

Gender And Climate Change

“Women Matter”



Dr. Farzana Shahid

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Foreword

Achieving gender equality means that men and women are equally sharing the distribution of power, knowledge, opportunities, rights and obligations, both in their private and public lives. Gender equality is a commonly shared value and a necessary condition for the achievement of internationally agreed Millennium Development Goals (MDGs).

Women and men experience the effects and impacts of climate change differently due to their different roles and responsibilities, where women are expected to be more vulnerable. But at the same time women have a very specialized and particular knowledge/skills to contribute in climate change solutions as a mitigation strategy. Therefore in the context of climate change, gender justice is critical to mitigate those impacts that are anticipated to be occurring in future.

Climate change is one of the greatest development challenges of our time that requires an immediate attention, as it is already having discernable, and indeed worsening, effects on communities (IPCC, 2007),

In this context, this report highlights overall status, challenges and contribution of women in the face of changing climate. It recommends that a successful climate change adaptation will require an acknowledgment of the gender dimensions of climate change throughout implementation design of climate change strategies and national development plans. In particular, it is important to begin assessing the gendered implications of climate change and take necessary actions at the initial design, instead waiting till the time disaster hit badly.

Acknowledgment

The study on 'Gender and Climate change' “ Women Matter” has been written to present at the international conference on “Scientists for Sustainability” organized by Lok Sanjh Foundation (a national level NGO in Pakistan), Islamabad in April 2015.

With available literature and knowledge, the author is pleased to present an analysis on the subject issue to share it for policy implications and development of potential gender-responsive climate change strategies. It is expected that this report will stimulate an intellectual discussions among the development practitioners and will support the policy debates to promote equitable and gender-sensitive adaptation to climate change. This will further suggest a useful insight to strengthen future research and interventions on gender and climate change.

For a case study of Lok Sanjh foundation, i respectfully acknowledge the efforts of the organization in supporting rural communities to strengthen their capacities to integrate gender perspectives into implementation of climate change strategies and national development plans. This action of the organization is very much in line with Millennium Development Goal 3 – to promot gender equality and the empowerment of women.

I also gratefully acknowledge that my discussion with the rural women made a significant part of this study by recording their comments and vision on the subject issue.

It is further acknowledged that rural women are an important actors of development change, custodian of traditional wisdom, knowledge and skills related to climate change mitigation, adaptation and risk reduction strategies, which undeniably makes them crucial actors in the whole development process.

In Solidarity

Dr. Farazana Shahid

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Abstract

GENDER AND CLIMATE CHANGE

"WOMEN MATTER"

A growing lack of productive land and resources due to the climate change is resulting in food insecurity and unavailability of clean water. These impacts have a critical gender dimension as it may contribute to increase in poverty and hunger, particularly among the most marginalized groups.

Generally for women and girls in this world, there are less development possibilities, opportunities and certainties as compared to that of men. It has been witnessed over time that changes in biodiversity; environment and climate have an increasing effect on such gender inequalities. But on the other hand, if provided with balanced opportunities, women may prove to be a powerful agent of change on the way to a sustainable and just society.

In this context this paper seeks to draw attention of the policy makers and environmentalists to the gender dimension of climate change and the need to integrate gender issues in climate change responses with particular emphasis on women's concerns. The effort further explores that why gender is an important factor in climate change debates and in its adaptation process.

The study is extensively based on existing literature on gender issues related to impacts of climate change on agriculture and particularly on the farming communities. It identifies the key linkages between climate change and gender inequality in access to production and productive resources. It also identifies the gaps in the existing research related to women's role and responsibilities in the face of changing climate and the causes of women's vulnerabilities and the suggestions to reduce their marginalization and discrimination. It further highlights the need to invest in rural women as a critical reality to empower them to play a stronger role in the development process.

The report consists of five parts as following,

1. It starts with an overview of gender aspects in climate change and a description of the impacts of climate change on women's lives. How these gender aspects and women's needs are taken into account in climate change debates, what is needed to implement gender mainstreaming in adaptation programs and measures.
2. In the part two a list of gender dimensions have been discussed that need to be focussed in planning and implementation of gender specific strategies in adapting to climate change. The suggested measures are based on the data (very limited) currently available on gender and climate change.
3. A wayforward by setting up cases study as a successful model.
4. This part summarises the conclusions and recommendations based on the findings of the study.
5. A power point presentation that highlites the local regional and global facts and figures to acknowledge rural women s' economic contributions and suggested measures.

PART ONE

Introduction



Introduction

Throughout the world, agriculture is at the nexus of achieving food security and to use climate efficient resources such as water, energy and land. Yet countries and regions vary in their vulnerability (Male, Female) to climate change and the opportunities to combat the impacts.

The gradual variability in climate and ecological degradation is a continuous threat to rural livelihoods of the most deprived groups at grass root levels, where exposure is high and adaptive capacity is low. The climate change impacts are different among regions, generations, classes, income groups, occupations and genders (IPCC, 2001). The Poor and marginalized groups have a limited ability to cope with these challenges, particularly women as compared to that of men in developing countries. This is because women are more exposed to climate-related hazards that further exacerbates the situation and challenges ranging from flooded crops to major disasters. Women s' reliance on local resources, with stress on health, livelihood, finances, institutional and human resources leave them most vulnerable and least able to adapt to the impacts of climate change. More daunting is the fact that women are always excluded from decisions making processes related to the use and management of natural resources leaving them the helpless victims.

The rural women usually have lower income and capacity to adapt or mitigate the impacts that may create a vicious circle of poverty. The situation may endanger the food security at a massive level especially for the small farming communities, if the development efforts do not succeed in combating it. Where as adapting to climate change at grass level can improve in poverty reduction, agriculture production, food security and water management.

The most poor and marginalized groups usually depend on climate-sensitive livelihoods i-e agriculture with lack of resources, which make them more vulnerable to climate change. Then transition

from traditional agriculture to the modern one has constrained small farmers to cope with rising prices of fertilisers, irrigation pumps and supply of seed (Doyle, 2007) that has been the major cause of biodiversity loss and food security at grass root level. There is evidence that climate change is exacerbating the pre-existing gender inequalities in access and control over resources, therefore understanding the gender dimensions of climate change is a prerequisite as a matter of justice to women and to include them in climate change related decisions for gender equality benefits.

Industrial agriculture also remained critical in emission of green house gases and food insecurity. For example, the extensive use of chemical fertilisers, pesticides, expansion of the meat industry and desforestation to expand timber commodities are together responsible for about one third of the greenhouse gases emission that are causing global climate change and the victims of which are mostly women. This is added with the extraordinary amount of fossil-fuel energy used to transport commodities, processing, freezing, packaging and distribution to the supermarkets.

The rural women do most of the agricultural operations but unfortunately, neither their work is recognized in the national statistics nor any technology is developed to ease out their domestic and farm work. Rather, new technologies have displaced rural women from their traditional roles and further exacerbate their economic conditions (Farzana Shahid, 2005). This has put drastic impact on the farming systems and household food security in the face of climate change.

Further to the discussions, climate risks are more affecting the areas that women are typically responsible for (household water, energy resources, health, subsistence farming, kitchen gardening and crops/livestock interface. In absence of male members, women take the responsibility to manage income, feed the family with cheapest and low nutritious food or food that takes less cooking time, less energy use, less expenditures, limit the use of resources, take children out of school and sell assets but also these

tasks are becoming more difficult with increase in climate change impacts. Then their difficulty to access finances and technology, further constraint their role in climate change adaptation. Therefore there is a need to understand the realistic evidence on women's roles in agriculture and their problems in the face of changing climate.

1.1 Problem Statement

With the climate change impact, weather patterns are getting unpredictable and extreme events such as floods, heat waves and natural disasters have become more common and frequent. The poorest and marginalized groups in the global South who have least contributed to the problem; find their livelihoods most threatened with weakest voice and least influence on climate change policies. This give rise to the questions not only about injustice around the causes and consequences but of social injustice in terms of who has the power and resources to benefit from the policies to mitigate and adapt to existing impacts of climate change.

In many developing countries economic constraints and cultural norms restrict rural women's access to paid employment, which mean that their livelihoods are particularly dependent on subsistence agriculture. For example, restrictions to land ownership mean that they do not have access to productive land and financial capital, means that they are not able to diversify their livelihoods options.

The specific difficulties that women face are, due to the sexual division of labour, their dual role and unequal distribution of resources that stems out from their inferior status and no control over resources. Female-headed households usually have a fragile resource base with low reserves of labour, weak access to machinery and low role in decision-making process. Hence they are not able to understand the reasons of low crop production, change in sowing dates, new crop varieties, irrigation methods, weather forecast and extension services that further limits their capacity to

cope with changing weathers. But at the same time rural women have the traditional wisdom and skills to contribute to the climate change solution that unfortunately is still a untapped resource.

Therefore addressing gender issues in the face of climate change is critical to reduce hunger and poverty at national and regional levels. It is estimated that 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, 2011a). Therefore rural women must be included in the climate adaptation process if any development is to continue and if further impoverishment is to be avoided.

1.2 Situation Scrutiny

Impacts of climate change, such as drought, floods, extreme weather events, reduced food and water insecurity affect small farming communities with poorest being the most vulnerable, where 70 per cent of the world's poor are women. The change may deepen existing gender inequalities in status and rights of women in access to productive resources and participation in decision-making processes.

This means that women specific interventions need to be transformed at farm level that in turn should ensure the efficient use of natural resources, biological processes, recycle waste, residues and create integrated/ diversified farming practice. This kind of integration would greatly reduce the pressure on the natural resources and minimise the need for external inputs (energy, chemical fertilisers and pesticides). The process may reverse natural resource degradation, safeguard agricultural productivity and maintain ecosystem services (water, pests, disease control, and climate regulation).

Hence a return to sustainable ecological agriculture is one of the solutions where small farmers especially the women farmers can be intensively and extensively engaged in some innovative work. This may help to mitigate a large part of the present crisis, as the soils

still contain enormous amounts of carbon mostly in the form of organic matter, because the rise of industrial and chemical agriculture has provoked a huge depletion of organic matter that has ended up in the atmosphere in the form of carbon dioxide and through ecological farming practices, it would be possible to recapture this carbon dioxide by a wholesale return. It may be too late to cover the widespread environmental damage but such a strategy could offer the farming communities a way out of the crisis and to maintain the household food security.

The strategies need a lot of awareness and advocacy campaigns to be run at local, national and regional level. In addition there is need to enhance the skills and capacities of the rural women to deal with climate change effects, so they could efficiently and effectively manage and use natural resources in a sustainable way to make their families food secure.

2. Research Methodology

This is a descriptive research, based on existing literature on gender issues related to climate change impacts on gender in agriculture sector only. The effort synthesizes the ongoing gender advocacy and dialogue to fill in the knowledge gaps between gender policies and implementation process. This also seeks to draw attention to the gender dimension of climate change and its need to integrate in the climate mitigation processes with particular emphasis on women's concerns. Library data has been reviewed largely by using a range of information and sources including academic and student researches, bibliographies, database, and Internet search.

