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Ensuring gender equity in climate change financing

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Foreword

Climate change presents one of the largest threats to worldwide efforts to reduce poverty and vulnerability. If left unchecked, it risks reversing progress towards the Millennium Development Goals and threatens long-term development prospects.

The level of resources required to adapt to and mitigate the effects of climate change is extraordinary. Although estimates of the costs vary widely, they are all significant—by 2030, costs are expected to range from $249 billion to $1,371 billion **annually**.

Planned carefully, climate change investments can promote development while achieving adaptation and mitigation objectives. This means driving low-carbon development and promoting economic growth that creates jobs, reduces poverty and accelerates progress towards the Millennium Development Goals. This cannot happen, however, without concerted actions to ensure that climate finance responds equitably to the needs of women and men within and across countries.

Administered wisely, new sources of climate funding can help transform traditional gender roles and reduce inequalities. However, failing to incorporate women and men's diverse needs and perspectives into climate change responses will further disadvantage women and decrease policies' efficiency and effectiveness.

In November 2008, the United Nations Development Programme (UNDP), in collaboration with the Global Gender and Climate Alliance (GGCA) and the Heinrich Böll Foundation North America, sponsored the first-ever workshop on gender and climate change finance. More than 60 experts from governments, civil society, United Nations organizations and the private sector, representing all regions of the world, discussed the linkages between climate change finance and gender equality. The workshop identified areas requiring further research, developed policy guidelines and recommendations, and planned several follow-up activities. The outcomes of the workshop and its recommendations form the basis of this publication.

Following a series of UNDP/GGCA-produced briefs that explored the gender dimensions of individual climate finance mechanisms, this report provides a broader overview of the climate change financing regime and highlights areas of opportunity and risk. While not all-encompassing, this report examines the realm of climate finance by focusing on a select set of climate change funds.

Public funds represent an important but small portion of climate change finance compared to the private sector. However, the nature of public funds makes them more amenable to incorporating gender considerations into their frameworks. In doing so, the examples they provide can serve as a much-needed model for integrating development objectives and gender equality principles into future private investments and fund development.

With this caveat in mind, this analysis provides a ground-breaking look into the gender dimensions of the emerging climate finance architecture and highlights opportunities for more gender-responsive investments in national climate and development strategies. We hope that policy makers and practitioners find the research and analysis presented here useful in their efforts to raise the profile of gender equality and women's empowerment principles within the climate change finance dialogue.

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Executive summary

Climate change, the long-term rise in the average temperature of the earth's surface, is one of the most serious issues confronting humanity. The resulting climate variability will dramatically affect the frequency and severity of weather events, water resources, agriculture and food production, and human health. These impacts—and the global community's responses—have significant social and economic implications.

There is substantial interplay between climate change, gender equality, women's empowerment, and achievement of the Millennium Development Goals. Climate change adaptation and mitigation efforts directly influence development outcomes, including issues of gender equality. In turn, policies that are informed by and respond to both women's and men's practical and strategic needs can lead to more effective climate responses, as well as progress across development goals.

The climate finance regime reflects the larger global financial architecture—a predominance of gender-blind decision-making that has led to gender-based segmentation and asymmetries that disadvantage women.

The design of the emerging climate finance architecture plays a key role in whether or not climate responses promote sustainable development, including steps towards greater gender equality and women's empowerment, or whether they exacerbate processes that disadvantage women and reinforce historical or structural inequalities. To ensure more positive development results, the climate change finance regime must be structured in a way that recognizes the gendered implications of its activities and actively promotes gender equality and women's empowerment, as well as other related social and economic considerations.

While there have been some positive steps in this direction, the current climate finance frameworks and mechanisms do not systematically take gender issues into account. Rather, the climate finance regime reflects the larger global financial architecture—a predominance of gender blind decision-making that has led to gender-based segmentation and asymmetries that disadvantage women.

To address these disparities, the climate finance architecture must become more inclusive; in addition to promoting global climate benefits, it should also promote sustainable development and ensure that benefits accrue to women and men across economic sectors. To achieve this, it is critical to integrate gender analysis and gender-sensitive tools into all elements of climate change financing so that it can support broader efforts to improve the lives and livelihoods of women and men. Only then will climate finance succeed in helping bring about the necessary behavioural, institutional and policy changes that are essential to securing both climate and related development objectives.

To achieve these ends, this report presents recommendations based on four broad assertions: 1) gender-sensitizing procedures and mechanisms will ensure that climate change finance mechanisms, procedures and outcomes impact women and men more equitably; 2) mainstreaming gender will maximize the effectiveness

and efficiency of climate change responses and protect women's social reproductive roles and care activities in the face of climate change impacts and activities; 3) empowering women will ensure that climate change finance policy choices reflect both women's and men's interests and enable women to fully participate in all aspects of decision making; and 4) addressing market and non-market mechanisms will facilitate women's economic and social empowerment by promoting a deeper understanding of the gender differentiated impacts of private- and public-sector climate change finance mechanisms and their impacts on gender equality.

GENDER-SENSITIZING PROCEDURES AND MECHANISMS

Ensuring that climate change finance impacts women and men more equitably entails targeted attention within each step of the financing process. Several suggested actions are highlighted below.

