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A Review on Women, Climate Change and Clean Development Mechanism

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Abstract
Women are very vulnerable, and are most likely to be disproportionately affected by the adverse impacts of climate change because they constitute the majority of the disadvantaged worldwide. Cultural norms, inequitable distribution of roles, resources, and power, especially in developing countries makes women more vulnerable than men. They are also the agents of change in relation to both mitigation and adaptation measures any government, development agencies or the civil society is embarking upon as they manage energy resources more efficiently. Empowering women, addressing their needs in project implementation is critical to managing climate change and creating a sustainable future. This paper reviews the Clean Development Mechanism activities in relation to women in sub Saharan Africa and how best its objectives can impact significantly on the lives of women in terms of access to affordable, efficient and sustainable forms of energy which leads to poverty alleviation and sustainable development.
Keywords: Clean Development Mechanism; Climate Change; Greenhouse Gas; Millennium Development Goal; Emission Reductions; Sustainable development

1. INTRODUCTION

Africa is one of the most vulnerable continents to climate change and climate variability, and is already under pressure from climate stresses. Africa's vulnerability to climate change is increased by the climate-dependency of its major economic sectors, and the existing development challenges such as poverty, weak institutions, limited infrastructure, limited access to technology and information, as well as complex disasters and conflicts. Sub-Saharan Africa already has a highly variable and unpredictable climate and is acutely vulnerable to floods and droughts. With climate change, large parts of the region will become drier, increasing the number of people at risk of hunger and poverty by tens of millions (UNDP report, 2006). Climate change affects both men and women differently and their responses also vary. The current changes in the climate will directly impact ecosystems, food, water, health and society as such.

Women whose role it is to provide food for the whole family, collect water and firewood, and look after children alongside household chores make up some 70 per cent of the world's poor population, in many situations, they are the ones who bear the brunt of extreme weather conditions (Ministry of water and Environment, 2012) . Smoke from poorly ventilated indoor fires accounts for close to 1.6 million premature deaths per year, 60% of which are women and girls (WHO, 2011). With two-thirds of the world's illiterate adults as women, they are under-represented in, and have limited access to political decision-making at all levels of society throughout the developing world (UNESCO, 2012). Women are the primary managers of household resources, such as water and fuel, which may be in increasingly short supply, and are the most affected by the effects of climate change (Lirri, 2009). Climate change is expected to exacerbate these gender inequalities with women being more affected by depletion of natural resources and reduced agricultural productivity. African women therefore tend to have limited adaptive capacities, and are more dependent on climate sensitive resources such as water and food supplies (FAO, 2010).

Detrimental effects of climate change can be felt in the short-term through natural hazards and in the long-term, through more gradual degradation of the environment. The adverse effects of these events are already felt in many areas in relation to agriculture and food security; water resources and energy. In Uganda, women farmers currently account for 80 per cent of all food production. Two thirds of the female labour force in developing countries, and more than 90 per cent in many African countries, is engaged in agricultural work (WeADAPT, 2013). Their central role in agriculture places women as great agents of social change. More than 100 million people could be lifted out of poverty if women had the same access to and control of resources as men (FAO, 2012).The Clean Development Mechanism (CDM) is one of the established process of the Kyoto Protocol that supports the development of projects in developing countries that reduce greenhouse gas (GHG) emissions or remove GHG emissions through carbon sequestration. It has two concurrent objectives: to reduce emissions and promote sustainable development. The CDM directly facilitate Annex 1 countries (main polluters) to invest clean technologies and projects that reduce GHG emissions in developing countries. The certified emission reductions (CERs) achieved from these projects translates to the carbon credits sold in the carbon compliance market to industrialized countries (defaulters) in order to offset part of their emissions under the Kyoto protocol. This normally results in economic, social and environmental development in the developing

countries. More so, the Millennium Development Goals (MDGs) are achievable through CDM projects in developing countries (Ministry of Foreign Affairs, 2010). Africa is still behind in the carbon market as it contributes only 3.9% to total CERs (Mero, 2008). The major players are China, India and Brazil. Women's traditional roles as energy providers, water gatherers and household caretakers mean that the benefits of improved access to energy accrue particularly to women provided their needs and perspectives are considered in the CDM project's planning and implementation. To be able to assess the CDM contribution to sustainable development, the sustainable development targets of developing countries must be compared with the supposed benefits arising from the CDM project(s).

A methodology is a specification for the calculation of emission reductions (ERs) achieved by a CDM project during its operation. CDM methodologies can improve livelihood at household level and also on a general scale. These Methodologies have the capability of giving the women an opportunity to learn and contribute to the development of the project, improve the living environment and optimize the tasks undertaken by women. CDM projects are either large scale or small scale. Small-scale CDM projects impact greatly on the live of women in developing countries. An example is the "Efficient Fuel Wood Stove for Nigeria" which has distributed about 12,500 stoves in the Guinea Savannah region and uses methodology AMS I.E/II.G (UNFCCC, 2012). This has increased household savings (the stove saves 80% of the wood compared to the traditional stove) and created employment opportunities for women in the stove value chain.

