



Approaches to economic empowerment of rural women for climate change mitigation and adaptation: Implications for policy

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ABSTRACT

Rural women's economic empowerment can be promoted in several ways in order to counteract climate change. The potential of rural women as agents of change for climate mitigation and adaptation remains untapped. Rural women's extensive theoretical and practical knowledge of the environment and resource conservation is not given due consideration. In terms of economic participation, they are not paid for the environmental services that they already provide, for example, reforestation. In developing countries, for instance, women frequently play a major role in the reforestation and afforestation of cleared land and in forest conservation, yet they have hardly ever benefited from these environmental services. Enhancing the economic empowerment of rural women is a catalyst for development, which helps boost a country's economic growth, promotes the socio-economic development not only of women, but of the entire population, and helps reduce poverty. This paper addresses the economic empowerment of rural women for climate change mitigation and adaptation. Economic empowerment of women involves having access to quality education, organising training programmes to sensitise the rural women on the use of drought-resistant crop varieties, pests and diseases resistant crop varieties, crop diversification to guard against crop failure, use of energy-efficient cooking stoves, among others. The study recommends that measures to promote the economic participation of women can be integrated into climate mitigation and adaptation initiatives. In order for rural women to play an economic role in coping with challenges of climate change, appropriate measures should be put in place by the government at the national, state and local government levels by initiating economic empowerment programmes that will boost economic activities of rural women.

Review

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INTRODUCTION

Climate change effects vary among regions, generations, age, classes, income groups, occupations and gender. It is increasingly recognised that empowering rural women, children and other marginalised groups is beneficial not only as a policy in itself, but also as a means of

strengthening the effectiveness of climate change measures (UNDP, 2009). Women in rural areas in developing countries for example are the main producers of basic foods and have thus taken action to conserve soil and water through the use of compost manure for planting of crops such as vegetables. Various examples in different countries are provided where women's knowledge and activism have helped to control erosion, prevent flood damage, and improve access to water.

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Intergovernmental Panel on Climate Change (2001) reported that women groups in Kenya planted thousands of trees, an activity that will also provide poor rural women with a small income and some economic independence. Women's empowerment through this process will also capture 350,000 tons of carbon dioxide; restore soil lost to erosion; and support regular rainfall essential to Kenya's farmers and hydro-electric power plants. Anderson (2002) also noted that a drought in the small islands of the Federal States of Micronesia has made the women in the area to use the knowledge of island hydrology they had as a result of their land-based work to find potable water by digging a new well. Rural women should be included in decision-making in order to allow their knowledge to benefit entire communities. Knowledge of how women are affected by climate change is essential for their effective involvement in the climate change response and for harnessing their capacity for appropriate mitigating action.

Worldwide, women have less access than men to resources that would enhance the capacity to adapt to climate change in terms of land, credit, agricultural inputs, decision making bodies, technology and training services (WEDO, 2007). Majority of women working in the informal sector and small enterprises lack capital and access to credit and information and recovering from devastating effects of environmental disasters is nearly impossible (OECD, 2008).

In many countries, droughts, floods and deforestation increase work burdens for many women leaving them less time to earn income and get education or provide care to their families. Girls regularly drop out of school to help their mothers gather fuel wood and water. Extreme weather conditions and natural disasters also increase their exposure to infectious diseases such as cholera and HIV/AIDS (Klasen and Lamanna, 2008). Continued global warming will extend the areas affected by malaria. Conflicts driven by climate change and disasters can also increase women's vulnerability to violence (UNDP, 2007).

Rural women also function as change agents in community natural resource management, innovation, farming and care giving and hold the key to adaptation to climate change. Responsibilities in households, communities and as stewards of natural resources position them well to developing strategies for adapting to changing environmental realities.

Experience has shown that communities fare better during natural disaster when women play leadership roles in early warning systems and reconstruction. They tend to share information related to community well being, choose less polluting energy sources, and adapt more easily to environmental changes when their family's survival is at stake (WEDO, 2007).

According to the Food and Agriculture Organization (FAO) (2007), women and men adapt to agricultural practices naturally-varying climate conditions based on

their specific needs, knowledge and access to resources. An FAO study found that when gender differentiated knowledge is properly understood and addressed, interventions to strengthen livelihoods and food security are more effective and efficient (FAO, 2007).