2.1 Organization of the report

Report is divided in to five parts.

1. It starts with an overview of gender aspects in climate change and a description of the impacts of climate change on women's lives. How these gender aspects and women's

needs are taken into account in climate change debates, what is needed to implement gender mainstreaming in adaptation programmes and measures.

2. In the part two a list of gender dimensions have been discussed that need to be focussed in planning and implementation of gender specific strategies in adapting to climate change. The suggested measures are based on the data (very limited) currently available on gender and climate change.
3. This part summarises the conclusions and recommendations based on the findings of the study.
4. A power point presentation that highlites the local regional and global facts and figures to acknowledge rural women s' economic contributions and suggested measures.
5. A wayforward by setting up cases study as a successful model.

3. Objective

1. To identify specific gender-based inequities and understand women's roles as key agents in climate change responses.
2. To acknowledge women's rights, to information, knowledge, skills, resources and participation in decision-making from local to regional level In the context of climate change.
3. To identify possible resolutions that support gender equality in climate change adaptation and mitigation processes.

4. Literature Review

Gender issues have been raised in a wide range of summits and conferences and most of the examined literature agrees on the fact that the gender variable should be taken into due account by considering their different mitigative and adaptive capacity to climate change. For example the World Summit on Sustainable Development (2002, in Johannesburg), promotes women's equal participation in decision making policies and implementation strategies.

During the 1992, Rio Earth Summit (United Nations Conference on Environment, climate change and Development (UNCED), has identified the desertification and the loss of biodiversity as the biggest challenge to women farmers to maintain their livelihood. These impacts have a gender dimension that may increase poverty and hunger among the most vulnerable and marginalized groups.

The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), has highlighted the gender dimension of climate change and justifies the need to involve women in climate change policies and actions (Oxfam, 2008).

Beijing +10 focusses on Member States to enhance rural women's income-generating potential in agricultural sector, particularly of developing countries.

The three Rio Conventions concludes that more intense will be climate change efect, the greater will be the impact on women with loss of plant, animal species and vegetation.

The Convention on Biological Diversity (CBD), encourages the national legislation on effective protection and use of local knowledge by rural women related to traditional medication, biodiversity, local technologies and their wider application.

Studies show that 70 percent of the poor, who are more vulnerable to environmental damage, are women, as they die in greater numbers in disasters than men. Furthermore, the condition of women surviving from disaster could be no better as they still have to stay at shelters with problems of sexual harassment, discrimination and violence.

The recent interest in ecological agriculture techniques has brought forward both strong proponents and opponents. Critics argue that ecological agriculture results in smaller yields and takes more land to produce the same amount of food. Some reports show that residues from animal manure are potentially more dangerous to health than synthetic chemical residues.

To its supporter, it is the only one agri-business option for small holders that cannot be monopolised. It can be adopted anywhere by anyone without the help of multinational companies. Though it is more productive to grow several varieties of crops in one field but biotech companies are reducing diversity in order to make money and leaving farmers with no choice but to pay high cost for their most profitable seeds” (Monbiot, 2000). So the development process has contributed to the growth of poverty by increasing the gender economic inequalities and environmental degradation, which further limits the livelihood means for the poor and particularly the women.

Therefore the moderanization of agriculture leave women producers worse off. As the cash crops are always produced on the best lands, while women are allocated the small and poorer lands to produce the food for family consumption with more intensive labour, Acharya, M. and L. Bennett. 1982.

Despite women s' potential roles as manager of agriculture, natural resources and traditional wisdom, still they are marginalized in the development process and decision-making regarding farm and family livelihood, (Appleton, S. 1996).

Research shows that the frequency and intensity of floods,

earthquakes and hurricanes may increase in the context of climate change, having tripled since the 1960s, and over 60,000 deaths happening each year, mainly in developing countries (IPCC 2007). Since 1975, disasters have claimed the lives of more than 2.2 million people, with climate-related storms, floods, droughts, heat waves and other weather-related phenomena responsible for two-thirds of the fatalities and economic losses from disasters .

5a. Climate change, a Gender issue

Women are particularly vulnerable and more prone to the adverse impacts of climate change due to their limited adaptive capacities that arise from prevailing cultural inequalities and ascribed socio-economic roles. Further, changes in the climate usually impact the sectors that are traditionally associated with women, which mean increased hardship for women. For example, in extreme events more women deaths are observed due to lack of strength to withstand physically during storms, floods and typhoons etc. Thus, women are faced by a situation where their adaptation ability is low and the impact of climate change is most crucial to their living conditions.

5a.1 Gender, Climate Change and Social Status

Men and women are conceptually divided into two separate worlds. Home is defined as women's legitimate ideological and physical place, while a man dominates the world outside the home. In the given social context both at the regional and global level, women lack social value as producers and providers of family livelihood. The preference for sons dictates the allocation of household resources in the favor of men and for most of the time, women themselves surrender their rights in favour of their brothers and husbands that further limit their economic roles and responsibilities

Climate change has direct effects on sensitive sectors such as water, agriculture or food security and indirect impacts on social sectors such as education and employment, where . existing gender

inequalities may further exacerbate due to socially embedded inequalities. For example, women's lack of property and land rights means that they have to work on less productive land and their exclusion from agricultural trainings or inputs constrained them to diversify their livelihoods. This may lower their status and resilience to climate-related shocks,(FAO,2011) but increase the risk to exposure.

Then water, energy and food shortages resulting from climate change may intensify women s time-consuming domestic roles and limit their time to engage in productive activities that again results in their lower social status.

Women's lack of entitlement to productive resources, including land, livestock, agricultural tools and credit make them more vulnerable to food sources as girls are more affected by food shortages than boys, which in turn is strongly correlated with more death among girls than boys (Stern 2007).

5a.2 Gender, Climate Change and Settlement

The poor women are always located in places that are vulnerable to disaster risks like in urban areas they live in slums/shanty towns, while in rural areas, they live on hillsides and river embankments which are prone to soil erosion and effecting their source of livelihood. Every year a great number of people are being displaced due to severe coastal weather events, droughts and agricultural disruption. That result in higher death rates for women as a direct link to their socio-economic status, behavioural restrictions and poor access to disaster information.

5a.3 Gender, Climate Change and Poverty

The link between gender, poverty and climate change is evident all over the world as a major cause in creating vulnerability. Out of 1.3 billion people living in poverty, 70 percent are women (ADB, 2000). "Poverty in the world has a "woman's face."With considerable

disparities in distribution of food and resources among male and female, the incidence of chronic malnutrition is higher among female children. Women's access is extremely limited in education, health, and other social services due to patriarchal control and cultural restrictions to their mobility (ADB, 2000), that further affects their roles and responsibilities to cope with any disaster.

Both poverty and economic insecurity has gender implications for climate change mitigation and adaptation. Therefore due to the high level of poverty, low status in the labour force, extensive work in informal sector, lack of land rights and loaded domestic responsibilities, it has decreased both the adaptive and mitigative capacity of women with changing climate.

5a.4 Gender, Climate Change and Resource Disparity

Women have less access to productive resources as compared to men like, no access to land, finances and credit that impeded their ability to participate in local economies, value chains, decision making and capacity to respond disasters in time,(FAO, 2007). The failure to value their work limits women's bargaining power in economic transactions, allocation of household resources and wider community decision-making in the face of climate change.

5a.5 Gender, Climate Change and Energy Access

In many poorest areas of developing countries, energy mostly comes from traditional biomass fuels such as wood, charcoal and agricultural wastes, which is mainly the women s' area of specialization around cooking and maintaining household, means women are the primary users of household energy. They are, therefore, adversely affected, while gathering fuel or using traditional wood-burning stoves. In rural Pakistan, for example, women spend between six to seven hours a day in collecting fuel for cooking and carry 20kg of fuel wood each day with a distance of 5km on average (IEA WEO 2002).

The renewable energy is often cited as a key climate change

mitigation technology but it is still a critical development area for women. This is because the energy is usually taken as a term of electricity to operate appliances and equipment with no special role by women. This goes with unrecognition of women's roles in energy sector leading to 'gender-blind' policies and results in gender discrimination in designing key strategies to mitigate climate change impacts.

Gender inequalities in access to education, information and healthcare resources mean that women and girls are more exposed to problems, whereas in societies where women and men have a higher education, they have more options in the development processes.

5a.6 Gender, Climate Change and Water management

The inhabitants of dry lands face more frequent and long-lasting droughts as a result of changes in precipitation, melting of ice and glacier, thus affecting the levels of rivers and lakes, which also means shrinking water resources and expanding women's tasks. This is because women are largely responsible for water collection in their communities and are more affected when its accessibility is limited during floods or drought.

As water sources are decreasing every day that pushing women and girls to walk longer distances to fetch water, which exposes them to the risk of harassment and sexual assault. This is particularly acute in areas of conflict, with many accounts of women and girls from refugee camps being attacked when searching for water (Brody, Demetriades 2008). The impacts of climate change on water are now clearly recognised and acknowledged by the scientific community, with the IPCC stating that there is a high probability of increasing variability and intensity of rainfall, as well as the likelihood of both floods and droughts (Bates, Kundzewicz 2008). With changing rainfall patterns and an increasing risk of water-related disasters, not only the crop production and food security will be affected, but there will also be less availability of clean water to meet people's basic needs. There are currently 900 million

people worldwide without access to clean water and over 2.6 billion who lack access to basic sanitation, a large proportion of which are women and girls.

The particular concern are water-borne diseases as the frequency and intensity of floods increases, more freshwater supplies will be contaminated and the incidence of water-borne diseases may rise due to the fact that mosquitoes and other insects find more breeding grounds (WHO, 2010). Research by WHO shows that as much as 80 per cent of all illness is due to unsafe water that results in cholera, diarrhoea, malnutrition, malaria and dengue, all of which are highly climate-sensitive and are expected to worsen the health of women and children first, (UNDP, 2009).

5a.7 Gender, Climate Change and Access to Learning

Discrimination in girls' access to education persists in developing countries due to social attitudes, cultural norms, early marriages, pregnancies, gender-biased educational materials and lack of adequate schooling facilities. The situation widens the economic and decision-making gender disparities that eventually affect the coping capacities with disasters.

Also women and girls are expected to manage both with educational and domestic responsibilities that often result in their poor performance and early dropout from the schools, where as women literacy is an important key to improve their coping capacity to climate change and role in decision-making process.

5a.8 Gender, Climate Change and family Well-Being

Women's lower socio-economic, and cultural standing results in the low health status of women. Their economic dependence on men, and restrictions on their mobility determine the differential access of males and females to health services. Early marriages of girls, excessive childbearing, lack of control over their own bodies, and a food with low nutrition adversely affect women's health and

well being. Institutional gender biases in health services like female service providers, and neglect of women's basic and reproductive health needs further intensify women's poor health status (ADB, 2000). Similarly, strong gender disparities exist in health facilities between rural and urban areas.

