Kebirungi et al., 2015a; Kebirungi et al., 2015b; Kuzdas & Wiek 2014; Rhoda 2004 ; Rubin and Bartle 2005; and Wicket al., 2012). The need for gender perspectives, inclusive of gender disaggregated data (an essential condition for active stakeholder engagement in water and sanitation resource management) may promote universal provision and management of water and sanitation facilities. This underpins political choices of understanding on what the users (students-consumers of water and sanitation) want, what they can and will contribute and how they will participate in making decisions on the types and levels of service, location of facilities and operation and maintenance. Water efficiency measures may not be integrated into water and sanitation resource management plans further creating deficiencies and promoting gender differences in access and utilization of water and sanitation facilities (Kebirungi et al., 2015a; Kebirungi et al., 2015 b; Giurco et al., 2010; and UNEP, 2013). According to UNEP (2012), distinctions in water and sanitation resource management are needed in what either category knows, does and decides and what the effects for example are for them (students), and the entire University community and its programmes.

Generally, stakeholder participation in planning, budgeting and implementation of water and sanitation resources management in EAUs is good indicator of the existence of appropriate recording and reporting mechanisms of financing for water and sanitation resources development. This will require to identify and prioritize the diverse male and female student's needs of water and sanitation resources and to equitably allocate funds to University locations (student's halls of residence and lecture theatres) with severe water scarcity. Unfortunately, this remains unknown for most of the EAUs. This implies that water supply and sanitation financial resources management are not augmented with social (gender, academic achievement and public health) benefits. Economic strategic planning to invest in the most critical water and sanitation infrastructure and water abstractions to save the University's scarce financial resources or innovatively raise revenues from water and sanitation resources through water recycling and private engagements like water packaging and selling are not envisaged.

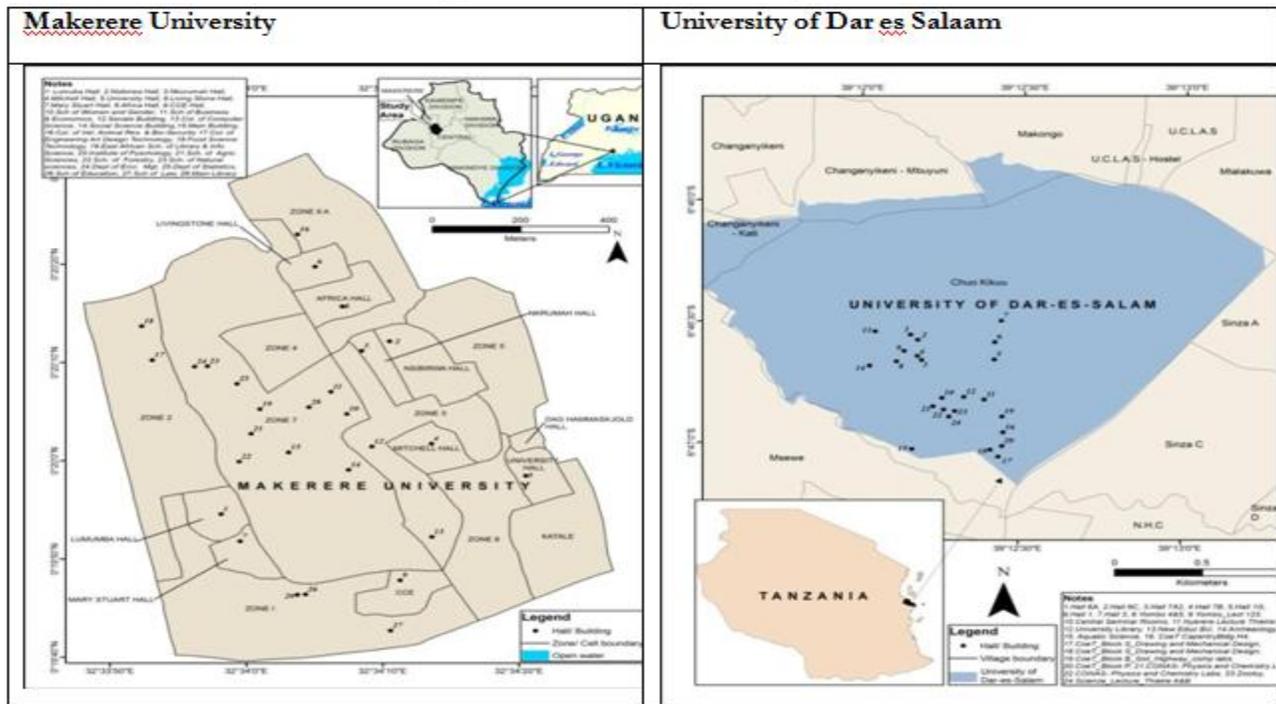
Awareness of the importance of gender perspectives and gender relations in the water and sanitation provisioning and management in higher institutions of learning is important. Effective awareness creation is an effective method for creating a demand for better sanitation and promotes sustainability (McGinnis, 2017). It is also beneficial to know the benefits accrued in the provision, safeguarding and management of water and sanitation infrastructure. For example awareness created on gender and water and sanitation provisioning and management may inform managers on whether the existing water and sanitation infrastructure addresses female students' practical and health needs (Kebirungi et al., 2015a; Kebirungi et al., 2015b; Kuzdas and Wiek 2014; and Wiek et al., 2012).