Recommendations

- **Incorporate gender analytical tools into all phases of programme design, implementation, monitoring and evaluation:** Utilizing gender analytical tools (e.g. gender analysis, gender indicators, sex-differentiated data-sets, gender monitoring and gender auditing) will help ensure that both women's and men's needs, concerns and perspectives are incorporated into programme frameworks, will facilitate equity in the delivery of programme benefits, and will help avoid unintended negative consequences.
- **Undertake gender assessments to determine how climate policy and economic mechanisms incentivize individuals, households and businesses:** Gender assessments, including the collection of sex-disaggregated data, should inform decision-makers with a view towards maximizing the impact of their decisions and avoiding suboptimal outcomes that perpetuate existing inequalities.
- **Establish gender-based criteria in fund allocation, project selection, and other aspects of decision-making:** Enhancing gender-based selection criteria and fund allocation throughout every stage of financing activities will help ensure that project proponents and advocates consider gender-differentiated impacts from the earliest stages of project design.
- **Advocate for strong property rights:** As previously undervalued assets (e.g. forests) gain value in response to adaptation and mitigation efforts, and as informal property uses calcify into formal property rights, it will be necessary to support women's and indigenous groups' continued access to and use of these assets (particularly in REDD/REDD+ and related mechanisms).
- **Use regulatory, budgetary, and tax policies to provide resources:** Subsidizing adaptation and mitigation efforts that are unlikely to be financed through private sector sources—yet have high development and gender equality benefits—will promote the general welfare of communities and nations and will enhance overall climate resilience. Governments can also include gender-based and other development criteria as required components of project approval processes and can direct resources from new market-based income streams toward development activities.
- **Ensure women's effective and balanced participation in decision-making:** Securing women's and gender experts' participation in decision-making will promote a focus on gender-specific needs and concerns and result in more equitable policies and practices.

- **Develop women's capacities to engage effectively:** In order for women's representation in decision-making bodies to be more persuasive and effective, they must have the capacity and freedom to contribute. Enhancing the calibre of leadership will not only improve decision-making bodies' overall functioning—and thereby improve a country or community's climate change resilience—but will also serve to help embed such skills and proficiencies within communities.

MAINSTREAMING GENDER

Mainstreaming gender into climate change responses, including investments in infrastructure, public health, and disaster preparedness, is centrally important for social reproduction roles and care activities. Suggested actions include:

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- **Ensure that projects' and programmes' broader social implications are factored into decision-making processes:** In order to achieve greater impact, climate change financing should contribute to projects and programmes that focus on improving social development or have spill-over effects on non-targeted gender equality interventions.

- **Maximize synergies between mitigation, adaptation, poverty eradication, gender equality and women's empowerment:** Sensitizing funding to maximize these synergies includes considerations such as employment and monitoring and assessment for distributional and equity effects; promoting gender equity in supply chains; enhancing household energy services; promoting the spread and diffusion of technology; promoting alternative, community-developed energy sources; promoting the transition from traditional biomass fuels to biofuels; and ensuring that projects protect the land, water, human and labour rights of indigenous peoples and women.

- **Streamline application processes and support women and small-scale initiatives' participation in adaptation and mitigation activities:** Reducing the time and cost of accessing resources entails streamlining processes such as application, registration, approval, implementation, evaluation and monitoring of funds. Targeted interventions should address the high transaction costs that women and community groups face within existing financing mechanisms and eliminate the pervasive gender bias and segmentation inherent to these mechanisms.

EMPOWERING WOMEN

It is imperative that climate change finance addresses both men and women's interests and promotes their equal opportunities to participate in, benefit from, and influence all aspects of adaptation and mitigation efforts. Suggested actions include:

- **Improve infrastructure, public health, and disaster preparedness:** Establishing and funding workshops and seminars on steps women, men and children can take to secure their homes and devising intercommunity disaster coordination plans are important investments in a community and its ability to cope with climate change impacts.
- **Ease women's and girls' care burdens:** Reducing women and girls' care burdens will not only lessen the labour and time commitment required to provide basic services for their families, but can also strengthen communities by allowing for more girls to attend school and for women to provide their talents and labour to adaptation and mitigation efforts, and economic activities more broadly.
- **Promote women's economic empowerment:** As adaptation and mitigation efforts grow with increasing evidence of climate change and increasingly severe impacts, opportunities to capitalize on the provision of related goods and services should not follow conventional gender lines. Rather, empowering women to take advantage of financial opportunities will require both market capitalization and capacity-building. Women's economic empowerment can also be expanded beyond direct project intervention (e.g. selection criteria can ensure that gender equality is promoted throughout supply chains).
- **Embed adaptation and mitigation strategies into gender equality projects:** Partnering with new or existing gender equality projects and programmes can be a cost-effective method of increasing a community's climate resilience.

MARKET AND NON-MARKET MECHANISMS

In order to develop a proactive agenda geared towards ensuring gender equality and women's economic and social empowerment, additional work is needed to understand—and then map—the evolving relations among the growing networks of private and public sector climate change financing. Suggested actions include:

- **Utilize a mixed system of market- and non-market mechanisms:** Adaptation and mitigation measures that take advantage of both market and non-market mechanisms will yield a range of high-impact gender equality benefits. To realize these benefits, it is critical that investments and financial support increase women's access to resources, enable both women and men to scale up their entrepreneurial activities and promote local and household infrastructure.
- **Focus on positive incentives in policy-making:** In order to increase national governments' support, climate change finance mechanisms must also commit to utilizing positive incentives, rather than what in some contexts can be burdensome economic or other forms of policy conditionalities.