Due to changing weather the rural families are getting more prone to disease break out such as water borne and parasitic diseases. The infectious diseases like cholera, malaria, and dengue fever has increased over the last decade due to intense heatwaves, floods, storms, fires and droughts. This is adding to women s workloads and responsibilities as a primary care patrons of the family where women mainly provide family care, mostly through family obligations, that is unpaid and free always.. And during disasters, when male members migrate in search of livelihood opportunities, women are left to bear with the tripple burdens (domestic, care of olders and climate disasters), hence are unable to manage with the climate crisis.

5b. Gender, Climate Change and Economic Recognition

Rural women play a key role in all the rural economies by contributing to the food security at national and regional level but their efforts are never recognizes in any of the statistics thus leave them the invisible contributors in the regional economy especially in the south part of the globe. Rural women do not own land and mostly are engaged as family labour that is always unpaid. They make substantial contributions to agricultural production in generating family income and providing labour for planting, weeding, harvesting, threshing, and the post harvest processes. They are responsible for maintaining the households, collecting fuel wood raising children, managing domestic poultry, manage water, grow vegetables, prepare food, manage livestock and care for family well-being but still men largely control and use the income from farms, livestock and other resources.

This economic dependency constraint women s' decision making

role which in turn comes due to lack of financial resources; literacy, education; information; work opportunities; domestic responsibilities, intimidation, harassment, violence, cultural/social attitudes, negative stereotypes perpetuated in the family and in public life (see Brody 2009).

5b.1 Gender, Climate Change and agriculture

Many studies find that agriculture and rural areas are becoming more “feminized” (Lastarria-Cornhiel, 2006). In all major regions of the world, by urban and rural, the average female share of the working age population (aged 15-49) is much more than men. Therefore women as a major contributor to the food production systems predominate in the agricultural sector but still have a little decision-making role over farm operations. For example men are responsible for irrigation and women are usually involved in labour-intensive subsistence agriculture. Men are generally vested with water rights and participate in all water related decision at field and canal level while women are the marginal stakeholders in this regard. Women manage their own farms, always seek help from men to mediate in ensuring water for their plots, and represent them in meetings. Thus irrigation water only serves men's business that further leads to a weaker resource base for women to face the changing climate.

5b.2 Gender, Climate Change and Biodiversity

It is estimated that temperature increase of 1°C makes species migrate up to 160 km away from the zones where they are supposed to be located, because seeds are dispersed and habitats changed. Ecologists have estimated that between 15–37% of natural species may be extinguished by 2050 as a result of climate and habitat change, (Thullier, 2007). For example, if present GHG emissions are maintained, then up to 60% of mountain plant species could be extinguished.

Women's responsibilities in relation to food, medicine, housing

material and livestock are dependant on natural resources with specific knowledge regarding, which species of plants and animals are edible, where they can be used for, how they should be prepared, where and when to find them. But due to the gender discrimination in women's access to knowledge, skills in managing natural resources and its related decisions are poorly addressed that effect their adaption process to climate change and particularly when biodiversity is destabilized.

5b.3 Gender, Climate Change and Desertification

Adverse impacts associated to natural disasters and environmental degradation affects the vulnerable populations, including women, children and the elderly, who have least access to essential and vital resources for recovery.

Climate change accelerates the loss of vegetation and forests due to increase in land erosion, decreased soil fertility, erratic or short rains and droughts. Decreased vegetation cover then further reduces the rainfall through increased evaporation. In this situation the rural communities are faced with conflicts over resources and are forced to migrate to cities, where they live in urban slums and the food producers themselves become the food consumers with no purchasing power, that results in 60% of food emergencies (GTZ and OSS, 2007). Women being on the family roles, are bound to stay near to their households therefore they are the first to face hardships related to desertification. This is because the land closest to the households becomes less productive in any of the disaster and any male migration in this case may put a further strain on women, who are left to manage with the roles traditionally handled by men, while they maintain their multiple existing roles as well. Also the Deforestation increases the workload of fuel collectors, who are usually the women.

5b.4 Gender, Climate Change and food security

It is estimated that by 2050 the world will need 40 per cent more food, 30 per cent more water and 50 per cent more energy. With climate change, rising temperatures and unpredictable rainfall, it is estimated that food production may decrease as much as 50 per cent by 2050 (IPCC2007). So there remains a serious challenge and major implications for gender equality, given that scarce resources are rarely equally distributed.

With changes in climate and production systems, the traditional food sources are becoming more unpredictable and creating food insecurity, resulting in malnutrition and health problem of farming communities, specially the women, children and infants. Women as producers and managers of household food security are responsible to maintain food consumption and family nutrition with climate change crisis and mounting food prices. However their efforts are impeded by limited access to resources and their multiple competing roles at the same time.

There are gender dimensions to malnutrition as women and children making up the larger proportion of malnourished people in the world, due to social and cultural norms regarding who is prioritised within the household. Evidence shows that pregnant women are particularly vulnerable to malnutrition leading to low maternal health and and higher risk of child mortality. Research has shown that, without adequate adaptation by 2050 there could be an additional 25 million malnourished children due to fall in crop yields and climate change.

Therefore, the lower status of females has a direct impact on their nutritional intake and food allocation at the household level. This is particularly evident in South Asian countries, where gender discrimination and unequal power relations within the household and society mean that women and girls frequently suffer from food insecurity, even in times when food is not scarce (Ramachandran 2006).

5b.5 Gender, Climate Change and livestock farming

The livestock sector accounts for a major share in agriculture and in total GDP of many developing countries but the sex-segregated data is not sufficient to support the evidence. Rural women play a major role in agricultural production, livestock raising, cottage industries and devote more time (7-8 hours) as compared to men (2-3 hours) to perform the livestock management tasks but unfortunately they never receive any training on professional livestock production or management techniques, (Maskhoor, 1995). As a result their low skills get critical to the management, production, health and survival of the animals. For instance, animals are more susceptible to diseases when they are housed in unhygienic and dirty sheds especially during any of the disaster.

Therefore impacts of frequent extreme weather events are resulting in more gender differentiation with changes in livestock production and associated effects of gender division of labour and income opportunities.

5b.6 Gender, Climate Change and Agricultural transformation

Economic development has and will continue to transform the agricultural sector in many developing countries. The process includes greater commercialization; urbanization and integration into the global economy that may bring more challenges and opportunities for gender and development.

Economic development and rising incomes have led to greater demand for high-value commodities, processed products, and pre-prepared foods. In turn, food supply chains become increasingly vertically integrated, linking input suppliers, producers, processors, distributors and retailers. Supermarkets are part of this vertical chain because they are convenient points, meet diversifying tastes and set standards for safe and quality foods.

Commercial value chains for high-value products such as fresh fruit,

markets. The growth of modern value chains and the broader structural transformation of the agricultural sector in many developing countries have major implications for women's employment that need to be assessed on priority basis. This will help to engage women in productive activities and secure their family livelihood in changing climate, (Maertens and Swinnen, 2009).

Smallholders are also trying to increase, commercialize, diversify and expand their production options where the basic employed labour is women. But they are facing a lot of pressure on health and safety standards set by large retailers and wholesalers.

5b.7 Gender, Climate Change and Technology Access

The word “technology” simply explains to mean a tool or machine that reflects the basic of everyday life and touches upon most aspects of gender dimensions. Most recently it has evolved as a concept that includes knowledge, processes, activities, soft and hard interventions in specific socio-cultural context. The adaptation methods to climate change involve the technologies like crop rotation, farming practices, application of traditional knowledge, irrigation methods and climate efficient crop varieties. In this context access of women to information and communication technology is constrained by socio-cultural biases, inadequate infrastructure and their illiteracy. Moreover no women specific technology is developed so far that further exacerbate their situation to cope with climate change challenges.

5b.8 Gender, Climate Change and Knowledge Access

Women account for 43% of the agricultural labor force in developing countries on average but only 5% of them receive training and advisory services, known as agricultural extension. This shows that almost there is no direct communication with women,

instead expected to reach them through male family. Agricultural extension systems often bypass women and the male members are not in habit to share information with women. This is because women are still not perceived as "real" farmers.

Therefore small women farmers are not aware about recent development in agriculture sector, hence do not have the required skills of picking, grading, packaging, storing, adding value to the harvests, control crop and livestock disease break out, measures to control insect/pests, and skills to cope with natural disasters that adds up to their miseries and handicap their roles in disaster management.

Though, there are strong indications that women are more vulnerable than men in the face of climate change and are more than just victims but still they are the key agents in adapting to and in mitigating climate change impact with their valuable traditional knowledge and practical experience over time (Mitchell, Tanner 2007).

However, women's meaningful participation in decision-making around climate change requires the presence of more women in climate change institutions and processes. It also requires attention to the deep-rooted social and cultural inequalities that can act as constraints to women's real inclusion and prevent them from participating equally in the development processes.

5b.9 Gender, Climate Change and Contract Farming

The introduction of modern supply chains is changing the whole process of food production and processing with important implications for rural women. For example export-oriented value chains can offer important employment opportunities for women but they are largely excluded from contracting with agro-industrial firms for the delivery of high-value produce.

Several studies reveals that – while men control the contracts as contracting party – the majority of the farm work done on

contracted plots is performed by women as family labourers that necessarily reduces labour cost for food production but whole benefit is taken by men. Therefore the contract farming with the modern agro-industry with exclusion of women, could give rise to intra-household conflicts over the allocation of land and labour resources between contract requirements and women's priorities with regard to food production (Sing, 2003). High-value contract farming might result in decreased access to resources for female farmers concerned with subsistence food production and ultimately lead to the deterioration of the food security situation of rural households with more effects on women and children, (Bravo-Baumann, 2000).

5b.10 Gender, Climate Change and Market access

Rural women s' access to the market out side their villages is very low due to many of the socio cultural issues. Many women complain that they never see the money that is earned from the fruit of their labour as their male members do all the market transactions. Far example men always carry harvested crop, milk and dairy products to the markets thus denying women access to the information and resources.

The agricultural value chains are equally important to women as a source of employment where they are more concentrated in some of the activities of the supply chain i-e packaging and post-harvest processing, but their low skills in technology limit their professional development and bound them to stay in low-pay occupations. Then pay gap between urban rural labour even for equivalent jobs, comparable levels of education and experience is an other issues to consider gender equality. This shows that, across the cultures and regions, there are major gender differences in employment patterns within labour markets for several reasons. Most importantly, women themselves prefer to get engaged in self-employment than to accumulate work experience from outside work and if they work outside, again their prefernce is for the part time jobs with more flexibility that pay less and provide fewer benefits. Ultimately women loose the opportunities to capacitate

themselves for any disaster to cope with.

5C.1 Gender, Climate Change and disasters Management

Most of the research shows that the real causes of the disaster often being the underlying vulnerabilities caused by absent or inadequate infrastructure, overcrowded housing and weak institutions responsible for lack of preparedness (World bank, 2010), where gender discrimination and women's higher levels of deprivation make them particularly vulnerable when disasters strike. This is because women and children are 14 times more likely to die in natural disasters than men. In the 1991 cyclone and floods of Bangladesh, for example, the death rate among women aged 20–44 was 71 per 1000, compared to only 15 per 1000 for men (Aguilar, 2006). This is largely due to unequal access to information, which tended to be directed at men, as well as social and cultural norms that limited women's physical mobility (Cannon 2002).