As a result, effective awareness creation provide strategies to educate community members about water and sanitation facilities provisioning and management, encourage community involvement and facilitate behavior change (McGinnis, 2017). There is a body of literature on water and sanitation in educational institutions. It focuses on water conservation (Zellner, 2014); standards of toilets (Barnes and Maddocks, 2002); review of health and educational outcomes (Jasper et al.,2012); perceptions of school toilets as a cause for irregular toilet habits among schoolchildren aged 6 to 16 years (Lundblad and Hellstrom, 2005); water, sanitation and hygiene standards for schools in low-cost settings, enrolments, quality and relevance of education, funding and technological innovations; (Kasozi, 2004; Mamdani, 2007; UNESCO, 2006; and Bhatia et al., 2010). Most of these studies were conducted outside Africa and in pre-University Educational Institutions. The studies did not clearly raise the profile of the importance of gender responsiveness in the provisioning and management of water and sanitation facilities as a core development concern in higher education institutions especially in EAUs. This has implications on gender relations and students’ academic performance especially on female students and the students with special needs in EAUs. This study uses a gender perspective to i) assess gender awareness creation and integration in planning, budgeting and implementation of water and sanitary facilities and ii) determine student’s perspectives in planning and budgeting and management of water and sanitation facilities

2.0 Methodology

A cross-sectional approach was adopted. Gender focused design and qualitative research methods were used. Key informants including Students’ leaders, Custodians, Wardens, Dean of students, University Estate managers and Deputy Vice chancellors (Finance & Administration) at the two Universities were targeted. The research took place at Makerere University and University of Dar es Salaam (Figure 1).

Figure 1: Location of the Study Area



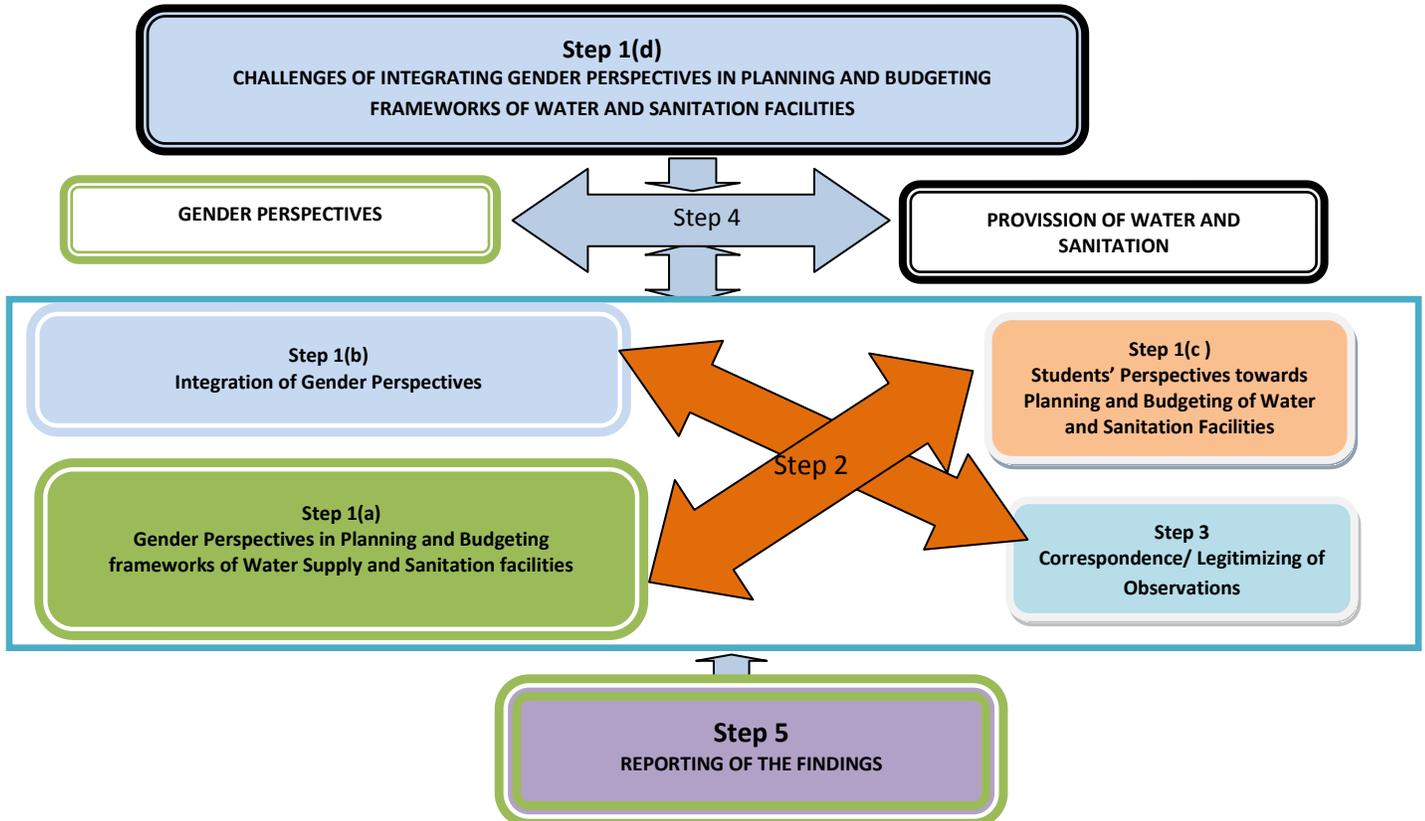
A gender responsive checklist was developed based on previous study findings, (Kebirungi et al., 2015a; and Kebirungi et al 2015b). The two studies demonstrated that the two Universities were facing water supply and sanitary facilities deficiencies. Gender differences in access and utilization of water and sanitation facilities among students in EAUs were also highlighted, female students being the most affected. The check list for this study covered the following key research themes: i) The gender responsiveness of planning, budgeting and management of water supply and sanitation facilities; ii) Challenges faced by management in the provision of adequate water and sanitary facilities in EAUs; and iii) Adaptation measures by University management and students to overcome water and sanitation challenges at both universities.