- **Integrate gender-based priorities into private-sector regulations and policy frameworks:** Mechanisms and processes need to be developed to ensure that gender-specific priorities and concerns are integrated into policies, programmes and incentive mechanisms that influence private-sector finance activities.
- **Ensure that information and analysis for decision makers account for gender differences:** Financing should be based on differentiated estimates (that incorporate the values, contributions and time spent by women and groups whose productive and reproductive activities are not reflected in traditional markets indicators), so that the livelihood costs and consequences are understood through a gender, age and ethnic lens.
- **Expand gender sensitization efforts to the business and philanthropic communities:** Developing ties to communities that traditionally work outside of gender and climate change will reveal new linkages and expand opportunities to support gender equality, women's empowerment and climate change efforts.

Climate change and gender: an overview

The long-term rise in the average temperature of the earth's surface is one of the most serious issues confronting humanity today. Shifts in climate variability (e.g. variations in precipitation and temperature) will dramatically affect the frequency and severity of weather events and will significantly impact sectors critical for human livelihoods and development, including water resources, agriculture and food production, and human health and settlements. These effects, along with the global community's adaptation and mitigation efforts, will have substantial social and economic implications.

Signs of climate change are already evident. For example, the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (2007) highlights linkages among climate change and floods, increased regional temperatures, infectious diseases and the toxic contamination of water. There is ample evidence that storm surges have caused severe injuries and deaths and that more severe and frequent droughts will

contribute to nutritional deficiencies and food insecurity through water scarcity, salinization of agricultural lands and crop destruction.

Unfortunately, those least able to adapt will feel the impacts of global climate change most acutely. In general, poor women and men in the developing world lack the resources and opportunities to cope with the often-devastating results of climate change, from large-scale catastrophic weather events to less immediate but similarly significant shifts in regional temperatures or rainfall. If these impacts and the structural problems that underlie poor women and men's relative inability to respond to them are not properly addressed, decades of poverty reduction efforts and progress towards the Millennium Development Goals (MDGs) will be unravelled.

Climate change will cause a wide range of challenges, particularly for women and girls. For example, as the IPCC Fourth Assessment Report noted, "climate change is likely to directly impact children and pregnant women because they are particularly susceptible to vector- and water-borne diseases, e.g. malaria is currently responsible for a quarter of maternal mortality" (2007). Likewise, weather events that create homelessness and forced resettlement will adversely impact women's personal security; it is widely reported that rape, sexual assault and other forms of gender-based violence are commonly perpetrated against women and girls in refugee camps and other forms of resettlement. Similarly, droughts will require young girls and women to travel longer distances to secure water and fuel wood for their families, creating vulnerabilities to attacks and harassment and increasing the incidence of respiratory diseases and exhaustion. These types of issues will pose significant challenges for men, women and children's adaptability and resilience, particularly for those living at the margins of—or below—the poverty line.

Historically, during times of shock and economic realignment to shocks, the household sector and women's labour has adjusted to partly shoulder the burden. The nature and extent of the domestic burden transfer that will be associated with climate change impacts and adaptation and mitigation strategies in the economy is unknown, though it is likely that the household sector will have to make significant adjustments. This is important because while climate change will affect all members of society, women are likely to be disproportionately impacted due to historic inequalities and their high involvement in and dependence on sectors that are expected to experience intense shifts (e.g. water and agriculture).

The differences between women's and men's roles in society, access to resources, responsibilities and obligations condition their adaptive and mitigative capacity, which plays a key role in influencing the outcomes of climate strategies. The IPCC identifies gender as one of the socio-economic factors that influence "the capacity to adapt to changing environmental and economic conditions" (IPCC, 2007b). As such, these gendered realities have significant implications for the pathways and ultimate outcomes of climate change policy responses. Pre-existing gender-related patterns of inequalities and vulnerabilities can block women's ability and capacity to effectively engage in eco-friendly technologies, natural resource management and early warning systems (Antonopoulos, R. and Floro, 2008; Agarwal, 1997). Sources of these vulnerabilities range from lack of secure land rights (which are interrelated with access to credit and livelihoods), to gender gaps in the ownership of productive assets, higher illiteracy rates among women than men, unpredictable and less favourable access to employment and income, and inequalities in decision-making (FAO, 1998).

In most economies, particularly in developing countries, women face historical and ongoing disadvantages in accessing economic and social resources such as land, credit and technology. Furthermore, women, particularly those living in developing countries, face proportionally more factors that incapacitate or otherwise impact their health, mobility and morbidity (e.g. access to health care). Adverse weather events associated with climate change will exacerbate many of these factors.

Box 1: Key definitions

The terms 'gender' and 'gender equality' imply concern for both men and women, and the relationships between them. Nevertheless, specific attention to women's needs and contributions is typically required in order to address the array of gender gaps, unequal policies and discrimination that have historically disadvantaged women and distorted development in all societies. This does not, however, preclude activities that address men's specific needs, where doing so will contribute to gender equality.

Gender: Refers to the social attributes and opportunities associated with being male and female and the relationships between women and men and girls and boys, as well as the relations between women and those between men. These attributes, opportunities and relationships are socially constructed and are learned through socialization processes. They are context/ time -specific and changeable.