In rural areas of many developing countries there is lack of energy services. This mainly affects women in their daily work in the home, since they are usually responsible for providing energy for the household, such as heating and cooking. Without access to convenient, affordable fuels, women may spend up to three hours a day gathering fire wood and other energy sources. Energy on the other hand may also be a starting point for income-generating activities (Mitchell et al., 2007). Probably the best-known example that combines renewable energy, jobs and skills training is the Grameen Shakti (GS) micro-loans initiative in Bangladesh. Grameen Shakti has helped to install more than 100,000 solar home systems in rural communities, creating employment opportunities while also empowering women and rural youths (IPCC, 2007).

Climate change produces new and different weather patterns and extreme weather events; and research findings support the view that women's economic insecurity increases more than men's in the aftermath of natural disasters (Enarson, 2000). Women also recover more slowly than men from economic losses due to damage to property and the loss of livelihood (Athen, 2009).

Food, water, health and energy are particularly affected by climate change. These areas happen to be the bases of women's livelihoods and fall within the purview of women's socio-economic responsibilities (IUCN, 2007). For instance, women are often in charge of growing and preparing food, gathering firewood for fuel, collecting water and caring for the sick in their families and communities, all of which tasks become more gruelling and time consuming with the increased occurrence of floods and droughts associated with climate change.

Moreover, women's lack of property rights and control over natural resources aggravated by limited access to information, education, credit and technologies translate to fewer means to deal with climate change. Adaptation measures related to anti-desertification, are often labour-intensive and women often face increasing expectations to contribute unpaid household and community labour to soil and water conservation efforts. Rural women often rely on a range of crop varieties (agro-biodiversity) to accommodate climatic variability, but permanent temperature change will reduce agro-biodiversity and traditional medicine options (Aguilar, 2004).

Additionally, women are consistently underrepresented in policy and decision-making processes about climate change at the local, national and global levels (Brody et al., 2008; IUCN, 2007). This is a matter of concern not only because women comprise one of the most

vulnerable groups of people, but also because women play a pivotal role in mitigating and adapting to climate change. As heads of households, active community leaders and members, and stewards of natural resources, women can and have offered different perspectives and resources in responding to climate change challenges. Case studies suggest that women have a better understanding of the causes and consequences of climate change and have the knowledge and skills to mitigate and adapt to changing weather conditions (O'Connor et al., 1998; Röhr, 2007). For all of these reasons, financing policies for climate change mitigation and adaptation must explicitly consider as well as respond to the different experiences and needs of women, especially those women who are on the socio-economic margins of society.

The protection of livelihoods and sources of sustenance among rural women are paramount, entailing adaptation measures that build in climate resilience in agriculture and fishery, ensure people's access to potable water and other necessities, and provide social insurance and protection, among others. Adapting and mitigating climate change will entail a transition to new patterns of production, consumption and employment. Huge opportunities exist to create jobs through energy and industrialization policies that reduce the environmental footprint. These jobs can provide decent work and incomes that will contribute to sustainable economic growth and help lift people out of poverty. Women with their unique knowledge and capabilities of natural resource management and use of energy sources are strong change agents and key contributors to climate change mitigation and adaptation programmes at local, regional and international levels (ILO, 2008).

The economic empowerment of women for climate mitigation and adaptation fosters economic growth and socioeconomic development, reduces poverty, keeps environmental problems in check and increases the potential for adaptation which is to the benefit of both women and men (Bäthge, 2010).

The paper was designed to review approaches to economic empowerment of rural women for climate change adaptation and mitigation. Specific objectives were to:

1. Identify adaptation measures of climate change among rural women;
2. Identify mitigation measures of climate change among rural women; and
3. Ascertain ways of strengthening economic empowerment of rural women in order to mitigate and adapt to climate change.

The paper is an opinion paper and it relied mostly on secondary data from current literature and observations on climate change.