A total of forty (40) in-depth interviews with University policy makers and water and sanitation managers were conducted with 20 interviews at each university. Efforts were made to have an equal representation of both male and female key informants as much as possible among respondents drawn from both University decision-making bodies. Twenty four (24) focused group discussions were conducted: 8 (4 male and 4 female) with students’ leaders; 8 (4 male and 4 female) with custodians and 8 (4 male and 4 female) with cleaners. On average 8 participants participated in focus group discussions at each University.

Secondary data was collected and reviewed at both Universities. The documents reviewed included monthly water utility bills, capital development and recurrent budgets with an interest on operation and maintenance of water supply and sanitary rehabilitation works, student enrolments and University Master Plans. Site visits and observations were conducted in student’s halls of residence and lecture theatres. An observation guide was generated with an intention to assess gender sensitivity and responsiveness of water and sanitation facilities in respect to water and sanitation availability, accessibility, acceptability, and adequacy, cleanliness of the facilities in lecture theatres and halls of residence. Students’ behavior towards utilization of water and sanitation facilities and management’s response to address water and sanitary deficiencies was captured. Study themes were generated which allowed identification and categorization of data according to study objectives.

A five step analytical framework was used to analyze the collected data. The first step consisted of organization and categorization of the data into themes from a gender perspective. The themes included gender perspectives in planning and budgeting of water supply and sanitation facilities, integration of gender perspectives in planning and budgeting, students’ perception towards planning and budgeting of water and sanitation facilities, and challenges in integrating gender perspectives into planning and budgeting of water and sanitation facilities. The second step was establishing the inter-connectivity of themes. Corroboration/legitimization of observations, by evaluating alternative explanations, disconfirming evidence, and searching for negative cases was the fourth step; and the last step was reporting the findings as indicated in the analytical framework below.

Diagram 1: A Conceptual Diagram Illustrating the Analytical Framework.



3.0 Results

3.1. Gender Awareness Creation and Integration in Planning and Budgeting of Water Supply and Sanitation Facilities

Respondents at both Universities reported that they had not received any gender training and sensitization programmes related to gender planning and budgeting in water and sanitation facilities provisioning and management. Limited financial resources and lack of clear roles and obligations for the different stakeholders were cited reasons for non-gender awareness creation. Student's lack of awareness and their varied backgrounds, cultures and attitudes were reported main causes of breakdown and inappropriate use of water and sanitary facilities at the two Universities. For example, it was reported that some students defecated or urinated on toilet floors instead of using the toilet. This practice was reported as a public health concern. It exposed the users and the cleaners to health risks, increased cleaners' workload, and required procurement of more cleaning materials affecting the already constrained University budgets.

A University Estates' Committee existed at both Universities with the mandate to oversee University infrastructural development programmes. Estates departments at both Universities are responsible for generating budget estimates for University infrastructural development including those of operation and maintenance of water and sanitary facilities. Key Informants reported that as a practice, two sets of budgets were being generated; 1) for capital infrastructural development controlled and implemented by Top Management at the two Universities and 2) recurrent budget for operation and maintenance controlled and implemented by Estates departments. It was reported at both Universities, that the plans and budgets generated by Estates departments were being integrated into yearly University plans and budgets were submitted to University Council for approval. After approval of the plans and budget, the University management allocated funds to user departments.

Key Informants further revealed that planning and budgeting and allocation of University funds were being affected by two factors. First that the University Estates Committee members responsible to oversee University infrastructural development programmes, made decisions on behalf of the environments they did not understand. To Key Informants, University Estates Committee members were as a first step reluctant to conduct a gender participatory needs assessment to ascertain the most critical gender related water and sanitation infrastructural needs of the University community. The second issue reported was the allocation of funds to user departments which was being influenced by other University demands and priorities and not necessarily those identified and proposed needs for funding by user units. It was reported that such plans and budgets made and approved by the University Estates Committees and referred to Estates departments for implementation were not realistic as stated:

University Estates Committee members seat and imagines estates department's situations and start planning, budgeting without conducting gender responsive stakeholder (both staff and students) participatory needs assessment for determining the most pressing water and sanitation needs for students especially females and those with special needs. In addition, there are no frameworks to identify the most critical areas in need of maintenance or new expansions. You cannot run a big facility like a University without operational committees and you expect University Top management and University Council or a Bureau of individuals to think and plan for the University. We are deprived of owning the processes of prioritizing, planning, budgeting, implementing and managing water and sanitation facilities. The current committee members are only interested in benefiting from seating allowances, and not bothered about making value for money or making health impact decisions.

(Key Informant, UDSM, September 2015)

Another key informant had this to say:

Key University stakeholders (e.g. operation and maintenance coordinators, male and female students) have been excluded from the University Estates Committee. Also excluded are key departments like gender, public health, engineering especially those with expertise in water resource management including water supply and sanitation infrastructure. Absence of integrating gender perspectives and public health issues are some of the reasons why water and sanitation infrastructure is not taken as very important issue. The taken for granted current status of water and sanitation facilities accounts for the deterioration and gender insensitive water and sanitation provisions at Universities.