Gender equality: Refers to the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration–recognizing the diversity of different groups of women and men. Gender equality is not a 'women's issue' but should concern and fully engage men as well as women. Equality between women and men is seen both as a human rights issue and as a precondition for, and indicator of, sustainable, people-centred development.

Gender mainstreaming: Mainstreaming gender is the process of assessing the implication for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality.

Women's empowerment: The concept of empowerment is related to gender equality but distinct from it. The core of empowerment lies in the ability of a woman to control her own destiny. This implies that to be empowered, women must not only have equal capabilities (such as education and health) and equal access to resources and opportunities (such as land and employment), but they must also have the agency to use those rights, capabilities, resources and opportunities to make strategic choices and decisions (such as are provided through leadership opportunities and participation in political institutions). To exercise agency, women must live without the fear of coercion and violence.

However, it is important to note that women are not solely victims—they are powerful agents of change. Women's traditional roles provide them with invaluable knowledge that can be utilized to identify effective adaptation and mitigation strategies. Likewise, women's roles are crucial to their families' and communities' adoption of survival strategies and adaptation to environmental changes. Adaptation and mitigation efforts—from design to implementation—that forego this knowledge base and fail to utilize women's diverse talents and abilities cannot reach maximum effectiveness.

Achieving their full potential to contribute to these strategies requires that women have sufficient and equitable access to—and control over—financial resources. Yet, despite the IPCC Fourth Assessment Report's recognition of gender considerations in a number of issues, climate change policy discourse is only beginning to acknowledge the different roles of women and men, their contributions to climate change responses, and the differentiated impacts of climate change on their lives. Within the United Nations Framework Convention on Climate Change (UNFCCC), gender considerations were entrenched in the Cancún Agreement in December 2010. While this is a tremendous success, there is still not an explicit recognition that achieving successful outcomes will require allocating resources for programmes that address gender inequality and women's economic and social empowerment—or that broader climate change finance must take gender considerations into account.

The first commitment period of the Kyoto Protocol is scheduled to terminate in 2012, giving governments the opportunity to reformulate and set in place a more effective and sustainable global climate change policy and to scale up climate change financing activities. This reformulation process will provide governments with opportunities to follow through on their obligations and responsibilities, such as those under the Convention on the Elimination of Discrimination against Women and the Beijing Platform of Action (see Box 2), to promote gender equality and women' rights in the governance and operations of all policy areas—including climate change policy, financing and decision-making.

There is substantial dynamic interplay among gender equality, women's empowerment and climate change. Where this interplay reinforces positive trends towards gender equality and women's empowerment, climate change financing should be increased. Where this interplay exacerbates gender-based inequalities, the direction of climate change financing should be altered. This can only occur if climate change financing instruments, mechanisms and processes recognize the gendered implications of their activities and decisions and actively promote the achievement of gender equality and women's empowerment goals.

This report explores this interplay, reviewing financing for the two primary responses to climate change: adaptation and mitigation. It examines the risks and potential benefits the current climate change finance regime poses to gender equality and women's empowerment and presents areas of opportunity to incorporate gender considerations into policy frameworks, financing mechanisms and project and programme implementation.

Box 2: The Convention on the Elimination of All Forms of Discrimination against Women

The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), ratified by 187 countries, is often described as an international bill of rights for women. Signatories to CEDAW have committed to securing fundamental human rights and freedoms for women and to aligning laws and policies with its provisions. The Convention protects women from discrimination and gender-based political, social, cultural and economic inequalities (International Alliance of Women and Global Gender and Climate Alliance, 2011). Key provisions include:

Article 2: States Parties condemn discrimination against women in all its forms, agree to pursue by all appropriate means and without delay a policy of eliminating discrimination against women;

Article 7: States Parties shall take all appropriate measures to eliminate discrimination against women in the political and public life of the country and, in particular…the right…to participate in the formulation of government policy and the implementation thereof and to hold public office and perform all public functions at all levels of government;

Article 8: States Parties shall take all appropriate measures to ensure to women, on equal terms with men and without any discrimination, the opportunity to represent their governments at the international level …;"

Article 10: States Parties shall take all appropriate measures to eliminate discrimination against women in order to ensure to them equal rights with men…to ensure…the same conditions for career and vocational guidance…for access to studies and for the achievement of diplomas…as well as in all types of vocational training;

Article 11.1: States Parties shall take all appropriate measures to eliminate discrimination against women in the field of employment;

Article 13: States Parties shall take all appropriate measures to eliminate discrimination against women in other areas of economic and social life…in particular…the right to bank loans, mortgages and other forms of financial credit;

Article 14.1: States Parties shall take into account the particular problems faced by rural women and the significant roles which rural women play in the economic survival of their families; and

Article 15.2: States Parties shall accord to women, in civil matters, a legal capacity identical to that of men and the same opportunities to exercise that capacity.

International climate change policy and gender

Global climate change policy is based on the interrelated responses of adaptation (making social and infrastructural changes and modifying development plans and strategies in order to cope with the effects of climate change) and mitigation (lowering greenhouse gas emissions in order to temper the severity of climate change).

Incremental reductions in greenhouse gas emissions and climate vulnerabilities are important steps. However, long-term climate change management requires a shift from sectoral perspectives to a holistic approach that incorporates climate change adaptation and mitigation into sustainable development goals and planning processes. In addition, the approach must recognize that climate change responses are closely intertwined with development choices and actions involving multiple sectors and stakeholders. Such an integrated approach will enable countries to mobilize and employ the diverse financing and policy options required for low-emission and climate-resilient development.