ADAPTATION MEASURES OF CLIMATE CHANGE AMONG RURAL WOMEN

Areas in which women are traditionally engaged and which are closely tied to the availability of natural resources (for example food security, domestic energy and water) will be hit particularly by the consequences of climate change (WEDO, 2008) and require greater adaptation. With regard to climate adaptation, it should be noted that women often do not have much say in decisions taken by the family or the community and are therefore unable to diversify cultivation (Rodenberg, 2009). Furthermore, it is usually women who are responsible for collecting water and fuel (for example, firewood) for the household. The scarcity of these resources induced by climate change increases a woman's workload and time poverty, burdened as she already is by the many roles she has to play. She is consequently left with no time for income-generating activities, education, training or participation in community decision making processes. In overall terms, climate change intensifies the existing economic and social gender disparities (Rodenberg, 2009).

Apart from the differential vulnerability, the sexes also play different roles in dealing with climate change. It is generally recognised that women are major actors in mitigation and adaptation measures [IUCN, 2007; Rodenberg, 2009; UNDP, 2009; United Nations Population Fund (UNFPA)/WEDO, 2009] and their role in adaptation measures in developing countries is often highlighted [IUCN/UNDP/Global Gender and Climate Change Alliance (GGCA), 2009]. In many areas, women are already adapting to the fallout of climate change and are fully aware of where their own needs and those of their families lie. According to WEDO (2007), greater decision-making powers for women at the family and community level with regards to agricultural cultivation and the farming of new and more resistant crops could increase agricultural production, leading to greater food security, production and marketing of surpluses, and ultimately increasing income.

In order to effect comprehensive adaptation to changing climatic conditions, a number of measures in vastly different sectors and at different levels are needed (Athen, 2009). In concrete terms, the adaptation measures required with reference to climate change, gender, and the advancement of women's economic empowerment should specifically enable women to secure or expand their livelihood options. In the context of agricultural production, in which most of the women work to ensure food security for the family (IUCN/UNDP/GGCA, 2009), this refers primarily to the use of cultivation and irrigation methods that allow for crop security even in the case of natural resource depletion or unforeseen weather events. In irrigation, it is important to adapt type, time, and use (IUCN/UNDP/

GGCA, 2009). Ideally, one can switch from traditional irrigation methods to efficient and modern irrigation systems. As regards cultivation methods, it is advisable to select crops that can flourish despite floods or heat waves or those with a short growth cycle which can be harvested before the flooding season or can be planted during the (short) rainy season. Moreover, it would be possible to grow different crops on one and the same field in order to optimise the use of soil and irrigation and perhaps to counter the onset of erosion. Locally produced organic fertiliser could also be used that would not only fertilise the soil, but would also prevent disease or ensure crop survival in times of drought, for example early maturing cowpea and sorghum. These adaptation measures could actually increase production and with the existing resources, the highest possible yields could be attained.

However, complementary training and agricultural extension services are required to teach women about economic use of scarce resources, processing and marketing methods for agricultural products. The latter includes converting raw materials into derivatives (value addition) for example, processing cassava into chips, starch, flour, gari and so forth that usually fetch higher prices and reduce dependence on raw material prices (Bathge, 2010).

MITIGATION MEASURES OF CLIMATE CHANGE AMONG RURAL WOMEN

The role of women in mitigation measures should not be under-estimated. Developing countries have the potential to reduce or store greenhouse gases, particularly in areas in which women are already active. Thus providing energy for the household is usually a woman's job and she often resorts to the energy-inefficient open burning of biomass, for example, firewood. The use of efficient energy systems at the household level (for example, special cooking stoves and ovens) could reduce emissions and harness the potential of women as actors for mitigation measures (IUCN/UNDP/GGCA, 2009). Rural women worldwide are also involved in natural resource and forest conservation. The forests supply women with vital products and are used not just to gather firewood, but also to obtain other raw materials, food or medicinal plants to provide for their families and to boost their income (IUCN/UNDP/GGCA, 2009).

The conservation and care of forests coupled with reforestation and afforestation for which women are responsible helps to avoid the emissions caused by deforestation and leads to greater sequestration of greenhouse gases from the atmosphere. Rural women therefore contribute directly to climate mitigation. Given their significant roles in mitigation and adaptation efforts, it is imperative that women be involved in the relevant

measures of climate change mitigation (Aguilar, 2004).