The other reasons why women experience more vulnerability is their weaker asset base and the consequent lack of resilience that they need for external shocks (Satterthwaite 2010) and their socio-economic rights, as compared to men (Neumayer 2007).

Also at some times, men may feel pressured to take 'heroic' actions, which places them at a higher risk than women and children. For example, after Hurricane Mitch hit Central America in October 2000, a higher proportion of men than women were killed due to risk-taking behaviour (UNDP 2009: 57).

5C.2 Gender, Climate Change and migration conflict

As climate change makes certain livelihoods less sustainable, particularly in rural areas where crop production is falling or coastal areas where rising sea levels threaten human security and vulnerability to natural disasters, migration has become increasingly common.

With scarce resources climate change undermines the provision of

food, clean air and adequate water supplies, not only for human development but human security may be threatened as well. This can lead to an increased risk of conflict and social insecurity among migrated communities. Although little is known about the gender dimensions of climate-induced conflict, but much research shows the negative effects of conflict on gender relations to exacerbate existing inequalities and vulnerabilities with increased gender-based violence.(El Jack, 2003). This is especially in the case where legal land rights are not clearly defined and disputes arise around to share the revenues equitably among different stakeholders so indigenous communities may not benefit equally and are frustrated.

5D. Gender, Climate Change and Political participation

Although women do not have a role in the formulation of macro-economic and social policies but they have borne the brunt of such policies. For example women's exclusion from decision-making bodies at the local, national and regional levels does not provide them any opportunity to voice their concerns or promote their perspective on governance. Thus male-dominated governance structure has been creating and recreating gender inequalities (ADB, 2000), that further worsen their adaptability to climate change.

PART TWO

Gender Dimensions in Climate Change



The vital input and profound traditional knowledge of WOMEN —May prove a key to climate change adaptations.

Climate change is increasingly affecting the livelihoods of the small poor farming communities, given their lack of capacity to prepare and cope with its impacts. However, women are more effected than men as discussed below.

Climate change	Gender impact	Literature Reference	Coping strategy
<p>Poverty and Hunger</p>	<p>The global rate of extreme poverty is expected to increase 15 percent by 2020 but more poverty is increasing among rural women due to the gender discrimination in access to resources such as food, health and education to manage with climate change impacts. And being the most marginalized group they are the first to have the adverse impact of climate change.</p>	<p>Women in rural areas are more adversely affected by poverty than men, (world Summit Copenhagen 1995). During disasters, men can use their savings and may invest in alternative income sources while women are even deprived from basic needs like food health and shelter, Oxfam, (2008).</p>	<p>Closing the gender gap by resource and location, may gain higher productivity, reduced hunger, empower women and increase socio- economic benefits to women, (FAO 2004). Therefore investing in women farmers through education and training has proven to be one of the effective strategies to reduce poverty and hunger at grass root level.</p>

<p>Loss of Agricultural Diversity</p>	<p>Loss of agricultural diversity due to climate change endangers women's knowledge, resources, ownership and control over productive resources. Women are disproportionately affected in their division of labor and access to productive resources, (Shiva et al, 1990).</p> <p>Women make up to 45% of the total agricultural labor force through the Asia and often work longer days in the fields than men. An average working day for a rural woman work seventeen hours during the harvest season. (FAO, 1997 No.1). But they own the minimum of the production resources for their livelihood</p>	<p>Rural women's knowledge of biodiversity, wild plants, herbs, local environment, agriculture systems, local species, seed varieties and ecosystems forms the cornerstone of their work and belief systems. (Shiva and Dankelman, 1992).</p> <p>For example during a survey the Indian women in rice areas identified 25 indigenous rice stalks and they knew the ease with which the husk could be removed. Women know to use ash as fertilizer and insect repeller, crop rotation practices, mulching and terracing, (Stanley, 1982). Where as the men lacked all this knowledge and are largely dependent on women for these tasks. (Shiva and Dankelman, 1992)</p>	<p>There is a need to encourage rural women as custodians of intricate knowledge on seeds, practices of traditional agriculture, preserving skills on genetic diversity and planning to cope with expected climate change, where environmental conditions are harnessed to be deteriorated, (IDRC, 1998).</p> <p>"We want our daughters to be able to see how much knowledge their 'illiterate' mothers actually possessed. (FAO, 1997).</p>
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<p>Natural Disaster</p>	<p>Most recent studies confirm that women and girls are more vulnerable to disasters as they become less mobile, burdened with workload, lose economic activities, and more likely to become victims of domestic violence. Due to these reasons more women die than men. As 90% women died in 1991 Bangladesh cyclone and 75% in 2004 Indian Tsunami.</p>	<p>During disaster, women are always unable to meet their basic needs to bear the additional risks and work loads, so they sell their animals that otherwise have enhanced their income and family well-being (DFID, 2004). Therefore Climate change may result in more frequent and severe disasters for women than experienced to date.</p>	<p>Women should be trained to change their gendered status by taking active roles in what are traditionally considered “male” tasks in times of disaster, (DFID, 2004). Gender issues need to be integrated in national climate change and Disaster Risk Reduction (DRR) policies, (WEDO 2005).</p>
<p>Disaster & Migration</p>	<p>Extreme climate events are likely to force rural poor to migrate to urban areas that will increase hardships on the women left behind. Then geographical locations and family responsibilities limit women's mobility, increase workload and reduces learning opportunities to cope with these disasters.</p>	<p>Experience shows that migration may provide new opportunities to improve women's lives and change oppressive gender relations – even displacement as a result of disaster can lead to shifts in gendered roles and responsibilities to benefit women. (Dione, J, 2008).</p>	<p>The immobility and inequalities may expose women to new vulnerabilities as a result of precarious legal status, exclusion and isolation. Therefore gender dimensions of migration need to be integrated into climate change adaptation policies by considering women roles and inequalities.</p>

<p>Disaster & Adaptive capacity</p>	<p>Women are positioned well for adapting livelihood strategies to the changing environment as they are responsible and trained to produce food, water, energy and manage natural resources for the family livelihood. This is a shifting paradigm that has turned women from victims of climate change to the agents of change.</p>	<p>Women's capacity to climate change adaptation is reflected in the saying that "necessity is the mother of invention". In conditions of stress, vulnerability, poverty, limited resources and climate change, women are turning back to indigenous low cost local solutions to better cope with their problems. UNDP (1998).</p>	<p>This need to ensure women's rights in climate change mitigation, adaptation, access to information, knowledge, skills, resources and participation in decision-making to strengthen women's experiences, knowledge and coping capacities in the face of changing climate.</p>
<p>Water & sanitation</p>	<p>Women are the exclusive suppliers of water for animals, household use and crop production. They decide to collect water from where and how, transport, store and decide its different uses. But changing climate is putting more pressure on them with no access to water facilities. With more droughts and erratic rains provision of water for domestic use is getting critical.</p>	<p>More than 2.2 million people in developing countries die from water born and parasitic diseases due to lack of safe drinking water and poor sanitation, where women and children are the main victims by getting the diseases like diarrhoea, cholera, typhoid and several unknown infections.</p>	<p>Improved water services may empower women and grant more time for some productive activities, increase privacy and reduce risk of harassment to women and girls while gathering water. A focus on gender differences is of particular importance with regard to sanitation initiatives in rural areas.</p>

<p>Lack of access to information & Technology</p>	<p>Women s rights to ease out their work are marginalized and worsened due to the socio-cultural constraints and patriarchal society in most parts of the world. M o r e o v e r t h e commercialization of agriculture and green revolution technologies remained gender biased and failed to address their skills for technology. Instead women are displaced from their traditional roles and responsibilities.</p>	<p>Lack of access to information and technology has stemmed out for the reason that men always avail the extension services and come to the capacity building opportunities, ignoring the fact that women have decision-making power to a significant extent due to their potential coping skills, (Menon 1991).</p>	<p>Improving women's access to technology use can be facilitated through participatory gender-inclusive research, provision of gender-sensitive extension services, women oriented technology development and trainings in their specialized areas of work, (Kathleen Collett & Chris Gale, 1998).</p>
<p>Decreasing Energy resources</p>	<p>Deforestation due to climate change is directly impacting women's livelihoods and their responsibilities, where they have to spend long hours to meet domestic energy needs (cooking, heating and lighting) by fuel wood collection, preparation, chopping and drying which otherwise may be spent in more productive work, (Karlsson, G, 2007).</p>	<p>Mainly women are responsible for most of the domestic energy that comes directly from firewood, charcoal, animal and crop residues. This make energy source for about two billion people in the world, as 1.5 to 2 billion, have no access to electricity,(UNDP, 1998).But women are virtually invisible in formal forestry and its decision-making processes, (GenderCC Network, 2007).</p>	<p>An essential first step is the collection of gender-specific information/ data in the forest management and awareness on women's roles through advocacy campaigns. Also women's involvement in agriculture decision making, biomass energy policies and interventions could make them key stakeholders to mitigate the climate change impact on environment.(Denton2002).</p>

A famous quote: In traditional cultures when a girl is born, the mountains cry and the birds laugh, because her future activities include maintaining the forest and to feed the birds.

Health & Education

Rural women are unable to participate or handle the disaster situation due to lack of education and weak health status. So they are likely to be excluded from new opportunities for a sustainable family well being. The climate hazards are provoking several serious diseases attacking local communities and specially the infants, children and elderly persons that has increased women s responsibilities and work loads as women are the primary and unpaid care takers of the family members.

The poor and marginalized women are at highest risk from climate change-related health impacts like heat stress and malnutrition, especially when resources are scarce and not in their access due to cultural restrictions on their mobility. (Bridge-IDS, 2008). Inequalities in literacy are widening the gaps within the gender and communities. While education is critical to manage disasters for a sustainable future.

To address gender discrimination in the allocation of health and education resources is critical to better cope with climate change impacts. Rural women need to be encouraged to use their traditional knowledge and wisdom for immediate health reliefs during disasters. Also carefully formulated group structures may help out to some extent by allowing those without literacy to benefit from others in training, but the disadvantage is difficult to overcome completely.

