**2. Literature Review**

**2.1 Defining and Measuring Hygiene**

Hygiene is a poorly defined concept as it is mostly used synonymously with the term sanitation in both empirical researches and organizations working in this field. However, for this study we focus on a narrowly- defined concept of hygiene.

The blended learning module on hygiene and environmental health for the rural health extension program of Ethiopia defines hygiene as practices related to personal cleanliness of the hair, body, hands, ﬁngers, feet, clothing, and menstrual hygiene

 (<https://www.open.edu/openlearncreate/mod/oucontent/view.php?id=187&printable=1>).

A similarly but broader definition by the Ethiopian Ministry of Health (MOH) (2011) in its hygiene and sanitation strategic action plan for rural, per-urban and informal settlements considers hygiene as hand washing with soap and water at critical times, safe handling of drinking water from source through to human consumption, food hygiene, and access to menstrual hygiene products and facilities. At a global scale, target 6.2 of the United Nations Sustainable Development Goals describes the presence of hand washing facility near latrines as a hygiene indicator.

Giné Garriga & Pérez Foguet (2013a & 2013b) on their part defines hygiene in terms of drinking water hygiene, food hygiene, personal hygiene and domestic household hygiene. Similarly, Webb et al. (2006) consider a series of conditions to define hygiene: covered interior water storage container, covered clean dishes that are kept high above the ground, covered food, mothers wearing shoes, no trash inside or outside of houses, clean exterior water storage containers, mothers and children have clean hands, no unrestrained animals are present in the house, no accumulation of dirty clothes, insignificant number of flies in the house, and no standing water in or around the house.

In the same way, O.Sintondji (2017) in his study of socio-demographic determinants of access to water, hygiene and sanitation in Benin has used sources of drinking water, water transport, storage, handling and treatment techniques, cleanliness of the water container, whether the container is covered during transport, materials and location of the storage container, cleanliness of the collection cup, washing of hands before eating and after handling stools as indicators of hygiene access while Akter et al. (2015) in their study of the status of water, sanitation, and hygiene in rural Bangladesh, have used filtered or boiled surface water utilization, safe collection and storage of drinking water, availability of hand washing station, and availability of water and soap near the latrine as indicators of hygiene practice. In the meantime, Imtiaz et al. (2015) in their study of the practice of personal hygiene among rural women in Bangladesh have used hand washing and safe drinking water as a measure of hygiene practice.

Hygiene in this paper is defined in line with the above literatures and measured by hand washing with soap and water at critical times, safe handling of drinking water from source through to human consumption, utilization of menstrual hygiene products and facilities, availability of hand washing facility near latrine, availability of water in the hand washing facility and availability of Shawor facility in the household among others.

**2.2 Conceptual View of Empowerment**

Empowerment has become one of the most widely used development concepts. Women’s rights activists, politicians, governmental and non-governmental organizations often mention empowerment as one of their development intervention goals. Despite its popularity, the concept lacks a universal and commonly agreed definition and when it comes to water, sanitation and hygiene sector, it is even worse. Empowerment has different meanings in different contexts and in different fields of study. Ibrahim and Alkire (2007) have listed around 32 different definitions of empowerment provided by different scholars. Thus far, it is not clear how empowerment is defined in the sanitation and hygiene sector. As far as this research’s capacity to find any evidence in the literature, there is no different definition of empowerment in the general water, sanitation and hygiene sector.

 Be this as it may, Kabeer (2005) has defined empowerment as “the processes by which those who have been denied the ability to make choices acquire such an ability” p. 13. Kabeer’s understanding of empowerment is based on the ability to make a choice, also known as agency, and to be empowered is to be lavished with choice. However, the ability to choose requires the presence of alternatives, and the capacity to exercise choices. Thus, Kabeer has further provided three dimensions to empowerment: resources, agency and achievements/outcome. According to Kabeer, resources such as education, employment, credit and land are necessary for women to be able to exercise choice. Therefore, resources are not empowerment per se, but catalysts, conditions, enabling factors or sources of empowerment. Accordingly, for women to be empowered, they must have access to material, human and social resources.