Adaptation and mitigation

ADAPTATION

The IPCC defines adaptation as "the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities" (IPCC, 2007b). Adaptation is a multidimensional, dynamic, iterative process undertaken by governments, institutions, firms, households and individuals to minimize the negative effects of climate change on human and biological systems. Adaptation involves changes in lifestyle, behaviour and risk management and can include actions such as changing the mix of crops, plant varieties, livestock and fish species; modifying irrigation and flood control systems; implementing pest and disease management programmes; expanding health systems; developing infrastructure; climate-proofing domiciles, communities and capital stock against the ravages of extreme weather events; and relocating and migrating.

Climate-proofing (making economic and social structures resistant to climate change), is an added dimension to climate change and development planning and is an aspect of adaptation efforts. Costs include not only those directly related to infrastructure modifications, but also those related to identifying, assessing and addressing the likely risks of climate-related events that will impact social and economic assets. Stakeholders undertake different measures to guard against or temper these risks. Thus, climate-proofing activities include investments in infrastructure, public health and education; areas that primarily seek to achieve social and economic developmental goals but in the face of climate change must be redesigned or implemented differently in order to have long-term sustainability (see Table 1).

MITIGATION

Mitigation efforts reduce greenhouse gas emissions, support the transition to a low-carbon economy and enhance natural and man-made reservoirs that accumulate and store carbon-containing compounds (greenhouse

Table 1: Examples of climate-proofing activities

SECTOR	TYPICAL CLIMATE-PROOFING ACTIVITIES
Agriculture and food security	▪ Tree farming ▪ Incorporating different plants and seed varieties that can adapt to heat or water stresses ▪ Implementing proper drainage and run-off of agricultural land ▪ Implementing appropriate land-use planning
Housing and building	▪ Building or retrofitting offices and dwellings with all-weather materials ▪ Strengthening and adapting new buildings to withstand extreme weather events
Health care	▪ Conducting assessments of climate-related health risks, including vector-borne and water-borne diseases ▪ Initiating early warning systems ▪ Implementing public education programmes
Roads	▪ Ensuring proper drainage ▪ Modifying infrastructure to accommodate changes in rainfall patterns or drainage run-off ▪ Ensuring adequate breakwater and quays
Water	▪ Building catchment tanks for rainwater

SOURCE: ADAPTED FROM ASIAN DEVELOPMENT BANK, 2005

gas sinks). Natural sinks that contribute to the absorption of carbon dioxide include the earth's forests and oceans (via living organisms and chemical interactions with the surface of the water), and photosynthesis of plants and algae; man-made sinks include carbon capture and storage technologies.

According to the UNFCCC, mitigation policies and strategies entail addressing "the large number of human activities, among them, agriculture, deforestation, land-use changes, industrial production, energy generation and end use—that generate [greenhouse gas] emissions" (UNFCCC, 2008). Similar to adaptation efforts, mitigation actions entail both technological and behavioural changes. Taking place at all levels, including the household, private and public sectors, mitigation actions and strategies range from promoting conservation tillage and controlling deforestation to conversion to renewable energy and promoting energy efficiency programmes.

Most institutional mitigation activities—and associated finance—have tended to be large-scale technological projects oriented towards generating clean or renewable energy, and/or making the commercial, industrial, residential and transportation sectors more energy efficient. With this general focus on large scale, capital-intensive energy, manufacturing and commercial activities (often to the exclusion of small-scale initiatives and the household sector), mitigation efforts have traditionally not been considered amenable to gender dynamics. However, a greater appreciation is developing for the role of the household, informal and community sectors in developing mitigation practices and applying technologically-focused applications. For example, cooking activities in the developing world tend to produce significant quantities of 'black carbon' (soot/smoke), a significant contributor to greenhouse gas emissions. Reducing these emissions through switching to solar or energy-efficient low-soot cooking stoves is a relatively inexpensive mitigation effort that can promote large-scale emission reductions while simultaneously improving women's health and decreasing women's and children's morbidity rates. Such projects can also promote women's empowerment by freeing up women and girl's time, enabling them to expand into different productive areas (e.g. pursuing education goals or developing cottage industries). Mitigation activities also provide new opportunities to promote women-owned and managed businesses focused in these areas (e.g. production and distribution of solar panels).

Both adaptation and mitigation efforts have implications for poverty, gender equality, social justice and economic and social development. For example, when climate change negatively impacts human settlements and agricultural production, it will limit household resources and families' abilities to meet everyday needs. Furthermore, the shift of government expenditures to climate change response measures may negatively impact budgeting for poverty eradication and other social programmes. Thus, the depth and severity of climate change impacts—and women's and men's abilities to respond with appropriate survival strategies—will largely depend on how gender equality and women's empowerment principles are integrated into adaptation and mitigation measures.

Women's and men's responses to climate change and its impacts depend on gendered norms and expectations and the existing set of institutions that mediate their access to productive resources (Castañeda and Gammage, 2010). While many women's priorities may be similar to men's in the same communities, the nature and scope of how they are presented, accessed and utilized may be vastly different. For example, whereas men may prefer written materials and large-scale training programmes, women may prefer to receive information via radio or through community-based trainings. Likewise, in assessing infrastructure projects, men—more commonly involved in market-based activities—may prefer projects that improve transportation links, whereas women—more commonly involved in domestic care activities—may prefer projects that

improve access to safe water supplies.