(Key informants, UDSM September 2015)

Another key informant reported that:

I have keenly listened to the introduction of your study. I can see that your main focus is on gender and the planning and budgeting of water and sanitation facilities. The topics you want us to discuss are not priorities of this University. This University has been there and performed well without 'women here women there' Prominent Government leaders and Heads of Mak and UDSM were once students of these Universities. Many people including myself I studied from this University (Mak) and used the same water and sanitation facilities. University facilities are much better than those in primary and secondary schools. One of my responsibilities at home was to fetch water before going to school. I did this during my primary and secondary education in a rural setting and did not fail to join University. Let me ask you a question. Who uses these facilities? Why can't the students who use them clean them in case they are dirty? This would save the already constrained University budget. Gender, water and sanitation facilities cannot be University priorities during the budgeting and planning. (Male Key Informant, Mak, November, 2015).

This study focused on finding out whether during planning and budgeting processes, a gender situation analysis was being conducted to determine water and sanitation needs, interests and priorities of University stakeholders. It was reported that such activities were not being conducted at both Universities. For example, KIs at Mak reported that in 2012, a team of staff from Estates department assisted by staff in the Dean of Students Office (Custodians, Cleaners and Wardens) conducted a study. The purpose of the study was to determine critical water supply and sanitary technical needs for renovation in male and female toilets located in halls of residence and lecture theaters. KIs reported that students were not interviewed nor were they part of those conducting the study. Further probing was done to determine whether student's needs and interests were captured in the study. It was reported that since the study focused on water and sanitation facilities in students' locations of study and residence, it was automatically implied that students' needs and interests had been addressed. This was on the assumption that all students need water and sanitary facilities irrespective of their gender or special needs. KIs argued that water and sanitary systems were designed and connected to buildings and so distribution of water supply including water for toileting and bathing was indiscriminately provided to those locations. It was further reported at both Universities that due to University complex and competing demands, planning and budgeting of water and sanitary facilities and services was based on reactive scenarios where processes of gender perspectives during planning and budgeting were not being seen as a priority as stated:

We plan and budget for water and sanitary facilities that are in critical repair state. How do you expect us to conduct gender responsive participatory planning and budgeting of water and sanitary facilities and services to address the needs and interests of students when we are not aware of the concept of gender? Issues of gender in planning and budgeting are secondary in Estates department. Estates department technical staff do not discriminate water and sanitary facilities for students in halls of residence and lecture theatres during the planning and budgeting process. (Key informants, UDSM September, 2015)

Another key informant reported that:

When we are planning, budgeting and implementing our activities we are aware that male and female students are equal and should be provided with water and sanitary facilities irrespective of their genders. We are aware that water supply and sanitary facilities are basic needs for everyone and everywhere within the University community. We focus our attention on water and sanitation facilities in critical state, desiring repairs or replacements. If the repairs are needed in males' toilets or bathrooms we fix the problem and we also address problems in female halls of residences. We do not pay special attention to female students or students with special needs. What we cannot miss out during planning and budgeting and implementation is the provision of sanitary bins in female toilets for them to dispose off used sanitary towels. (Key informants, Mak, November, September, 2015)

On provision of water and sanitary facilities for students with special needs, Mak provided separate toilets/urinals/bathrooms for both male and female halls of residence. At University of Dar es Salaam (UDSM), some halls of residence (e.g. hall 7) do not have separate facilities for student with disabilities. Apart from UDSM which had one unisex toilet and urinal facility for students with special needs located at Yombo lecture theatres 4 & 5 and Nyerere theatres 1& 2) other locations at both Universities did not provide separate toilets/urinals in areas located around lecture theatres.

This study examined whether new infrastructural development activities at both Universities were prioritizing students especially females' water and sanitation facilities. At UDSM, KIs revealed that it was only the New Education Building that took advantage of having a female representative on the construction committee.

KIs reported that the female committee member constantly reviewed the plans and demanded for an increase of toilets and bathrooms on each floor of the building. All other new upcoming academic buildings at UDSM lacked a female representative on construction committees. These committees did not plan and budget for the provision of toilets and bathrooms on each level of the buildings to cater for the needs of female students and students with special needs as stated:

During approval of plans for the construction of New Education Building, I was on the committee and I demanded for an increase of toilets on each floor and water and sanitary provisions for people with special needs. Committee members screamed and shouted that I was luxurious and wanted to use a lot of space which were designed to take care of lecture theatres. I told them that for us women we need adequate water supply and toilets because we use them for washing, we make several visits and spend more time in toilets and bathrooms more than men, we need to change our sanitary towels and to use the mirrors for makeup to ensure that we are looking smart all the time. However, one committee member said that females everywhere including managers talk a lot. It is important that we avoid females like her when handling serious meetings. She is fond of questioning trivial issues. We do not understand how a toilet or water contributes to learning. Students need to concentrate on attending lectures, and not toileting in lecture theater areas. In case they need the toilet and water, they should use enough of these in their halls of residence or homes before coming to study. You cannot mix studying and toileting, and menstruation in academics and in important meetings like planning and budgeting of University mega buildings (Key Informant, UDSM September, 2015).

Key informants further reported that during planning and budgeting processes on big construction projects including water and sanitation infrastructure, some committee members were being excluded from such meetings. Instead, members are only approached to approve the already made plans and budgets. KIs perceived this practice as a denial of committee members' right to full participation in decision making. It was also perceived that such practices deny members ownership of planning and budgeting process and accountability related to gendered impact of water and sanitation infrastructure. It was further reported that some committee members did not want to be perceived as sabotaging the planning and budgeting processes. Hence, they were forced to concur with planning and budgeting decisions already made by other members; after all it was revealed that the funds were being disbursed before planning and budgeting processes are concluded. Exclusion of gender perspectives and key stakeholder participation in planning and budgeting were reported to have contributed to gender neutral budgets and chronic water and sanitary shortages and unhygienic conditions with negative impacts on female students and students with special needs at both Universities.