2. THE IMPACTS OF CLIMATE CHANGE AS IT AFFECTS WOMEN

2.1. Agriculture

Climate change, environmental degradation and the loss of natural resources increases the work load of women who have to walk farther to collect fuel wood and water and lowers productivity by crop failure, drought, erratic rainfall pattern, excessive heat (FAO,2012). Women's responsibility for food security forces them to look for any available means of livelihood, making them vulnerable to violence and human trafficking. Climate change is making it increasingly urgent for more widespread and significant changes in farming practices to increase productivity and, at the same time, use natural resources more efficiently and sustainably.

2.2 Water resources

Reports projects that between 75 and 250 million people in Africa would be exposed to increased water stress by 2020, while the area experiencing water shortage in Sub Saharan Africa will have increased by 29 per cent by 2050 (UNECA, 2009). Women and girls bear the burden of fetching water for their families and spend significant amounts of time daily hauling water from distant sources. The water from distant sources is rarely enough to meet the needs of the household and is often contaminated, such that women and girls also pay the heaviest price for poor sanitation.

2.3 Energy

Energy access is a critical prerequisite to poverty reduction, necessary for everything from heating homes to delivering public services to powering the businesses that create jobs (Forbes, 2012). With over two billion people in developing countries still relying on traditional biomass for daily energy needs (IEA, 2013), there is worsening depletion of biomass energy resources. Lack of **access to energy** mainly affects women in their role as household managers because they are usually responsible for providing energy for the household (UNFCCC, 2010). Access to modern and clean forms of energy reduces time women spend gathering fuel wood, gives opportunities to women to engage in formal education and income generating activities. Drudgery and respiratory infection due to indoor air pollution is also greatly reduced.

2.4 Health

The use of biomass contributes to indoor air pollution and deforestation with approximately two million death yearly mainly women and children in developing world (WHO, 2012). Extreme weather conditions as a result of climate change leads to the spread of deadly and infectious diseases. Some diseases are particularly sensitive to climate variation. Rising temperatures are likely to accelerate the lifecycle of parasites and to spread diseases to larger areas. Women and girls disproportionately suffer health consequences of nutritional deficiencies and the burdens associated with travelling further to collect water A review of census information on the effects of natural disasters across 141 countries showed that although disasters create hardships for everyone, on average they kill more women than men, or kill women at a younger age than men (Neumayer, 2006)

3. CHALLENGES OF CDM PROJECTS THAT CAN BE BENEFICIAL TO WOMEN

1. Identification of projects that fully address and meet the needs of women and children in developing countries by project developers is a difficult task.
2. Technical and financial aspects of CDM project development and approval is a serious barrier.

3. Benefits of current market-based financing mechanisms exclude the majority of the world's poor and non-commercial sectors and applications. Women and men do not have equal access to property, money, funds and markets, and thus, women are less likely to benefit from CDM projects.
4. The majority of CDM projects are in the industrial and power sectors. These are mostly large-scale projects; there are only few small-scale projects. Project types that are likely to benefit women, such as energy efficiency projects in the domestic sector, make up a very small share of total projects, and, since they are typically small–scale, the proportion of CERs generated from these projects is even smaller.
5. The first objective of CDM (reducing GHG) is very pertinent to project developers and it guides their decision on what project to undertake. Project developers are more focused on the volume of CERs that can be achieved from large-scale emissions reductions project and only secondarily consider the impacts on sustainable development and local communities. This is at the expense of the second objective, which aims at achieving sustainable development.

4. WAY FORWARD

Acknowledging the contribution of women to the use and management of natural resources is critical. Many women have a strong body of traditional and environmental knowledge acquired from years of collecting and managing resources, and raising their families. Equally important are:

1. Raise awareness on the impacts of climate change adaptation, encourage women to start using energy and agro-forestry technologies to improve indoor air quality and food security, and promote natural resource management.
2. African governments often view men as first-class citizens, giving them greater access than women to critical information on strategies and resources for climate change adaptation. Training, education and critical information on strategies for climate change adaptation are especially necessary for women involved in agriculture. This constitutes the vast majority of African women.
3. Integrating gender perspectives into global climate policies and incorporating activities that could further support women's empowerment. This may be in the form of a loan scheme, project development support (technical and financial) and learning opportunities on gender and CDM.
4. Empowering women in adaptation and mitigation technologies of climate change as well as the initiative to sensitize and create more awareness around local communities.
5. Building on and strengthening women's experiences, knowledge and coping capacities in adaptation policies, and ensuring that women's needs are considered in livelihood adaptation strategies. This should include the provision of training to women's organizations, networks and support groups as well as opportunities to share experiences.

5.0 CONCLUSION

As the UN Secretary-General Ban Ki-moon put it "*women are the major agents for progress in climate change"*. Their knowledge and capacities are crucial for mitigation and adaptation measures since women have specific skills in making sustainable use of resources and in coping with crisis situation. It is clear that women who form a large majority of the poor and vulnerable will be disproportionately affected by the impacts of climate change. It is therefore very important that all concerned, adopt an approach to climate change that actively involve women in all their decisions and actions without delay. Women should be empowered with the information, knowledge, skills, rights, and financial resources to enable them make a change. Women's social and professional networking in the field of climate change is also important. Women in developing countries should interact and network with women groups, non-governmental organisations, and civil rights group in the developed world in order to enhance their capacities and to be more effective in their actions.

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