A climate change policy environment that supports both women's and men's practical and strategic interests would take both perspectives into account. It would also enhance the value of local innovation and context-specific knowledge, and would address obstacles to women's participation (e.g. poor infrastructure, limited time and mobility and cultural norms).

Ignoring or benignly neglecting gender equality interventions will exacerbate structural inequalities and further disadvantage women. This will both reduce the effectiveness of climate change response measures and stall the momentum of gender equality and women's economic and social empowerment. It is therefore important to not only incorporate gender concerns into financing for climate change initiatives, strategies, policies and frameworks, but also to ensure that these approaches comprehensively offset existing structural inequalities.

Technology's role in adaptation and mitigation efforts

A critical link between adaptation and mitigation is the role of technology and the need for technology transfer. Developing, acquiring, deploying, disseminating and transferring technology are critically important for both adaptation and mitigation in developing countries.

Adopting relevant technologies is also important for observing and monitoring climate change impacts and for protecting against disasters. There is tremendous scope for developing the wealth of knowledge of agriculture, land conservation and coastal preservation strategies that resides with local residents, particularly women, indigenous groups and farmers (e.g. mixed and rain-fed farming, agroforestry or rain water harvesting). Some of this knowledge is actively being utilized at the community level, whereas some is dormant but potentially useful and cost-effective relative to modern, capital-intensive technologies. For example, women and indigenous people have historically had quite high and effective involvement in agroforestry—a source of carbon sequestration. They have also used plants and natural resources to protect against landslides, implemented tillage and soil management and developed sustainable farming practices. Increasingly, organizations are drawing on these groups' knowledge and skills to enhance adaptation and mitigation efforts.

Promoting these efforts will require financing for scaling up activities for wider use. However, women and marginalized communities often lack easy or sufficient access to funds to cover adaptation and mitigation actions, as these activities are generally not well recognized in the global carbon market and tend to be overlooked by financing that traditionally focuses on large scale, high-technology projects. Thus, if women's skills and knowledge are to be fully integrated into climate change responses, targeted efforts will be needed to reach out and include them, including through the provision of financial resources.

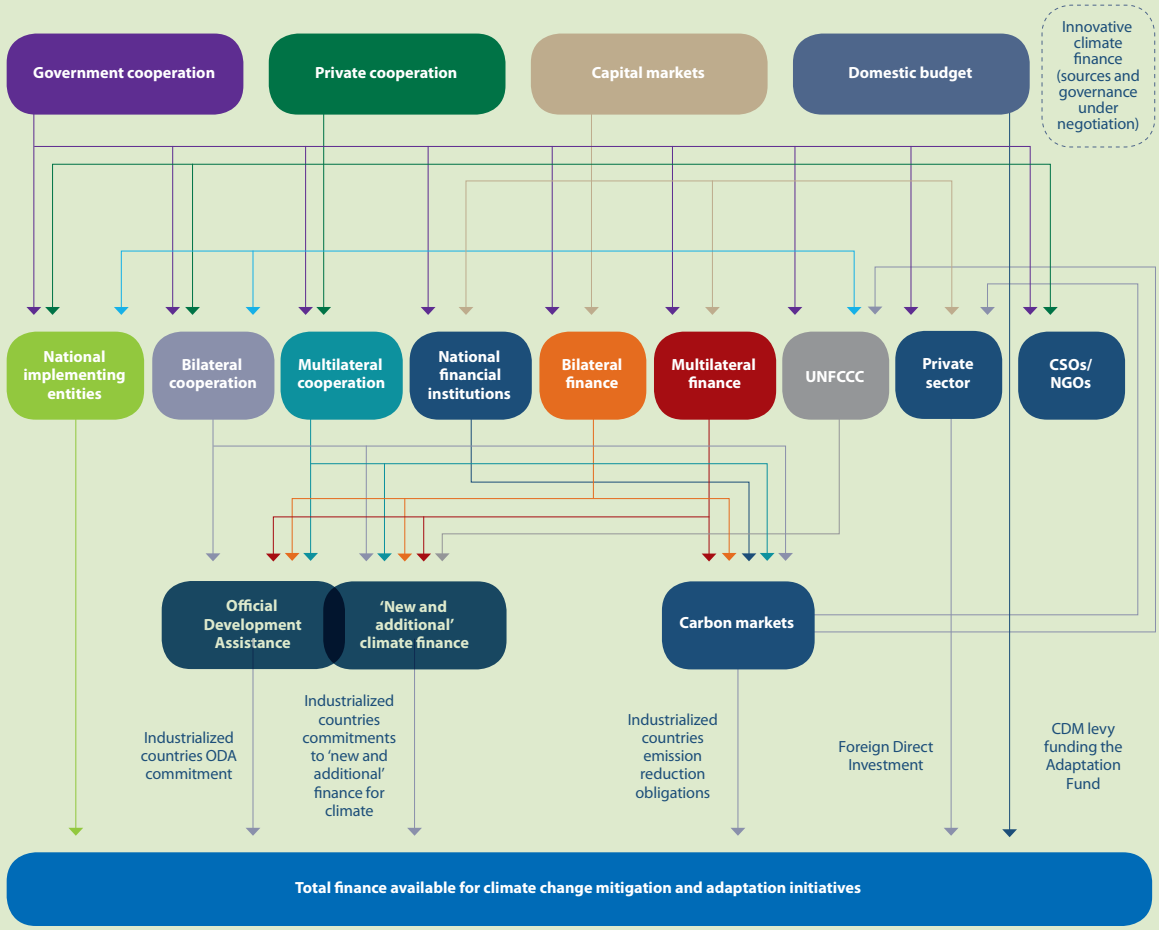
Attention must also be paid to developing and distributing technologies that are critical to women and girls. For example, around 900 million people in the developing world do not have access to clean water (WHO, 2010), and in many countries women and girls are responsible for securing water for household consumption. Areas vulnerable to variations in access to water require simple, clean and efficient technology for water capture and storage. Technologies in this and other areas must be implemented in a context that incorporates affordable access and equity in resource distribution. As communities know and understand their needs best, there must also be a concerted effort to involve local women and men in the development and deployment of new technologies.