On allocation of water and sanitation funds, a Key Informant (KI) at UDSM reported that funds for the Estate department are allocated like any other allocations to departments. Special considerations were only made when there was an emergency - life threatening prompting re-allocations. In the last phase of this study, (July-October 2015), there was cholera outbreak in the capital Dar es Salaam. As a precaution, UDSM management made a decision and re-allocated funds to Estates department. The funds were meant to buy chemicals/disinfectants to spray only critical areas like the waste stabilization ponds and waste water collection chambers. Re-location of funds to address sporadic emergencies was reported to have affected operation and maintenance of University infrastructure and that of water and sanitation infrastructure. It was also reported that when the funds from Estates departments are depleted or are inadequate then re-allocations were made from other University operating departments. Key informants at both Universities reported with dismay that re- allocation of funds affected the already constrained budgets whose impact trickled down to the entire University planning, budgeting and implementation processes.

3.2 Student's Perspectives in Planning and Budgeting and Management of Water and Sanitation Facilities in EAUs

This study was also interested in planning, budgeting and management practices of water and sanitation facilities at Makerere University (Mak) and University of Dar es Salaam (UDSM). This study revealed that male and female students' leaders at both Universities were not included in planning and budgeting and management of water and sanitation facilities. Male and female students perceived their exclusion in the participation in such major committees of University to have contributed to the continuous deficiencies and gender differences in access to and utilization of water and sanitation facilities.

On management of water and sanitation facilities, student leaders at Mak reported that whereas in the past, they controlled a budget to conduct hall of residence activities including management of buying water during water scarcity, funds were no longer being released to address such emergency activities. It was reported that management approached student leaders only when there was need, such as orienting fresh students on how to use water and sanitary facilities. Student leaders reported that orienting students required adequate planning and financial resource for conducting training sessions, purchasing training materials and mobilization of students which funds were not being provided by University management.

Students at UDSM also reported their exclusion from planning and budgeting and management of water and sanitation facilities. However, UDSM students attributed the practice of illegally subletting of rooms in halls of residence by the students themselves to have contributed to the already overly available and old water and sanitary systems as stated:

We are part of the problem. Water and sanitary facilities were designed for few students. But the need for us to be financially stable on campus, we sublet our rooms and share beds with students who are on their University admission are not allocated rooms in halls of residence. If it was not due to poverty; we would not be subletting at the expense of our health due to unhygienic conditions of water and sanitary facilities. Even when the conditions are worse, we fear to report because management is already aware that it is us students contributing to the current water and sanitation crisis because of practicing illegal subletting of our rooms that is causing major water and sanitary challenges on campus. (Male Student Leader, UDSM May, 2013)

Another student leader had this to say:

It is true that student's backgrounds and behaviors contribute to unhygienic status of toilets at this University. However, the cleaners are also not cleaning sanitary facilities on time. For example, a cleaner comes very early in the morning and gives priority to washing student's clothing as his/her side income generating activity where a fee is paid to them to compliment their monthly salaries. Hall of residence cleaning is usually done mid morning or in the afternoon depending on how much clothes a cleaner has to wash and sometimes iron after washing. There is also a natural and strong social support relationship established between University cleaners in halls of residence and students. They are our counselors and caregivers. They help us with so many things related to our social needs. Even when they do not clean, we cannot report them to their supervisors for fear that their employment will be threatened. We can only talk to them when the water and sanitation situation has really gone bad. (Student Leader, Mak, Nov, 2015)

Male and female students representing those with special needs at both Universities revealed that their exclusion in the participation of planning and budgeting and management of water and sanitation facilities further marginalized them in terms of access to and utilization of those facilities. It was reported that management has neither prioritized nor provided separate special toilets, urinals and bathing facilities for students with special needs. This has created tensions especially among those with sight impairment and physical disabilities as stated:

University management has not perceived us (students with sight impairment and students with physical disabilities) as important stakeholders in the University community. We face major challenges due to poor management of water and sanitary facilities. For example, we attempted to use toilets located in lecture theatres but failed because during the process of using them or after use we would find our clothes soaked with urine or faeces. Imagine when you are blind or you are on a wheelchair and find the toilet already soiled with faeces and urine, the floor become slippery and we sometimes slide and fall down in the waste. You just get out of the toilet or urinal area smelling which requires us to change and wash the soiled clothes. Our halls of residence are distant and you have to be in the company of a guide. If the guide is a fellow student, we both miss lectures. We found out that changing and washing increased our workload and destructed our lecture attendance and reading.

Other students also don't understand our disability conditions. They instead start murmuring around that it's our disabilities that make us soil ourselves. On hearing such comments, we feel ashamed, denied, isolated and we lose confidence before our peers. Although our guides are being paid, they also exhibit signs of disgust on their faces and their tone changes. Sometimes guides start quarreling over trivial issues. You ask yourself why you are in this state. Why you cannot see while others are seeing or why you are crippled and in wheelchairs when others are walking on their own. We find ourselves psychologically strained. The moment you develop stomachache, you remain in the hall and miss lectures for fear of going to unfriendly toilets located in lecture theatres.