WAYS OF STRENGTHENING ECONOMIC EMPOWERMENT OF RURAL WOMEN FOR CLIMATE CHANGE ADAPTATION AND MITIGATION

Access to education, training and upgrading

In the context of climate, measures designed for training and continuing education could be particularly significant in the following areas:

- Awareness of the causes and consequences of climate change in order to sensitise rural women on the dangers of climate change and to the possible requirements/mechanisms of adaptation. This can be achieved through the use of extension agents and mass media to create awareness on the dangers of climate change.
- Awareness of existing mitigation and adaptation programmes in which rural women can be involved and from which they can benefit.
- Training programmes on adaptation measures with a special focus on the needs of rural women. Example are, growing of drought-resistant crop varieties, use of pests and diseases resistant crop varieties, crop diversification, afforestation and reforestation.
- Training programmes on the use of new technologies example, means of agricultural production, energy-efficient cooking stoves and ovens, renewable energy systems, information and communication technologies.
- Awareness of existing rights and laying claim to these rights in different spheres of life, example, land ownership or land use rights, ownership rights for means of production.

Access to and control over productive resources (access to land and ownership rights)

This is important because it will help them to:

- Own land and be able to use it according to one's own needs and wishes in order to be active in climate mitigation and adaptation.
- Procure, own and be able to use means of production, particularly new technologies, and the related technical know-how.
- Obtain, own, and be able to deploy financial capital for one's own undertakings in order to have investments available for the adoption or development of climate-related work.

Access to services

- To have access to medical care and child-care services

in order to ease the burden on women, reduce time poverty and gain more time for income-generating activities.

- To have access to agricultural extension services required, for example, to expand agricultural production or nature and resource conservation work.
- To be able to formalise one's own enterprise this involves neither a great deal of time nor money.

Access to markets (land, labour, financial and product markets)

In this context implies:

- To be able to acquire additional land or sell it.
- To be able to use one's own labour in the formal and informal labour markets, to have access to loans and funds and, in the context of climate, access to international climate finance mechanisms, for example, climate funds.
- To be able to access product markets to sell one's own products and have access to the information required about market prices and trading options (WEDO, 2008).

ACTIONS TO PROMOTE CLIMATE CHANGE ADAPTATION AND MITIGATION AMONG RURAL WOMEN

- Tapping into the vast knowledge and natural resource management abilities of rural women when devising adaptation and mitigation policies and initiatives for climate change.
- Mainstreaming gender perspectives into international and national policies.
- Ensuring that women and men participate in decision and policy-making processes.
- Promoting participatory approaches in local and community planning activities.
- Creating opportunities at the national and local level to educate and train rural women on climate change.
- Stimulate capacity building and technology transfer and assigning specific resources to secure rural women's equal participation in the benefits and opportunities of mitigation and adaptation measures.
- Gathering new sex-disaggregated data and gender analysis in key sectors such as agriculture, forestry, energy and water usage to further understand how climate change impacts on women's lives (ILO, 1998).

CONCLUSION AND RECOMMENDATIONS

The combination of climate change and the economic empowerment of women create an opportunity for both

fields to create mutual synergy on the path to poverty reduction and development. Any response to climate change should be mainstreamed into national, state and local development strategies. Both adaptation and mitigation policies will need to include strategies for enhanced social protection, enterprise development and employment generation among rural women.

Identification and implementation of programmes to support education and training initiatives that will facilitate the development of the skills necessary for creation of employment among rural women who are vulnerable to climate change remains paramount. If women are to be empowered to take strategic decisions, it is advisable to supplement the measures at the target group level with long-term structural approaches. However, an integrated approach involving institutional and political measures at national, state and local government councils are required to create the basic structural conditions necessary for sustainable economic empowerment of rural women for climate change adaptation and mitigation. Efforts are also needed by national extension agencies (for example, ADPs) and non-governmental organisations in ensuring that rural women participate in decision making process that will promote human capacity building to cushion the effects of climate change that will in turn necessitate rural development.