The global climate change financing regime

In general, the global climate finance architecture—the range of public, private and market-based mechanisms providing funding for climate change responses—does not focus attention on gender equality or women's empowerment. Consequently, it suffers from several well-known gender biases and asymmetries that have resulted in the market generally not serving women, as a group, as well as men, as a group.

A number of studies have documented the existence of pervasive inequalities between women and men in access to financial services, particularly credit (Department of Economic and Social Affairs of the United Nations, 2009; International Fund for Agricultural Development, 2009; van Staveren, 2002; Baden, 1996; and The World Bank, 1995). According to the International Finance Corporation (2006b), "although a growing number of policies and programmes are arising to address the needs of the growing number of women business owners and their enterprises worldwide, access to finance is still the single biggest obstacle facing women

Figure 1: Climate change finance: sources, agents and channels



SOURCE: ADAPTED BY YANNICK GLEMAREC FROM ATTERIDGE ET AL, 2009.

entrepreneurs." Hindrances such as collateral requirements, high transaction costs, limited mobility and education, and other social and cultural barriers particularly contribute to women's inability to obtain credit and other financial services (Fletschner and Kenney, 2011; Holt and Ribe, 1991; and Siwall, n.d.).

The architecture of the climate change financing regime is multilayered and grounded in the interconnected areas of public finance networks. Climate change financing includes a mixture of active government and international quasi-governmental institutions (e.g. UN agencies and multilateral development banks) and comprises a mix of market- and non-market-based mechanisms. Public-sector financing for climate change responses redistributes the flow of funds through bilateral and multilateral processes and specialized market-oriented mechanisms, such as the Clean Development Mechanism and Joint Implementation. Private-sector climate change financing mechanisms perform roles and utilize instruments similar to conventional financial markets. Many actors are groupings of companies and financial intermediaries with extensive experience with global flows of finance and investments. The need for climate change financing has also given rise to new instruments, mechanisms, and institutional arrangements. One novelty in climate change financing is the emergence of carbon as a new commodity.

Gender biases and asymmetries in global finance

Gender biases have implications for the efficiency and effectiveness of global climate change finance markets. Some common forms include under-representation of women in financial decision-making, gender gaps in women's and men's economic positions, inefficient resource allocations in financial markets due to gender-based discrimination, and gender-based instability of financial markets (van Staveren, 2002). Furthermore, legal, regulatory, and sociocultural barriers generally lead to the marginalization of women's issues in policy processes, lending, investment rules and private-sector financial oversight. For example, a recent review of gender-based legal differences in economies around the world found that in 103 of 141 economies examined, there exists at least one legal difference between men and women that may hinder women's economic opportunities (The World Bank, 2011b). Public-sector financial decision-making, such as tax and interest rate policies, can also have gender-differentiated effects that impact women's participation in financial markets.

Women are regularly under-represented in key decision-making bodies, including government delegations and community-level planning committees. Despite the significant gender and social aspects of Agenda 21, "there is strong patriarchal underpinning of the sustainable development and climate change policy agenda, especially mitigation" (Boyd, 2002). Ultimately, men are the predominant decision makers in many institutional climate change processes.

Women are regularly under-represented in key decision-making bodies, including government delegations and community-level planning committees. Despite the significant gender and social aspects of Agenda 21, there is strong patriarchal underpinning of the sustainable development and climate change policy agenda.

In addition to perpetuating gender biases, information gaps in economic models typically lead to market inefficiencies and suboptimal outcomes. This has prompted the call for more women's representation on commissions within the climate change policy environment. However, the problem is not simply numerical representation, but rather the lack of gender analysis and gender perspectives within those contexts.

Women have also faced losses due to financial market segmentation. According to Antonopoulos and Floro (1992) and Baden (1996), gender-based segmentation—marketing and credit decision-making policies and procedures that differ based on gender—disadvantages women through market distortions and high administrative and transaction costs on both the supply side (credit institutions) and the demand side (individual female borrowers as compared to individual male borrowers). Baden argues that these transaction costs limit the net gains from financial transactions for women and make financial services less accessible and more expensive for them. Research focused on the

prevalence of finance and its outreach and accessibility to women indicates that similar trends and barriers continue to be present within the practice of credit and finance in both developed and developing countries (Aterido, Beck and Iacovone, 2011;The World Bank, 2007; Fernando, 2006; and Ameen, 2004).