The agency dimension of Kabeer encompasses the ability to exercise control over decisions or resources and formulate strategic choices that affect important life outcomes (Malhotra and Schuler, 2005). Examples of these life choices in the WASH sector may include decisions to treat drinking water, to fetch water from safe wells, to build and use latrines, to wash hands with soap at critical times (e.g. after visiting latrines, after cleaning a child’s anus, before preparing food, before eating and before feeding a child). A key issue in Kabeer’s concept of life choices is whether women are choosing based on their own preferences, and priorities, or rather due to limitations in their options. The choices available to women are often limited compared to those for men of the same community which makes women internalize their lesser status in society (Kabeer, 1999). Finally, Kabeer’s well-being outcomes are achievements that women experience as a result of their access to resources and agency. These include health and wellbeing, income, representation in local bodies of government, participation in extra-familial groups, social networks, local campaigns against domestic violence, and campaigns for rights awareness.

Moser (1993) has defined empowerment as “the ability to determine choices in life and to influence the direction of change, through the ability to gain control over crucial material and non-material resources” (p.74). This definition of empowerment encompasses the idea of power and decision making where control over resources, both tangible and non-tangible, is crucial for the empowerment process. As such, the implication is that women must have greater power or control in their own lives by setting their own interests, needs and priorities instead of being told what to do by others. According to Moser, when women are involved in actions that are designed and controlled by others, the action can be used as a control mechanism to silence women from demanding space.

In sum, empowerment is an ambiguous term with varying definitions according to language, location, cultural contexts and field of study. Therefore, Mehra (1997) has recommended for empowerment to be defined according to the specific context where it is being applied because a behavior that signifies empowerment in one setting may indicate something else in another. For example, belonging to self-help group may indicate empowerment in Northern Nigeria, but not in Southern Nigeria (Ozoya et al., 2018). Similarly, the characteristics of an empowered woman in Uganda may differ from those of an empowered woman in Pakistan. In one setting, an empowered woman’s mobility might be limited only by the availability of affordable transportation, while in another context a woman may not be allowed to travel at all without a man’s permission (Lombardini, Bowman and Garwood, 2017). Shetty (1992) also supports the views of Mehra (1997) that empowerment can be defined only within the local social, cultural, economic, political, and historical context (cited in Tandon, 2016). Language and cultural contexts are also relevant when breaking down the term empowerment. Empowerment may not have a direct translation in other languages, as it is the case in Amharic (the national language of Ethiopia) where the term has been adjusted from English. In Amharic, empowerment is translated as *“mabqat’* which literally means to enable women.

**2.3 Measuring the Empowerment of Women**

Measuring women’s empowerment and deciding how empowered a woman or a group of women are, is a difficult task. This is reflected in the literature, as researchers and organizations have used different measurements and indicators depending on the dimension of empowerment they investigated and the scale of analysis (national, community or individual level).Moreover, some indicators are used to measure social empowerment while others have an economic focus.

Past research measuring the effect of rural credit programs on the empowerment of women in Bangladesh used eight indicators (Hashemi, Schuler and Riley, 1996). These are mobility, economic security, the ability to make small and large purchases, involvement in major household decisions, and relative freedom from domination within the family, political/legal awareness, and participation in campaign/protest. Similarly, Allendorf (2007), in his study of women’s land rights and its contribution to the empowerment of women in Nepal used locally relevant indicators, including women’s decision making on personal health care, making large household purchases, making household purchases for daily needs and visiting families and friends. On the other hand, Mahmud, Shah and Becker (2012) in their study of measuring women empowerment in rural Bangladesh have used self-esteem, role in decision-making, freedom of mobility, and control over resources as indicators of women empowerment. In order to measure women empowerment in self-esteem, Mahmud and his colleagues have collected data using two self-esteem indicators that are considered universal: (i) if the woman wants to have input in decisions to buy furniture, and livestock, spending family savings, obtaining a loan, seeking treatment for sick children, visiting a doctor for her personal health, working outside the home, visiting her father's home, having more children and using family planning; and (ii) whether the woman accepts or rejects gender- based violencesuch as if she thinks that beating a wife is justified when she; burns the food, neglects the children, argues with a husband, talks to other men, wastes husband's money, and goes out without telling a husband.

Empowerment in the WASH sector has been discussed, but remains to be broadly quantified. Measurement of empowerment in this sector has so far been limited. The only studies we found on measurements of women empowerment outcomes in the WASH sector were conducted by Carrard, Crawford, Halcrown, Rowland and Willetts in 2013, Kayser, Rao, Jose and Raj in 2019 and Dery, Bisung, Dickin and Dyer in 2019.

Carrard et al. (2013) proposed a conceptual framework based on a review of documented gender equality outcomes from WASH initiatives in Fiji and Vanuatu and changes in gender roles and in self-perceptions and attitudes were the indicators proposed to measure gender equality and women empowerment outcomes.