It takes us weeks before regaining our relations with guides and confidence to attend lectures. We have always asked ourselves why University management cannot provide to us well designed and separate toilets to suit our conditions. (Student with Special Needs, Mak, November, 2015)

It was reported that well designed and managed toilets and urinals for students with special needs are located in lecture theatres of Health Sciences, specifically in the newly constructed Pharmacy Building at Mak. Only students with special needs and those enrolled in Health Sciences courses were being allowed to use the facilities. UDSM had one unisex toilet and urinal facility for students with special needs located at Yombo lecture theatres 4 & 5 and Nyerere theatres 1& 2. However, due to shortage of water, management locked those facilities regularly, a situation they reported to have contributed to their marginalization.

4.0 Discussion

This study demonstrates Makerere University and University of Dar es Salaam were pioneers in introducing initiatives in mainstreaming gender in the University functions. Although the Universities developed University gender policies, provisioning and management of water and sanitation facilities remained inadequate and not gender responsive. Female facilities were more affected compared to those used by male students. This finding corroborates with geo-spatial modeling of water and toilet distribution at Mak and UDSM in Uganda and Tanzania respectively (Kebirungi et al., 2015a; Kebirungi et al., 2015b). These Universities were constructed by the colonialists who by then prioritized males' education to suit the male students' interests; female enrollment has also overtime increased. Despite increase in female enrolment, provisioning and management of water and sanitation facilities in EAUs were being constructed or configured without taking into account the gender differences and practical gender needs of students. Due to student's diverse needs and interests especially female students and students with special needs constantly negotiated and struggled with challenges of water and sanitation access and utilization at the studied Universities. This finding is supported by (Berkovitch, 2016; Mollinga, 2008; UN, 2010; and Wiek and Larson, 2012). The authors convey that there tends to be something at stake in water resources management, and that the different individuals or groups involved have different requirements and interests for water and sanitation resources.

In addition, gender perspectives were not been fully integrated in the provisioning and management of water and sanitation facilities due to limited gender awareness creation among University community members. This was exacerbated by limited financial resources and lack of clear roles and obligations of different stakeholders. Lack of gender awareness on how to use water and sanitary facilities was reported the main causes of breakdown of water and sanitary facilities in EAUs. This finding is supported by Mizanur et al., (2004) in the study on European Union water framework directive vs. integrated water resources management. The authors observed that there was lack of gender awareness interventions and frameworks on the role and participation of women in water provision and management. Wijk-Sijbesma (1998) also demonstrates that due to lack of gender awareness creation, gender specified principles applied in the water supply, sanitation and hygiene sector remains to be achieved. This perhaps demonstrates limited awareness of students' rights and managers' obligation in the provisioning and management of water and sanitation facilities (UN, 2010). Managers also intimidated students and because students were not aware of their rights they could not contest the existed water and sanitation deficiencies.

Gender insensitive planning and budgeting and allocation of University funds coupled with male dominance were reported to have affected the provisioning and management of water and sanitation facilities. At both Universities, water and sanitation facilities were taken for granted that that they were available, adequate, accessible and friendly to the needs of all students.

Universalization and naturalization of water and sanitation facilities can contribute to the construction of gendered power and hegemonic masculinities in controlling water and sanitation facilities. The feminist and liberal feminist theories describe this position as reinforcing masculine heroism at the two Universities (Kebirungi, 2017 and Tedler, 2016). The female students and those students with special needs were affected the most.

Similarly, limited stakeholder participation made it difficult to identify unique and multiple water and sanitation gender needs of the users. Scholars like Agrawal, 2014; Giest and Howlett; 2013; Gruby and Basurto, 2013; Wiek and Larson, 2012; and Pahl-Wostl and Kranz, 2010) demonstrate that stakeholder participation is key in integrated water resources management. Limited stakeholder participation in water provisioning and management raises questions on issues of legitimacy, and power relations between male and female in water resource management (Caar, 2012). Mollinga (2008) and Hartmann (2015), also point out that there is restriction on the participation of male and female students and other users in water and sanitation programmes.

Non tangible outcomes, such as trust and communication as well as agreements and institutional changes or water quality and quantity improvement cannot be achieved at the studied Universities and the impact is more on females and the marginalized groups (Caar, 2012).

This finding is collaborated with extensive literature on integrated water resources management that non stakeholder participation cannot promote effective and efficient management (Abdulla and Mollinga, 2010 and Giest and Howlett, 2013). In the context of EAUs, such restrictions symbolize hidden dimensions of political, social, economic choices of water control which perpetuates gender inequalities in the provisioning and management of water and sanitation resources especially at user unit. At the studied Universities, provisioning of water was perceived as providing basic needs not essential to address gender and public health impacts. Scholars like Kuzdas and Wiek, (2014) and (Wiek et al., 2012) highlight potential problems and weaknesses including others failure to give adequate attention to equity and a tendency to disempowering stakeholders (Bisaga et al., 2015; Wiek and Larson, 2012).

5.0 Conclusion and Recommendations

Gender perspectives are inadequately integrated in the provisioning and management of water and sanitation facilities at the two Universities. This has created inadequacies and gender differences in access to and utilization with female students and students with special needs receiving limited access to and utilization than their male student's counterparts. Factors contributing to limited integration of gender perspectives in water and sanitation resource management include; lack of gender awareness creation, lack of gender responsive participatory planning and budgeting and inadequate allocation of funds for water and sanitation facilities.