<p>Employment and economic opportunities</p>	<p>Despite women's major role in agriculture production systems they still earn low income. The changing climate is increasing gender inequalities and putting heavy and unpaid household duties on rural women, for which they are unable to take the more productive opportunities that become more acute during any disaster.</p>	<p>Women's domestic responsibilities are always taken into consideration when a decision is made as to whether a woman should work outside the home or not (IFAD, 2001). Though gender inequality varies between regions but with evidence globally women benefit less from rural employment than men do. They often work in the lowest paid and most precarious forms of employment. FAO, 2011.</p>	<p>Access to production resources is the first step to economically empower women and manage climate risks to agriculture and their livelihood. Then there is a need to analyse trends, issues, knowledge gaps and good practices to raise women's human capital through gender-sensitive policy measures without making any discrimination.</p>
<p>Decreasing access to land</p>	<p>The periodic disasters, cultural practices, increasing land resources and fragmentation are keeping more women out of farming. The traditional regulations do not support their access and control over land. Though the religious laws formally provide land rights to women but due to the weak and contradictory application women often have to surrender their rights in favour of their male members (brothers, husbands and sons).</p>	<p>The discriminatory laws and practices for inheritance are still widespread. Usually land owned by women is smaller and less valuable as compared to that of owned by men. Further women are usually responsible for subsistence crops rather than cash crops. National statistics ignore gender-based data because it is collected only from males, who are assumed to be the main economic head of the family.</p>	<p>Women's access to land and other productive resources is an important pathway to improve food security and vulnerabilities at local level. This needs to change the behaviour of key stakeholders through,</p> <p>(i) Raising awareness on the benefits of women's land ownership</p>

<p>Decreasing access to land</p>			<p>(ii) Securing support from local leaders, including traditional, religious and state authorities.</p>
<p>Invisibility of women's work</p>	<p>The role of rural women in farming and household economies has increased significantly over time, yet their contributions often remain concealed due to socio-cultural barriers and gender biases. Their contribution is neither recognized at the local or regional level that ignores women's resource needs in the face of changing climate, where women are in the front line to cope with it.</p>	<p>Women are responsible for household's food security including production, collection, preparing, processing cooking and feeding the family. They also store the produce during the growing season to use this stock in the dry season, against future crop failures or any disaster but their contribution is never recognized in the regional statistics. (Kenyatta and Henderson, 2001).</p>	<p>It is important to develop strategies to improve the national and agricultural census data to include sex-disaggregated information. The situation needs to focus on the role of rural women in agricultural development for food security and their rights to production resources to strengthen their role that may accelerate their advancement in the development process.</p>

<p>Lack of access to financial services</p>	<p>Rural women are the backbone of agriculture system, but still are denied access to basic information and finances during disasters to avoid the possible risks and to maintain the family needs. This is basically due to the lack of collateral, low resource base and weak negotiation power and control over resources.</p>	<p>During disasters, women are unable to meet their capital needs so they do not produce as much as they could, (Diagne d Zeller, 2001). Conversely, producers with access to finances can invest in riskier but more profitable enterprises that can reach markets and can adopt more efficient strategies to stabilize their food production systems, (Zeller 1997).</p>	<p>There is a need to address women's financial rights, introduce innovative delivery channels and social networks to make financial services more readily available with out any discrimination. Fletschner concludes. "Policies and programs that improve women's access to credit would in turn lead to more efficient allocation of resources and increased production."</p>
<p>Decision making in disasters</p>	<p>Women have limited or no control over family finances and assets related to farm, thus have little influence over family economic strategies and decisions. This constrains women's rights for adaptation process that further limit their ability to cope with climate change impacts.</p>	<p>Agricultural policies and programs continue to overlook the central role of women in agriculture without realizing that women are the key change agent and can perform wonderful if provided with the required prerequisites. Instead they are not supported in access to productive and support services because majority of the women are poor, so the vicious circle of poverty continue for the generations.</p>	<p>The indigenous knowledge of women on crops, livestock, water, forests, food production, medicinal plants and less obvious resources, such as small and uncultivated crops can be a valuable entry point to include them in decision making process. That will also increase their confidence, self-esteem, strengthen decision making and</p>

			<p>income-earning capacity, therefore must be involved in development process to bring about the necessary changes, (Friedlander,1996).</p>
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Way forward

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) calls upon governments, international organizations, NGOs, and private sector institutions to support the scientific evidence that the groundwork on the mitigation and adaptive strategies by politicians, businesses and individuals has been recorded very slow in general and specially for women farmers in the global south. (IIED, 2007). Therefore following are needed to strengthen women's ability and their unique/valuable perspectives and expertise for climate change solutions.

1. Integrate gender concerns and perspectives in policies and programs for sustainable development.
2. Strengthen mechanisms at the national, regional and international levels to assess the impact of development and environmental policies on women.

PART THREE

A case study



Return to our Roots:

A case study of Lok Sanjh

1. Introduction

This section of the study showcase the work of Lok Sanjh Foundation, a non-profit, non-governmental organisation formed by Dr. Shahid Zia, (a Pakistani agriculturist), and a group of progressive farmers and rural activists in 1996. Lok Sanjh is a farmers' based organization and struggling to bring a livelihood change for small holders through an organized effort to make the farming communities aware of their rights particularly the women farmers and landless families who do not have the capacity to organize themselves for their rights and livelihood opportunities.

Lok Sanjh Foundation encourages small farmers to move from chemical intensive agriculture to organic agriculture and re-educate farming communities about the wealth of indigenous knowledge that could be successfully applied in farming practices. In this regard Lok Sanjh is making efforts to give small farmers a greater voice in governance and policy debates.

The working areas of Lok Sanjh Foundation are the most effected by climate change problems like, droughts, low crop production, low water resources, loss of bio-diversity and animal diversity. Here rains now arrive late and last for shorter time while torrential rains worsen these problems as water does not penetrate in to the soil instead washes the topsoil away and decreases soil fertility. But if the rain penetrates the soil, the roots rot and plant growth is hampered, thus affecting future harvests, food security and seed supply that constraint the future livelihood of small farming communities. In this situation usually women take care of the damaged crops and they replant the uprooted ones, locate grazing areas and make efforts to grow kitchen vegetables by using minimum local resources.

By considering these problems, lok Sanjh is struggling to develop a

range of strategies to achieve sustainable livelihood for the most marginalized and deprived rural families and believes that a return to agro-ecological farming on a massive scale could mitigate a large part of the present crisis.

In Pakistan, rural women do most of the agricultural operations but unfortunately, neither their work is recognized in the national statistics nor any technology is developed to ease out their workloads. Instead, new technologies have displaced them from their traditional roles and further exacerbate the family economic conditions (F Shahid, 2005). This put drastic impact on the livelihood and food security of the rural families. Therefore Lok Sanjh puts high emphasis on women to expand their economic choices.

2. Lok Sanjh s' success

Over the years, Lok Sanjh has supported hundreds of farmers in conversion process from conventional agriculture to Ecological agriculture by capacity building of small farmers, demonstration of ecological farming and recovering indigenous crop varieties. Therefore the work of Lok Sanjh, now has a very far and wide impact in different parts (through networking+ organic practices) of the country with an increased demand for training on organic production practices, which is a set example of Lok Sanjh.

Lok Sanjh has also supported the earthquake victims of Kashmir and Balochistan and to regenerate biodiversity-based livelihoods of these areas with the active involvement of rural women. The organization finds that adaptation and mitigation measures have to be coherent with rural women's profound knowledge about land, natural resources and local food processing in the face of climate change.

Lok Sanjh has most unique approach of community organisation and its women empowerment strategies where women have been encouraged to form their own community based organizations to participate in the development programs of Lok Sanjh.

2.1 Empowering the invisible

Dehqan Assemblies (male, Female) organized by Lok Sanjh are helpful to aware rural communities about the policies that allow them to build their relationship with the local municipalities and address their special concerns. More focus is on women to recognize their role in the Ecological Agriculture and enable them to develop, implement and adapt strategies for risk management with their low cost local resources, traditional knowledge and area specific interventions introduced by Lok Sanjh.

The women have organized themselves in different activity based groups like poultry, goat, seed bank and marketing etc. Most of them have stopped buying seeds from the market as the barter system has been revived and women exchange seeds within the community. Women, almost in all project villages of lok sanjh have developed seed banks to promote the local varieties.

Women say that

“At first, we did not know a lot of things, but after working with Lok Sanjh, we have now learnt to meet our household expenses like education and food of our children. They desired to have more forests to feed their animals and save some money that otherwise is spent on buying fodder. They added that we have restored the soil health by making and using dry compost, wormi compost, neem pesticide and liquid fertilizers that are helping to maintain production levels and minimize greenhouse gas emissions. We have learnt to grow vegetables by water efficient technique “crop by drop” and to conserve soil moisture. Most importantly the male family and community members are now recognizing our work.

2.2 Housing Native Resources

The female farmers are now able to revive traditional economies by rearing goat and poultry to improve health, nutrition and education of their families. They are earning some income to overcome

poverty by selling eggs and meat in the local market and are able to sell goat when they are in need of cash. The women are happy to feed poultry and goat with organic residue of crops and vegetables that helps reduce the mortality rate, while poultry excretions are used as crop fertilizer to minimise the use of external inputs.

2.3 Women Leaning Gears

Most of the agricultural work like seedling, weeding, harvesting and post-harvest processes are manually performed by women that undermine their economic roles. Lok Sanjh put high emphasis to improve women's working conditions by introducing area specific and need based women oriented tools like Wheel burrow, grain bins, ground nut digger and spade in its working areas. The sensitization/awareness and demonstration in this regard is an ongoing process. However, simply providing farming tools does not guarantee that they will benefit economically, therefore Lok Sanjh has trained women to use these tools.

2.4 Health Bent

Although, the herbs have always been in the diet use of rural communities but lok sanjh has awared the rual communities about the potential health benefits of local herbs. In this regard, Lok sanjh has widely introduced herbal/medicinal plants for the wellbeing of animals and farming communities to treat different illnesses. Women have been trained to use this knowledge during the periods of torrential rains, frost, drought and heat to treat headaches, fever, diarrhea, cramping and sore throats etc. This resource- fulness is critical since public health centers are expensive and are limited in rural Pakistan. Then women s access has been made to clean water supply (hand pumps) that has reduced women's long walks to fetch water from far off irrigation canals and saving them from contaminated water to stay healthy. To save forests, decrease women s household burden and keep them healthy, women have been trained to make and use fuel-efficient stoves.

2.5 Say Rights of Ranchers

The dumping of food from the markets of developing countries, forceful introduction of genetically modified crops and worldwide exploitation of small farmers by big agribusinesses has put severe challenges for small farmers to survive. Which is increasing problems of power, embedded advantages and to implement the rights-based policies. The extreme poverty of small-scale food producers — 500 million farmers, who are most food insecure — is caused not by a lack of economic growth but by unequal power relations, that need a rights-based approach to development,”

To follow this course of action Lok Sanjh is regularly organizing forums and seminars to provide opportunities to the famers to interact with government, researchers and other groups to influence the decision that shape their livelihoods. These fora are potentially advocating at the local, national and regional levels to acts in solidarity on the issues of small farming communities. Farmers are now organised to assert their views, highlight the problems they face and are reverting to traditional farming practices, not because there are no other options available, or they know of nothing else but because of the powerful potential of the ecological agriculture for their health and livelihood.

3. Cleaning the GLOB

3.1 Lighting up hopes

Due to the climate change impacts, forests are further getting away from the places from where women have to collect fuels and spend 2 to 20 hours per week. Due to this they are left with little time for domestic responsibilities, earn money, learn to read and write. Lok Sanjh has taken up this issue by introducing clean energy initiatives that not only easing out women work but helpful in greenhouse gas reduction and to save on energy bills by replacing current fuel sources (mostly firewood, cow dung and kerosene).

Solar energy is not only sustainable but renewable also, that means, it will never run out of energy as it is free and natural to generate electricity.