REFERENCES

- Aguilar L. (2004). Fact sheet on: Climate change and disaster mitigation. Costa Rica. IUCN.
- Anderson C. (2002). Gender matters: Implications for climate variability and climate change and for disaster management in the Pacific Islands. Intercoast Newsletter, University of Rhode Islands Coastal Resource Center.
- Athen P. (2009). Financing for climate change mitigation and adaptation in the Philippines: A pro-poor and gender-sensitive perspective. Reality Check pp 1-14.
- Bäthge S. (2010). Climate change and gender: economic empowerment of women through climate mitigation and adaptation. Working Paper, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH Germany, pp. 1-22.
- Brody A., Demetriades J. & Espen E. (2008). Gender and climate change: Mapping the linkages, BRIDGE-Institute of Development Studies: Sussex, retrieved from http://www.bridge.ids.ac.uk/reports/Climate_Change_DFID_draft.pdf.
- Enarson E. (2000). Gender issues in natural disasters: Talking points and research needs in focus programme on crisis response and reconstruction workshop, ILO: Geneva.
- Food and Agriculture Organisation (FAO) (2007). People-centred climate change adaptation: Integrating gender issues, policy brief, Rome.
- Intergovernmental Panel on Climate Change (IPCC) (2001). Summary for policy makers. Climate Change 2001: Impacts, Adaptation, and Vulnerability. Report of Working Group II of the IPCC. <http://www.ipcc.ch>.
- Intergovernmental Panel on Climate Change (IPCC) (2007). Climate Change 2007: Mitigation of climate change, IPCC: Bangkok.
- International Labour Organization (ILO) (2008). Report of the committee on employment and social policy, employment and labour market implications of climate change, fourth item on the agenda, governing body, 30th session Geneva, p. 2.

- International Union for Conservation of Nature (2007). Gender aspects of climate change, briefing paper, retrieved from http://www.iucn.org/en/news/archive/2007/03/7_gender_climate_change.pdf.
- International Union for Conservation of Nature (IUCN/UNDP/GGCA) (2009). Training Manual on Gender Climate Change <http://data.iucn.org/dbtw-wpd/edocs/2009-012.pdf>.
- Klasen S. & Lamanna F. (2008). The impact of gender inequality in education and employment on economic growth in developing countries: Updates and extensions <<http://ideas.repec.org/p/got/iaidps/175.html>.
- Mitchell T., Tanner T. & Lussier K. (2007). We know what we need: South Asian Women Speak Out on Climate Change Adaptation, Action Aid: London, retrieved from http://www.actionaid.org/assets/pdf/ActionAid%20%20IDS%20Report%20_We%20know%20what%20we%20need.pdf.
- O'Connor R. E., Bord R. J. & Fisher A. (1998). The curious impact of knowledge about climate change risk perceptions and willingness to sacrifice, *Risk Decision and Policy* 3:145-155.
- Organization for Economic Cooperation and Development (OECD) (2008). Gender and sustainable development, maximizing the economic, social and environmental role of women (Paris), pp. 73-74.
- Rodenberg B. (2009). Climate change adaptation from a gender perspective. German Development Institute Es sind die Machtverhältnisse, die Frauen für den Klimawandel verwundbarer machen, Böll THEMA, Heft 2/2009, p. 14 <http://www.boell.de/downloads/publikationen/BoellThema_2.2009_abReader7kommentierbar.pdf (Retrieved on 07.01.2011).
- Röhr U. (2007). Gender, climate change and adaptation: Introduction to gender dimensions, retrieved from http://www.bothends.org/service/casestudy_genanet.pdf.
- United Nations Development Programme (UNDP) (2007). Human Development Report 2007/2008, Fighting Climate Change: Human solidarity in a divided world (New York), pp. 81-82.
- United Nations Development Programme (UNDP) (2009). Resource guide on gender and climate change <http://content.undp.org/go/cmsservice/download/asset/>.
- United Nations Population Fund (UNFPA/WEDO) (2009). Climate change connections. gender and population <http://www.wedo.org/category/act/climate-change-toolkit>.
- Women's Environment and Development Organization (WEDO) (2007). Changing the climate: Why women's perspectives matter, New York, p. 3.
- Women's Environment and Development Organization (WEDO/ABANTU) for Development/Action Aid/ENDA (2008). Gender, climate change and human security: Lessons from Bangladesh, Ghana and Senegal. <http://www.wedo.org/wp-content/uploads/hsn-study-final-may-20-2008.pdf>.