There is need for Mak and UDSM to develop and implement an inclusive framework approaches for enhancing participatory and gender responsive planning, budgets, and management of water and sanitation facilities to strengthen vertical and horizontal flows of budgeting communication. Inclusion of females in water and sanitation professionals in top management and customization of existing national water and sanitation policies is likely to contribute to promotion of equity and equality in the distribution of those resources. There is also need for awareness creation on gender issues, stakeholder's rights on participation, accessibility and utilization of water and sanitation facilities in higher education institutions. This should be done through identification of gender gaps in existing policies on water and sanitation policies in higher education institutions. Furthermore, there should be continuous monitoring of the status, access and use of water and sanitation facilities to promote efficiency use of water and sanitation facilities, enhanced environmental health and students academic performance particularly for female students and those with special needs. Important also is gender awareness creation and gender responsive planning, budgets, and management of water and sanitation facilities supported by adequate financial resources. Finally, there is need for University based water and sanitation policy formulation to overcome shortcomings of inadequacies and gender differences in access to and utilization of water and sanitation facilities.

Acknowledgement

This research has been made possible with support from Kyambogo University and with financial support from Sida-Bilateral Research Programme, Makerere. Special gratitude goes to all staff and students that participated in the study at University of Dar es Salaam and Makerere University. Statement of no conflict of Interest. We the authors of this paper declare that there are no competing interests in this publication.

References

- Abdullaev, I., and Mollinga, PP. (2010). The Social-Technical Aspects of Water Management Emerging Trends at Grass Roots Level in Uzbekistan ZEF Center for Development Research, Water. Doi: 10.3390/w2010085 www.mdpi.com/journal/water.
- Agrawal, A. (2014). Studying the commons, governing common-pool resource outcomes: Some concluding thoughts. *Environmental Science & Policy*, 36, 86–91.
- Ahlers, R., and Zwarteveen, M. (2009). 'The water question in feminism: water control and gender inequities in a neoliberal era'. *Gender, place & culture*, 16: 4, 409-426.

- Barnes, P M., and Maddocks, A. (2002). "Standards in school toilets--a questionnaire survey" *Journal of Public HealthMed (JPH)*, 24(2): 85-87.
- Berkovitch, N. (2016). *Feminism/Postmodernism/Development* by Marianne H. Marchand and Jane L. Parpart (eds.). London and New York: Routledge, 1995. In *Geography Research Forum* (Vol. 17, pp. 83-86).
- Bisaga, I., Norman, G., Drabble, S. (2015). How can we influence municipal governments to allocate more money to sanitation? WSUP Practice Note.
- Bhatia, K., and Dash, M K. (2010). National Knowledge Commission—A Step towards India's Higher Education Reforms on India's Higher Education. *International Research Journal of Finance and Economics (IRJFE)*, 53, 46-58
- Carr, G., Bloßschl, GG., and Loucks., DP. (2012). Evaluating participation in water resource management: A review, *Water Resource. Res.*, 48, W11401, doi:10.1029/2011WR011662.
- Cronin, A A., Prakash, A., Sridhar, P., and Coates, S. (2016). *Drinking Water Supply in India: Context and Prospects*. In *Indian Water Policy at the Crossroads: Resources, Technology and Reforms* (pp. 49-71). Springer International Publishing.
- Dolatyar, M., and Gray, T. (2016). *Water Politics in the Middle East: A Context for Conflict Or Cooperation?*. Springer.
- Giest, S., Howlett, M. (2013). Comparative climate change governance: lessons from European transnational municipal network management efforts. *Environmental Policy and Governance*. 2013 Nov 1;23(6):341-53.
- Gruby, RL., Basurto, X. (2013). Multi-level governance for large marine commons: politics and polycentricity in Palau's protected area network. *Environmental science & policy*. 30;33:260-72.
- Hartmann, M., Krishnan, S., Rowe, B., Hossain, A., and Elledge, M. (2015). *Gender-Responsive Sanitation Solutions in Urban India*, Research Brief, RTI Press.
- Howard, LM., Ehrlich,AM., Frey Gamlem, F., and Oram, S. (2017). Gender –neutral mental health research is sex and gender biased. *The Lancet Psychiatry*, 4(1),9-11.
- Jasper, C., Le, T-T., and Bartram, J. (2012). Water and sanitation in schools: A systematic review of the health and educational outcomes. *Int. J. Environ. Res. Public Health* 9: 2772–2787. Doi: 10.3390/ijerph9082772
- Kasozi, A B K. (2004). *University Education in Uganda: Opportunities for Reform*. Fountain Publishers, Kampala.
- Kebirungi, H., Kabonesa, C., Kimwaga, R J., Majaliwa J G M., and Luboobi S L. (2015a). A gender perspective of the status of water and sanitation landscape in East African Universities. *Global Journal of Human-Social Sciences (B)*: Vol. 15 Issue 4 Version 1.
- Kebirungi, H., Kabonesa, C., Luboobi, S L., Kimwaga, R., and Majaliwa, J G M . (2015b). Gender perspectives of student's perceptions to access and utilization of water and sanitation facilities in East African Universities. *International Journal of Recent Scientific Research*, Volume 7 (11)ISSN: 0976-3031
- Kuzdas, C., Wiek, A. (2014). Governance scenarios for addressing water conflicts and climate change impacts. *Environmental Science & Policy*.42:181-9
- Kuzdas, C., Wiek, A., Warner, B., Vignola, R., and Morataya, R. (2015). Integrated and participatory analysis of water governance regimes: The case of the Costa Rican dry tropics. *World Development*, 66, 254-268. DOI: 10.1016/j.worlddev.2014.08.018
- Kuzdas, C., Wiek, A., Warner, B., Vignol, R., and Morataya, R. (2014). Sustainability Appraisal of Water Governance Regimes: The Case of Guanacaste, Costa Rica *Environmental Management* August 2014, Volume 54, Issue 2, pp 205-222.
- Lundblad, B. and Hellstrom, A L. (2005). "Perceptions of school toilets as a cause for irregular toilet habits among schoolchildren aged 6 to 16 years" *Journal of School Health (JSH)*,75(4): 125-128
- Mamdani, M. (2007). *Scholars in the Marketplace: The Dilemmas of Neo-Liberal Reform at Makerere University, 1989-2005*. Fountain Publisher, Kampala.
- Mansbridge, J. (2010). Beyond the tragedy of the commons. *Perspectives in Politics*, 8, 590–593.
- McGinnis, S. M., McKeon, T., Desai, R., Ejelonu, A., Laskowski, S., & Murphy, H. M. (2017). A Systematic Review: Costing and Financing of Water, Sanitation, and Hygiene (WASH) in Schools. *International journal of environmental research and public health*, 14(4), 442.
- Mizanur , MR., Varis, O., and Rahaman, Olli varies., and Kajander, T. (2004). *EU water Framework Directive vs. Integrated Water Resources Management: The Seven Mismatches*, Water Resources Development Carflax Publishing, Tylor & Francis group ISBN 0-646-42521-8