“Lighting Up Hope has lit up one of the village as a model of self-sustaining clean and renewable energy sources. This village has a motivated group of female farmers who are using solar lights, fans, cookers, dryers, and solar cooked/dried food products and medicinal plants.

Rabia, one of the farmers, says, now we save time and effort in collecting and managing fuelwood supplies and are less exposed to health risks associated with indoor air pollution, smoky fires and kerosene oil flames. The school children also study in comfort and there is no incidence of snakebite to women, when they go out to toilets in dark at nighttime. It has been estimated that women save three hours/day by using biogas for cooking and eliminate a reasonable amount of carbon dioxide.

3.2 Plants for Planet

The use of chemical pesticides and fertilizers utilization in agriculture has tremendously gone up and since these chemicals are not produced in nature and cannot be broken down by it, therefore these chemicals seep into the ground with water, reduce the soil fertility, damage the soil composition and make it easier to erode by water and air.

Lok Sanjh with this view has started the activity “plant for planet” with the belief that Plants are not passive passengers on the planet’s surface system, but they create the surface system and absorb many of the pesticide residues and decrease soil pollution as a part of the land.

By planting thousands of plants every year, almost 200,000 trees and 100,000 nursery saplings in the villages of north Punjab, KPK and Kashmir areas not only to provide communities with fuel, food

and shelter but to reduce stress, save energy, absorb noise, improve air quality, improve comfort and productivity as well.

4. Scaling up impacts

Kashmir areas represent the mountaneous agriculture where surroundings are exposed to fast-running surface water because of the steep slopes. Land erosion is a serious problem here and has drastic consequences on the environment (resource degradation, soil acidification, gully erosion, absence of water infiltration, fatal accidents, the collapse of housing and lack of access to resources due to poor infrastructures.

Women have difficulty accessing water to drink and for agriculture purposes. Arable land is being lost due to soil degradation, and if available, is often infertile due to surface water flows uprooting vegetation and crops. Therefore, agricultural yields diminish and earnings dwindle. Migration for young population is high in this area due to difficult agriculture and less local resources.

Lok Sanjh has capacitated small farming communities with new techniques and knowledge in combating land degradation by improving the soil quality and its productivity. The farming conditions have improved with the interventions like rain water harvesting, safe drinking water supplies, seed saving techniques, local composting methods, ground water recharged, stabilized soils and rain water flows. Agricultural yields have improved and women have begun trading herbs and other plants, which they had not done in a long time.

4.1 Communal Seed Enterprise

Agriculture is the mainstay of rural communities and quality seed is the foundation for food production and diversification. Based on the experiences and given the uncertainty regarding the harvest due to climate change, Lok Sanjh has trained rural women to diversify their production practices bytesting the new climate

efficient seed varieties for a sustainable livelihood. Local seed storage system has been introduced to empower women and making them independent of the expensive seed markets. The initiative could make a potential effects in the broader rural economy in terms of total sales, net revenue, farm value, taxes paid, hired labor, purchases of inputs, repair and maintenance services, as profits generated by small-scale producers are more likely to remain in the community. The strategy is helping them out to be independent from external resources and adapt to the climate change impacts. The activity also brings together farmers and researchers to develop new and improved seed varieties to establish a regular local source of “clean seed” production that offers a potential solution to the problem of seed supply and market dependency.

4.2 From Addiction to Freedom

The population of the planet is skyrocketing and providing food for the world is becoming extremely difficult. The need of the hour is sustainable cultivation and production of food for all. The Green Revolution and its chemical based technology are losing its appeal, as returns are unsustainable. Pollution and climate change are other negative externalities caused by use of fossil fuel based chemicals. As of 2012, the market for organic farming and other products has reached \$63 billion worldwide.

In this regard the initiatives like, promotion of indigenous crop varieties and local seed saving technologies have improved the community food security, local agro biodiversity and higher profits for farmers due to lower production costs that further lowers the need for credit, which is often expensive and difficult to obtain small farmers.

For organic, agri-businesses to survive, even if that is a small ones, it need a regular, dependable supply of produce. Since agricultural marketing information is sketchy and often skewed in favour of powerful wholesalers, it is therefore important that producers are

directly connected with markets.

Lok Sanjh therefore, under the Food Security Program, is offering a special concessions such as seed supply, provision of water, use of tractors and green manure at reduced costs to the organic farmers associations, so they may be able to supply a regular and in time supply of produce. These farmers are trained through Farmer Field schools and Business schools with an emphasis on organic agriculture and value added marketing. Farmers are now getting independent in market access and are free from stress without undermining the natural resource base. This practice appears to be more successful in marginal areas where poorest of the poor reside and where the MDGs targets are at stake.

4.3 Micro Glory -Vision

Conventional bank credit facilities are usually not in access to small poor farmers due to weak collateral power and high interest rates of moneylenders in rural areas that are completely unregulated and charge extortionate interest rates, so starting a new enterprise, or expanding a business is impossible for the small farmers.

Lok Sanjh strategy to micro credit for the rural poor is a fair and practical approach to small business like, raising domestic poultry, installing irrigation systems, seed access, tool use and rearing small animals. Moreover women's groups have borrowed money for sewing machines and jars for value added food production. The program is successful with out any loss and the recipients are expanding their small enterprises without further credit needs, which reflect the self-sufficiency of the small farmers to get out of poverty.

4.4 Village Cuisine Retreat

With growing population and food demands, a bulk of crops and vegetables travel thousands of miles by the time they arrive at the grocery store. Most of them are packaged in man-made materials

such as plastic and cardboard. In view of this growing vegetables at small plots have been introduced by Lok Sanjh to improve food security and to combat climate change. In colder areas of KPK and Kashmir, women are using plastic greenhouses to produce vegetables to improve family's nutrition and food security in response to climate change impacts. This also has increased resilience to heat shock, drought, flooding and salinization by altering inputs, varieties and species.

Women say that domestic vegetable production is helping us in relieving stress, providing healthier, safe, nutritious and fresh food along with some field exercise where we enjoy the warm environment. They further added that it is free and has visibly decreased their grocery and health bills. Further due to the non-use of fertilizer and pesticides, we are able to eat a wide range of fruits, vegetables, salad and herbs.

The activity is helping in reducing the carbon emissions and waste created by shipping and packaging vegetables. More and more women farmers have been encouraged to make use of local resources like rain water harvesting, reclamation of degraded land, integrated pest management, local crop varieties, local animal breeds and fish in water harvesting ponds - that supplement the farm income and food security.

5. Talent Maturity Centre

The global agricultural population of some 3 billion actively occupies 1.3 billion people, or about half the world's active population. Two-thirds of world farmers use Green Revolution inputs, such as improved crop varieties, animal breeds, concentrated feeds, synthetic fertilizers and pesticides. The small farmers who have been neglected by technological advances, counts some 450 million representing a total of 1 250 million who scratching a living off agriculture. The reason is one of extreme poverty and chronic food insecurity of millions of landless small farmers.

Lok Sanjh in this regard has developed a successful model of **Talent Maturity Center (TMC)** to demonstrate a well designed demonstration of bio diversity based ecological agriculture for a participatory learning environment of the small farming communities on value chain, market mapping, processing and preservation of food production technologies. The model is using natural and local resources to enhance agricultural productivity and improving the efficiency of the small holders to contribute to multiple MDG targets, while its effort to link it to urban markets have relevant lessons for other rural sectors of Pakistan's economy.

5.1 Peasant Open University

Through POU-Pk Lok Sanjh is aggressively promoting knowledge based production systems and agri-business programs for the small famers by establishing forward and backward market linkages of the farmers. It is generating rural employment to retain youth to enhance rural economies. The initiative is seen as a new chapter in the history of Pakistan agriculture where farmers groups are getting community certified skills to produce more food, products, jobs and higher income for their sustainable livelihood. Peasant Open University aims to make a sustainable livelihood for the small farmers to bring them out of vicious cycle of poverty and hunger.

There are a wide range of agriculture-based practices and technologies that have the potential to increase the adaptive capacity of the food production system and enhance carbon storage in agricultural soils. However, POU is offering small non-certificate courses on the adaptation and mitigation strategies in response to climate change. The farmers are now convinced that smallscale agriculture is an environmental asset due to its tendency to preserve bio-diversity, reduce land degradation and conserve forests. They are learning that revenue generated by the small farming is more likely to stay within the community to improve housing, education, health and infrastructure. More importantly they produce more nutritional food than the largescale farming and also has lowered diet related diseases as well.

6.0 Saluting Efforts

6.1 Fresh Fibre Lead (FFL)

In Pakistan till early 80s, farmers used very little pesticides to control cotton pests. But In the last couple of decades, cotton crop failed due to heavy pest attacks that pushed many farmers into heavy debt, while many committed suicides in the South Asian region. In order to address these multiple issues, Fresh Fibre Lead program has been initiated by the lok sanjh with the use of IPM tools and decent work environment to enhance cotton production. The program is very successful to improve farmer s' livelihoods and enhance the development of sustainable cotton value chains, where women are an integral part of the whole process. It mainly focuses on,

1. Give control to farmers, not GM companies
2. Eliminate hazardous synthetic pesticides
3. Help farmers feed their families
4. Save precious water
5. Combat climate change

6.2 Kato Rani

(All Women Cotton Value Chain)

The number of hungry people in the world grows each year and most of the chronically hungry are small-scale farmers in the developing world. Especially the cotton farmers are not able to feed themselves or their families because cotton is normally grown once that is a fraught with risk to feed the families. Input costs are high, and returns are very low - means no sustainable returns but still they support all their food from this single crop/year, hence are the most vulnerable to livelihood.

Lok sanjh under the project (Kato Rani) has developed the strategy by organizing local weaver groups to improve their food security through training that diversify their livelihood opportunities against crop failure, climate variability, price volatility and changes

in market demand. The project has trained 500 rural women on Better Cotton production Principles in a short span of time and has identified a groups of weavers who are persuing their traditional profession of hand looms and are interested to improve their skills to meet the customer demand in various parts of the country for hand woven “khaddar” as a high quality safe product. **This is how, organization is struggling to revive traditional economies.**

6.3 Bestowing Sugarcane Growers

The small scale farmers and the local communities around the sugar cane factories are usually pressured to sell their standing sugar cane crops by the factory owners. If they refuse to sell it, they are then illegally forced to sell it to the sugar millers. Many of the people working for sugar factories in the south Punjab are employed on a seasonal basis that is undoubtedly linked to the exploitation of the extrem poverty in the region. Another problem, resulting from sugarcane plantation is that the Hygiene and water quality is poor in the most of the sugar cane growing area and is always found bordering a body of water on dirt or sand as it requires directly adjacent water to grow.

Lok Sanjh has started a project to empower the small sugar cane growers to provide an alternative option whether to supply it to sugarcane Mills or get their sugarcane crushed for making GUR at the Centre, especially developed by Lok Sanjh to serve the purpose. Best sugarcane varieties have been identified that are most suitable for making good quality Gur in terms of taste, texture and safe food to bring high prices for the small producers. A lot of farmers in project area have cut down their food crops and went for sugarcane to earn more profitable livelihood and not to depend on the sugar millers for their final payments.