Kayser et al. (2019) based on literature review offered a compilation of indicators used to measure gender equality and empowerment outcomes in WASH researches. The indicators are women’s water-fetching responsibility and time-use burden, spinal injury, neck pain, spontaneous abortion and caloric expenditure that women experience while fetching water, the time available to them to pursue education, for leisure, for child care and other income-generating activities, physical and sexual harassment they experience, stress women experience during open defection or while using shared latrine, lack of security and mental and physical health outcomes, women’s decision making role in WASH facilities design, maintenance, and service availability, access to menstrual management materials and quantity of water in litres per person per day, women’s participation in local governance namely in key water committee positions, their participation in household decision-making and control over resources.

Similarly, Dery et al. (2019) conducted a literature review to identify tools used for measuring empowerment in the WASH sector. Of the 13 reviewed journal studies, nine of them have used participation (community engagement, partnerships, and involvement in the design and governance of WASH projects), decision making (women make inputs into household and community sanitation and hygiene planning issues or the resolution of WASH problems), and access to WASH information as indicators to measure empowerment.

Since there was no ready to go or standardized definition of empowerment in the WASH sector in general and in hygiene sector in particular, this paper has defined and measured empowerment by taking insights from Routray et al. (2017), Allendorf (2007), and Mahmud, Shah and Becker (2012). The paper has thus, defined empowerment as a change in women’s life in terms of increase in self-esteem, ability to make household decisions and participation in health extension activities.

**2.4 Empirical Literature on the Empowerment Effect of Hygiene**

The empowerment of women and the communities have become a common component of WASH interventions particularly in developing countries. However, there is relatively limited empirical evidence on how access to and utilization of WASH facilities in general and particularly hygiene have contributed to the empowerment of women. Previous studies on WASH have instead largely focused on two themes: (1) the health benefits of improved WASH (e.g on active trachoma: Beselam, Alemayehu, Abera and Solomon, 2017; on diarrheal prevalence: Jung et al. (2016); on stunting: Kwami, Godfrey, Gavilan, Lakhanpaul and Parikh, 2019; on acute malnutrition: Cooten, Selamawit, Samson and Spigt, 2018), or (ii) how the empowerment of women contributes to improved WASH, i.e., a reversed cause and effect to our study (e.g Routray, Torondel, Clasen and Schmidt, 2017; Hirai, Graham and Sandberg, 2016; Abu, Bisung and Elliott, 2019).

Only a few previous studies have provided qualitative evidence of the effect of WASH services on the empowerment of women. A literature review by Ivens (2008) found no evidence that improved access to water facilities enhances women’s empowerment or strategic gender needs, such as household decision making. Nevertheless, Ivens indicated that access to water facilities improved women’s practical gender needs and presented a list of benefits including improved health for both women and girls due to improved quality and quantity of water, enhancement of women’s dignity, and less exposure to risks associated with water fetching (e.g gender-based violence, water-borne diseases, animal attacks, and physical problems from carrying heavy water loads).

In contrast, a study on the empowerment potential of a WASH program in Vietnam, Leahy et al. (2017) found that it improved communication between male and female members of the household, which in turn increased women’s influence over household decision-making and participation in community meetings. The program also increased women’s participation in communal works such as construction, cleaning and maintenance of public water sources, and equipped them with technical knowledge on WASH, that later helped them to participate in both domestic and community level decisions.

Similarly, Kilsby (2012) investigated the gendered outcomes of Water Aid’s WASH program in Timor-Leste, and found that the initiative increased harmony in women’s relationship with their husbands, and changed or expanded gender roles for both women and men. Women and men worked together to build latrines, and men were also found participating in roles traditionally associated with women, such as water collection, childcare, and kitchen and general domestic tasks. This was accompanied by an increase in women’s participation in community roles including in the WASH management committee, women’s group activities, literacy classes and women’s organizations. Women also reportedly obtained more opportunities to contribute to the household economy and more time to spend in traditional craft activities. Overall, women experienced an increased sense of well-being in terms of dignity, freedom, and happiness, in addition to growing awareness and acceptance that women have rights of various kinds. Lack of access to WASH facilities, on the contrary, resulted in reduced participation of women in the labor market and community activities, adverse biomedical outcomes, psycho social stress, and poor educational outcomes. The longer the time that women spent collecting water was also mirrored in fewer hours available for engaging in income-generating activities, caring for children, and leisure (Bisung and Elliott, 2016). The negative effects of poor participation by women in WASH decision making have also been documented in Kenya, where it resulted in insecurity, higher rates of school dropout, disease acquisition, psychosocial impacts and wasted time among women and girls (Abu et al. 2019).