- Martin-Carrasco, F., Garrote, L., Iglesias, A., and Mediero, L. (2013). Diagnosing causes of water scarcity in complex water resources systems and identifying risk management actions. *Water resources management*, 27(6), 1693-1705.
- Mollinga, P. P. (2008). Water, Politics and Development: Framing a political sociology of water resources management. *Water Alternatives* 1(1): 7-23
- Pahl-Wostl, C., Holtz, G., Kastens, B., and Knieper, C. (2010). Analyzing complex water governance regimes: The management and transition framework. *Environmental Science & Policy*, 13, 571–581. [http:// dx.doi.org/10.1016/j.envsci.2010.08.006](http://dx.doi.org/10.1016/j.envsci.2010.08.006).
- Pahl-Wostl, C., and Kranz, N. (2010). Water governance in times of change. *Environmental Science & Policy*, 13(7), 567–570. [http://dx.doi.org/ 10.1016/j.envsci.2010.09.004](http://dx.doi.org/10.1016/j.envsci.2010.09.004).
- Raina, A., and Wichelns, D. (2014). Gender, Water and Food Security: The Road to Leadership Passes Through Access and Empowerment. Presentation for the ADB and IWMI workshop, From the Shallows to the Deep: Who is Taking the Lead? Women, Water and Leadership: A Workshop for Asia and the Pacific. <http://www.scribd.com/doc/208313041/Gender-Water-and-Food-Security>.
- Rahaman, M., and Varis, O. (2005). Integrated water resources management: evolution, prospects and future challenges. *Sustainability: Science, Practice, & Policy* 1(1):15-21.
- Sahoo, K C., Hulland, K R., Caruso, B A., Swain, R., Freeman, M C., Panigrahi, P., and Dreibelbis, R. (2015). Sanitation-related psychosocial stress: A grounded theory study of women across the life-course in Odisha, India. *Social Science & Medicine*, 139, 80-89.
- Sugden, F. (2014). Feminization of Agriculture, Out-Migration and New Gender Roles: An Imperative to Change Conventional Engagements with Women Water Users. Presentation for Asian Development Bank (ADB) and International Water Management Institute (IWMI) workshop, From the Shallows to the Deep: Who is Taking the Lead? Women, Water and Leadership: A Workshop for Asia and the Pacific. Manila.
- UN. (2014). International Decade for Action 'Water for Life' 2005-2015. United Nations Department of Economic and Social Affairs (UNDESAS).
- UNEP. (2012). The UN-Water Status Report on the Application of Integrated Approaches to Water Resources Management
- UNESCO. (1998). Higher Education in the Twentyfirst Century Vision and Action, World Conference on Higher Education, Paris. unesco.org/images/0011/-_001163/116345e [Retrieved on 09/11/2010] Vos J. and R Boelens, (2014). 'Sustainability Standards and the Water Question', *Development and Change*. 45(2): 1-26.
- Wiek, A., Ness, B., Schweizer-Ries, P., Brabd, FS., and Farioli, F. (2012). From complex system analysis to transformational change: A comparative appraisal of sustainability science projects, Volume 7, Supplement 1, pp 5-24.
- Wiek, A., and Larson, K.L. (2012). Water, people, and sustainability—A systems framework for analyzing and assessing water governance regimes. *Water Resources Management*, 26(11), 3153–3171. DOI 10.1007/s11269-012-0065-6. [http:// dx.doi.org/10.1007/s11269-012-0065-6](http://dx.doi.org/10.1007/s11269-012-0065-6).
- Wijk-Sijbesma, CV. (1998). Gender in Water Resources Management, Water Supply and Sanitation Roles and Realities Revisited IRC International Water and Sanitation Centre Delft, the Netherlands.
- World Bank. (2014). Water Supply and Sanitation: Sector Results Profile [Retrieved from <http://www.worldbank.org/en/results/2013/04/12/water-sanitation-results-profile> 07/06/2015
- Zellner, H M. (2014). Water Conservation on Campuses of Higher Education in Texas. Master of Science in Energy and Earth Resources, The University of Texas, Austin
- Zwarteveen, M. (1998). Identifying Gender Aspects of New Irrigation Management Policies. *Agriculture and Human Values* 15: 301–12.