7.0 Branching Out

Lok Sanjh model of organic agriculture contributes to health improvements (MDG 4 and 5) due to reduced exposure to pesticides. It contributes to maternal and child health due to improved quality of food and empowers women by providing income earning opportunities.

Lok Sanjh focuss on equal rights and opportunities for women and men to reduce poverty, hunger and disease to achieve sustainable development through access to information and technologies. This according to UNDP 2005, Human Development Report, increasing accessibility would, therefore, be instrumental in making progress towards achieving the MDGs.

The effort of organic agriculture is creating new jobs for the rural youth and reducing the rural urban migration, (target 11 of MDG 7). This is encouraging the farming communities to fight the power of corporations to save their food production systems and easing out women s' tasks, that women are typically responsible for.

Lok Sanjh is reaching all women (“Rural-urban”) who are in any way associated with the struggle to achieve the safe food security at the national and regional level.

Lok Sanjh model of organic agriculture, therefore has the great potential to address multiple MDGs but the extents of impacts vary greatly due to several factors such as nature of the agro-ecosystem, type of crop, stage of development, initial poverty status, etc.

The Lok Sanjh Initiatives therefore need a tremendous support and cooperation from the government to find new ways of restoring the soil health, local resources, small livelihoods strategies and human health.

The organization is expanding its operations in some other deserving parts of the country, particularly in Kashmir and KPK.

This is to strengthen the communication unit to better coordination with other stakeholders and keep record of information in this regard

8.0 Organization's Strengths and Network Alliances

At present Lok Sanjh is working in four agro-ecological zones: a) Mountain Agriculture b) Dry land Agriculture c) Rice Based Agriculture, and d) Cotton based Agriculture. Altogether LSF is working in 11 districts of Pakistan: Rawalpindi, Attock, Bagh, Sheikhpura, Nankana, Gujranwala, Toba Tek Singh, Jhang, Khanewal, Bagh, Rawlakot.

Presently, the Lok Sanjh is a member of South Asia Network on Food Ecology and Culture (SANFEC), Sustainable Agriculture and Action Group (SAAG), South Asia Alliance for Poverty Eradication (SAAPE), Peoples' Coalition on Food Sovereignty (PCFS), Pesticide Action Network-Asia Pacific (PAN-AP).

8.1 Gazing back for a way forward

It is argued that the development process has contributed to the growth of poverty by increasing the economic and gender inequalities and the degradation of the environment that further decrease the means of livelihood for the poor, particularly for the women farmers, who are most effected by these processes (Braidotti,1994).

The chemical intensive agriculture has taken its toll as it has depleted the land, exhausted water resources and harmed the health of most vulnerable and marginalized. Climate change is imposing more threats to the livelihood of small holders and women are among the most vulnerable to climate change as they make up a larger share of the agricultural workforce, therefore gender needs special attention by the planners, policy makers and the development practioners.

Lok sanjh success stories clearly explain that the new ways are not to be found in the west, or in the minds of top scientists, or in the pages of strenuous research but amongst the small poor farmers, in the minds and memories of old women farmers, who are waiting to be rediscovered and applied old ways in new times.

PART FOUR

Conclusions & Recommendations



Conclusion and Recommendations

The extent to which farming communities are affected by climate change impacts is a part of their social status, gender roles, poverty status, decision making power, access to and control over resources. Despite the increased knowledge, experiences, and innovative agricultural technologies, women still are more exposed to the impacts of climate change, hence are marginalized and not able to cope with disasters. Where as if their traditional wisdom, experiences, local knowledge and skills are taken in to consideration, they can make a difference in climate change resolutions. However, the gender inequalities and their marginalization continue to ignore their critical contribution, which otherwise would have positively contributed to the efforts on the subject issue.

Rural Women as most disadvantaged groups usually live on climate-sensitive livelihoods (e.g. agriculture) that make them more vulnerable. Where as with lack of basic resources they are left with no adaptive capacity. Especially the rural women, who are more dependent on the local and natural resources to sustain family s livelihood, is a stronger case to develop gender-sensitive strategies in response to climate crises.

The gender-based differences in time use, access to assets, credit, market outlets and formal institutions constrain women's economic opportunities that result in global and regional gender gaps of earnings and productivity. The main reason stays the lack of sex-disaggregated data in all sectors and underestimation of women's role. Then to ignore their extensive knowledge and expertise in disaster reduction and adaptation strategies like, leadership role in community well-being, using less polluting energy sources and easy adaptation to environment, farm and food changes at the time, when their family's survival is at stake during disaster, are the main reason for women to stay in poverty.

Therefore the situation needs a systematic analysis of gender-specific impacts of climate change in the areas of food security, agriculture, fisheries, biodiversity, water, health, human rights, peace and security. Further financing mechanism needs to be flexible to reflect women's priorities, needs and allocation of productive resources like credit, extension services, information and technology which is critical at local levels for the sustainable livelihood of the poor farming communities.

Key Recommendations

- To ensure that all climate change interventions and processes are gender aware from the outset, whether related to policy, research, grassroot level programs, advocacy, mitigation and adaptation strategies.
- To advocate for the equal participation of women in climate change processes at local, national and regional levels to ensure their decision-making in climate efficient processes.
- To explore innovative market-based approaches for equal benefits of men and women.
- To collect evidence-based gender segregated data to address the priority needs in sectors impacted by climate change for a comprehensive policy to combat the impacts. This needs to do the time use surveys on gender roles in agriculture and how they change over time in response to new threats and opportunities with changing climate.
- To ensure that mitigation and adaptation efforts address gender-based vulnerability, inequality and poverty. Because economic, legal and sociocultural constraints can lead to women's capacity gaps where as women's empowerment is key factor in promoting community resilience.
- To incorporate gender perspectives into national and international climate change finance mechanisms and

develop gender-sensitive structures, guidelines, projects and tools for all climate change financing mechanisms to strengthen adaptation and mitigation actions. Ensuring women participation in contract farming is more critical.

- There is a potential need to introduce women specific technologies in their areas of concerns to save their time and energies that can be used in some other productive work.
- Institutional and individual capacity need to be strengthened both in formal and informal sectors that can play a key role in facilitating and encouraging agricultural producers to make changes to their production systems and learn to manage natural resources to achieve household food security. Local institutions also have important roles to play in the flow of information (such as weather forecasts, extension services and new technologies) and to manage communal resources such as grazing and water resources.
- Gender issues need to mainstream in advocacy and policy debates to create awareness and advocate on policy and institutional actions for investing in rural women as a strategy to fight for the future poverty and hunger at local levels.
- Agricultural policies must ensure women rights to own land and to productive resources. For example the crop production income is seasonal depending upon harvest size where as livestock is a ready source of cash for many smallholders through sale of milk, meat, and dairy products and this money may be spend to buy inputs like seeds, pesticides, paying of school fees of children, daily groceries, medicines and many domestic needs while sale of large animals can bring a good prices to bear large expenses like weddings etc. Government therefore needs to incorporate gender perspectives of livestock management in national policies and action plans through benchmarks, gender analysis and gender perspectives.

- Climate change actions need to be based on women s'skills and knowledge to enhance the efficiency and sustainability for adaptation and mitigation efforts. This may improve health, education, environment and productivity gains for greater returns across the Millennium Development Goals.
- Capacity Building is considered a critical area to enable the implementation of climate change actions especially in the field of technology transfer for small women farmers.

PART FIVE

A power point Presentation



Gender and
Climate Change:

Women Matter



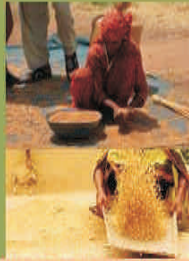




GHGs Produced by Rich...

...Suffered by poor

The global warming challenge, created and driven by high-lifestyles, lies outside the influence of poor communities and poor countries.

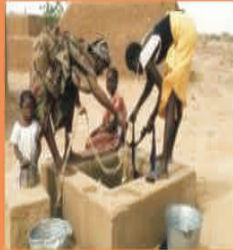


Women and ethnic minorities with special burdens and vulnerabilities, are feeling yet another unjust pressure in global warming –



Climate change will affect the poorest people first and most

- Housing
- Economics
- Health
- Communications
- Access
- Food
- No relief



Gender inequalities in the world

- Of the 1.3 billion people living in the deepest levels of poverty worldwide, the majority are women (70%)
- Women work 2/3rd s of the world's hours
- Women produce 1/2 the world's food; in rural areas and produce 60-80% of staple crops
- And yet, women earn only 10% of the world's income and own less than 2% of property

Therefore there is a need to

- Understand the gender dimension of climate change.
- Identify specific gender-based inequities and understand women's roles as key agents of change in climate responses.
- * Identify policy and program responses that support gender equality and women's role in climate change adaptation and mitigation.

Gender and Climate Change Connections

Women are more severely affected by climate change and natural disasters, due to

- social roles,
- discrimination,
- poverty.

Women are underrepresented in decision-making about

- climate change,
- greenhouse gas emissions, and in
- discussions and decisions about adaptation and mitigation.



Gender consequences of climate change

- **Decreased food security:** With changes in climate and production systems, the traditional food sources are decreasing. This exposes women to loss of food and income, that is effecting the family livelihood.
- **Access to Water** Women are largely responsible for water collection in their communities and therefore are more affected when the quantity of water and/or its accessibility changes.
- **Increased burden of care giving:** Due to changing weather the rural families are getting more prone to disease break out such as malaria, water borne. This has add up to women s' responsibilities as the primary care givers.

Vulnerabilities to Poverty

- * When women exposed to unpredictable events (livelihood shocks) that undermine their livelihood and cause them fall into poverty
- Individual vulnerability – Aged, handicapped, unskilled, physically or mentally unsound, Type of profession, Access to finance & common resources
- Household vulnerability – Too many under 10 children, High health cost of one or more family members, women or aged or Child or handicapped headed family, poor construction of house
- Community vulnerability – Living in place susceptible to disaster, insecurity etc, No effective leadership, disaster non-preparedness, Unsafe drinking water source, poor governance structure

5

Gender climate change and Biodiversity

According to the Millennium Ecosystem Assessment, climate change is gradually becoming the dominant driver for the loss of biodiversity, while biodiversity can paly an important role in the adaptation and mitigation strategies.

In most rural areas women are highly dependent on biomass, such as wood, agricultural crops, wastes and forest resources for their energy and livelihoods.

Therefore they have less time to fulfil their domestic responsibilities, earn money and engage in other public activities.

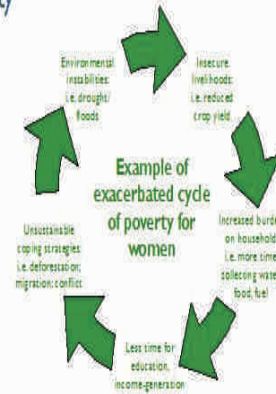
Gender, climate change and health

- Climate change has increased mortality rate due to heat waves, floods, storms, fires and droughts. In addition a greater incidence of cholera, malaria, and dengue fever have been witnessed.
Heat waves accelerates the biting rate of mosquitoes and speeds up the maturation process of the parasites they carry.

Gender, climate change and human settlements

- Every year a greater number of people are being displaced due to severe coastal weather events, flooding, droughts and agricultural disruption. That also result in higher death rates for women as a direct link to their socio-economic status and poor access to information.

Climate Change Exacerbates the Cycle of Poverty



Women Matter

Taking gender into account helps us to determine the full set of causes and potential effects of climate change.

And it helps us to protect our climate and adapt to climate change more effectively.

Why Women are Essential

- Women's coping ability is often a measure of their community's capacity to adapt.
- Women were the first to find potable water during a prolonged drought in Micronesia
- Wangari Maathai successfully implemented the Greenbelt Movement, now one of the leading worldwide climate change projects.
- *"If women are aware then families can be saved from many losses... and the women themselves are saved from a lot of suffering."*
- **Caregiving.** Women are primary care-givers in times of disaster and environmental stress, the heavier burdens of caregiving tend to make them less mobile.



Way forward

- It is responsibility of state to identify gender-specific impacts and protection measures related to floods, droughts, diseases, and other environmental changes and disasters.
- There is a needs to develop strategies to enhance women's access and control over natural resources to reduce poverty and ensure their participation in climate change decisions.

Adaptive Capacity Measures

Determinant	Explanation
Economic resources	Greater economic resources increase adaptive capacity Lack of financial resources limits adaptation options
Technology	Lack of technology limits range of potential adaptation options Less technologically advanced regions are less likely to develop and/or implement technological adaptations
Information and skills	Lack of informed, skilled and trained personnel reduces adaptive capacity Greater access to information increases likelihood of timely and appropriate adaptation
Infrastructure	Greater variety of infrastructure can enhance adaptive capacity, since it provides more options Characteristics and location of infrastructure also affect adaptive capacity
Institutions	Well-developed social institutions help to reduce impacts of climate-related risks, and therefore increase adaptive capacity
Equity	Equitable distribution of resources increases adaptive capacity Both availability of, and access to, resources is important

Women Specific Technology

- Technology developed so far is gender biased and not benefitting small farmers. Therefore women's domestic and labour saving technologies can free women to work for more reproductive activities to earn income.
- Successful participation in technology transfer projects has positive benefits in raising the self-confidence of rural women.
- New technologies need to develop to reduce time spent on laborious agricultural tasks by women.

Human Capital Development

- * Skill training (Vocational and management skills)
- * Increased knowledge on Diversified production, processing and utilization of Food stocks
- * Access to health service and reducing communicable diseases
- * Good Hygiene education
- * Use of nutritious foods
- * Decadal preparedness at household, community and government levels

10

Social capital development

- * Strengthening Civil society network – Network of CBOs and cross learning,
- * Capacity Building of NGO and partners Support strong community structures – CBOs, community saving (ways of use should be defined)
- * Increasing trust and co-operation within community – Peace building, cultural activities, sports

10

Natural Capital Development

- Improved natural resources management, i.e Improved water harvesting – Check dam, spring water storage ponds and soil reclamations,)
- Improved soil fertility, cultivation practices, crop rotation
- Prevention of land erosion – Land management, ploughing methods, water shed management.
- Social forestry, community forestry
- Breed improvement of animals
- Protection and preservation of existing natural resources
- Improving Environmental health

10

Financial Capital Development

To increase the availability of money at the household level through savings, remittance etc.

- Encourage saving – create system of safe saving options (Financial literacy)
- Increasing access to credit (Micro-finance, group loans)
- Educate the house hold before dispersal of benefits or loans to avoid fungibility. Create or support good banking, insurance system and linkages with local banks

10

Physical capital development

To increase means of production (Bringing more land under cultivation)

To introduce labour saving Technologies

To support access to market or subsidised transport etc

Access to market (Road, communication)

Improve storage facilities

Value addition support

Support decent housing

Basic infrastructures

11

Livelihood Promotion

- Improved production to stabilize income through diversified agricultural production
- Appropriate soil and water conservation measures
- Creation of alternative and supplementary income generating activities.
- Improving storage capacity both on farm and off farm.
- Facilitation of market to link food surplus areas to food deficit areas
- Improved health, sanitation and better living condition
- Landship training and civic education
- Small and medium cottage industries promotion (business development services)
- Development of rural services such as agricultural extension, veterinary services, crop insurance

12

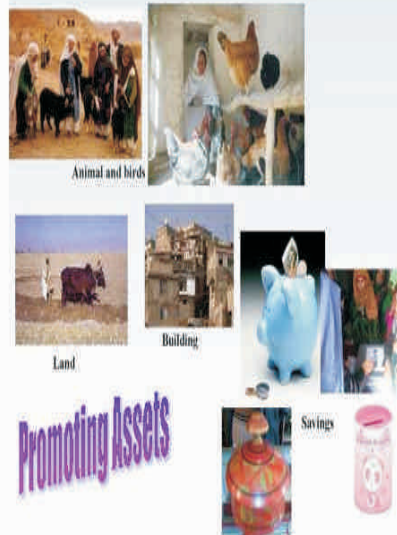
How to create livelihoods?

Enhancing Capacities



13

Using own resources



Accessing public resources



Lakes



Rivers



Road



Storage facilities



Grazing land



Forest

Promoting Assets

Supporting claims



Cash for work



Employment



Emergency relief

12

12

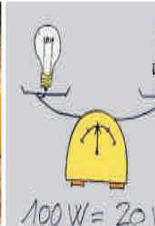
Facilitating activities



Provision of Communication



Sports



100 W = 20 W



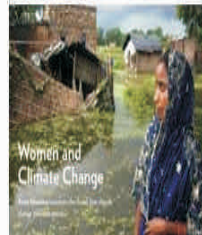
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Health Care

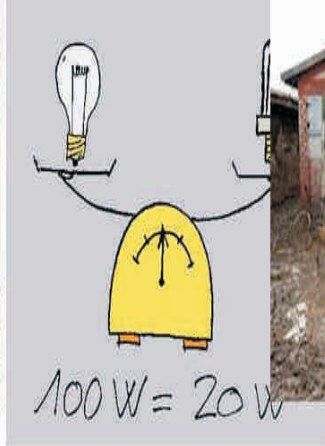


Transport

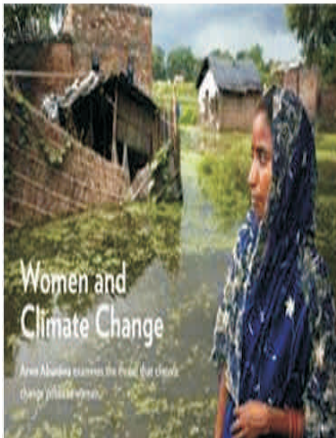


Women and Climate Change





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References

- Acharya, M. and L. Bennett. 1982. Women and the Subsistence Sector: Economic Participation and Household Decisionmaking in Nepal. World Bank Working Papers, Number 526.
- Addati, L. and N. Cassirer. 2008. Equal sharing of responsibilities between women and men, United Nations Division, Geneva.
- Appleton, S. 1996. Women-Headed Households and Household Welfare: An Empirical Deconstruction for Uganda. World Development, Vol. 24(12): 1811-1827.
- Baanante, C., T.P. Thompson and K. Acheampong. 1999. An analysis of farm-survey data. Institute of African Studies: Vol. 15(1): 80-100.
- Bank of Uganda. 2001. Annual Report 2000 - 2001. Kampala, Uganda.
- Beneria, L. 1981. The Underestimation of Women's Economic Activities. Journal of Development Studies, 17(3):10-28.
- Bravo-Baumann, H. 2000. Gender and Livestock. Capitalisation of Experiences on Livestock Projects and Gender.
- Brown, C.K. 1994. Gender Roles in Household Allocation of Resources and Decision Making in Ghana.
- Budlender, D. 2008. The statistical evidence on care and non-care work across six countries. Geneva: United Nations Research Institute for Social Development (UNRISD).
- Buvinic, M. and G.R. Gupta. 1997. Female-Headed Households and Female-Maintained Families: 45(2): 259-80.
- Chant, S. 2003. Female Household Headship and the Feminisation of Poverty: Issue 9, May 2003.
- Charmes, J. 2006. A Review of Empirical Evidence on Time Use in Africa from UN Sponsored Surveys. World Bank, Washington, D.C.
- Anríquez, G. 2010. Demystifying the Agricultural Feminization Myth and the Gender.

Burden. Background paper prepared for The State of Food and Agriculture 2011.

Doyle, M., 2007, The Limits of a Green Revolution, BBC website, http://news.bbc.co.uk/2/hi/in_depth/6496585.stm,

Glover, D., 2008, Made by Monsanto: the Corporate Shaping of GM Crops as a Technology for the Poor, Institute of development Studies, Sussex

Haneef, M., S.A. Khan, F.A. Nauman, 2004, Agricultural Perspective and Policy, Ministry of Food, Agriculture and Livestock, Islamabad

Monbiot, G., 2000a, Organic Farming will Feed the World, August 24th, 2000, The Guardian

Riaz, K., 2008, A Case Study of Milk Processing: The Idara-e-Kissan Cooperative, The Lahore Journal of Economics, pp. 87- 128

Knabe, F. and Poulsen, L. (2004). How the UN Convention to Combat Desertification and Drought Switzerland: IUCN.

Lambrou, Y. and Laub, R. (2004). Gender Perspective on the Conventions on Biodiversity, Climate Change and Desertification. Italy: FAO.

Enarson, E. (1998). "Through Women's Eyes: A Gendered Research Agenda for Disaster Social Science". *Disasters* 22(2): 157–173.

Masika, R. (Ed.) (2002). *Gender, Development and Climate Change*. UK: Oxfam.

Sathaye, J. (2002). *Climate change mitigation: barriers, opportunities and technology transfer*. USA:

Cannon, T. (2002). "Gender and climate hazards in Bangladesh". *Gender & Development* 10(2): 45–50.

CIDA (n.d.). *Coastal zone management & equality between women and men*. Convention on Biological Diversity (CBD). (2007).

Thullier, W. (2007). "Climate Change and the Ecologist", in: *Nature* 448/2: 550- 552. USA.

Turner, T. and Brownhill, L. (2006). Nigerian Commoners' Gifts to Humanity: Climate Justice and the Abuja Declaration for Energy Sovereignty

UNDP. (2007). Human Development Report 2007/2008. Fighting climate change: Human solidarity in a divided world. USA: UNDP.

Aguilar, L., Araujo, A. and Quesada-Aguilar, A. (2007). Reforestation, Afforestation, Deforestation, Climate Change and Gender. IUCN.

Brody, A., Demetriades, J. and Esplen, E. (2008). Gender and climate change: mapping the linkages. Institute of Development Studies (IDS).

(2005). Climate Community and Biodiversity Project Design Standards (First Edition). USA: CCBA.

OECD. (2008a). Promoting Sustainable Consumption: Good practices in OECD Countries. France: OECD.