Economic gender-based constraints interlinked with discriminatory norms in financial markets result in resource allocation inefficiencies. For example, credit institutions often undervalue women's enterprises or make lending decisions on the incorrect assumption that women are riskier borrowers than men. However, in many countries women actually tend to have higher repayment rates than men (The World Bank, 2007). Likewise, studies have demonstrated that having more women clients "is associated with lower portfolio risk, lower write-offs, and lower credit-loss provisions" (D'Espallier et al, 2009).

There are also major gender-based inequities in access to education, training and technology. In general, women tend to be under-represented in capacity-building initiatives, particularly those activities focused on mitigation (Dankelman, 2002). As a result, there is only a small pool of women professionals in the fields of engineering, energy and other technical areas. For instance, women play limited roles as producers in the formal energy sector and in formulating and implementing energy policies, and thus face limited employment opportunities. Likewise, in the forestry sector women are not well integrated into technical teams, community forest concessions or titling processes, as many communities consider these to be male domains. Instead, the forestry sector employs a relatively small number of women, primarily in ancillary positions (e.g. cooks for forestry workers).

In a gender-sensitive world, speculative for-profit enterprises and employment/income generation opportunities would be equally available to men and women. These opportunities would be generated by the continued growth of the carbon finance market and the flow of investments into plants and infrastructure development. As climate finance becomes increasingly important, care will need to be taken to ensure that women have equal access to high-value, high-profit and high-income activities that have traditionally been filled by men.

Climate change finance and gender

The UNFCCC established global commitments for climate change financing. Under the UNFCCC, Annex I countries (industrialized countries, including economies in transition[1]) agreed to adopt national policies and take the lead on mitigating climate change. A subset of these countries (referred to as Annex II countries[2]), have agreed to provide resources to finance developing countries' efforts to adapt to and mitigate

1. Annex I countries include approximately forty countries: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, and United States of America.
2. Annex II countries (23 developed countries) includes: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lichtenstein, Lithuania, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States of America. Turkey was removed from the Annex II list in 2001 at its request to recognize its economy as a transition economy. Under the Kyoto Protocol, Annex B is Parties with quantified emission limitation or reduction commitment (percentage of base year or period). These are primarily the same as those in Annex I of the Convention.

climate change. Specifically, Annex II countries agreed to provide "new and additional financial resources to meet the agreed full costs incurred by developing countries in complying with their obligations under Article 12, paragraph 1" of the Convention (UNFCCC Art. 4.3, and Kyoto Protocol 11.2).

Overview

Climate change presents challenges to both the environment and development. As reinforced by the IPCC (2007), climate change policy and its financing must confront and address all of the challenges inherent in the development arena. As such, climate change financing creates an opportunity to address long-standing equity issues, including gender inequality and other forms of social injustice, and can help facilitate and build upon ongoing processes for promoting equality, fairness and justice in the global economy. The extent to which it successfully accomplishes these ends will depend on the nature of the financial architecture, including its overarching goals and the specific objectives undergirding its instruments and mechanisms.

In order to achieve these objectives, adaptation and mitigation financing should integrate gender equality outcomes into climate change-related projects and programmes. Project planners should take proactive steps such as expanding the number of women in training programmes, including for jobs in infrastructure projects and as agricultural extension agents; targeting agro-technology to women farmers; involving women in the selection, design, production and implementation of climate-proofing projects undertaken in their communities and localities; and ensuring that women have access to climate-proofed storage facilities and needed complementary services (e.g. transportation). Project reviewers, sponsors and funders should be trained to evaluate project documents from a gender perspective, and have the capacity to recognize opportunities to increase the breadth of a project's scope. Such undertakings can improve the long-term capacity of the affected sector and the community as a whole.

Similarly, by expanding outreach and capitalizing on linkages between development sectors, integrating adaptation and mitigation measures into gender equality projects can enhance a community's capacities and maximize the impact of climate financing. Examples include presenting disaster preparedness information and early warning equipment packages during programmes targeted at improving maternal health or women's safety. This recognizes that women are typically the primary caretakers of their families and builds their capacity to better manage crises. Incorporating climate change-related capacity-building and awareness-raising components into women's groups' and ministries' programmes can build on and reinforce empowerment methodologies. Because climate change is expected to increase poor women's vulnerabilities (e.g. having to walk further distances for water, lacking recourse during extreme

Given the risk that climate finance may supplant official development assistance, it is imperative that climate finance incorporates gender equality and women's empowerment objectives into its frameworks and operations.

weather events), including climate change-related components in broader efforts to address gender-specific vulnerabilities will increase women's overall preparedness to respond.

These opportunities are not without risk. Many mechanisms provide funds only for costs that exceed an established development baseline, and funded projects typically must meet the additionality requirement (i.e. projects cannot respond only to needs that would have occurred in the absence of climate change). As a result of these criteria, certain areas essential to development and with particularly positive impacts on women (such as those focused on implementing public health and education systems, infrastructure for rural development and water and sanitation) may be beyond the reach of climate change financing. Given the risk that climate finance may supplant official development assistance, it is imperative that climate finance incorporates gender equality and women's empowerment objectives into its frameworks and operations in order to avoid unintentionally marginalizing these goals.

Adaptation financing

Adaptation cost estimates vary widely. According to the UNFCCC, global annual financial and investment flows needed for adaptation will range from $49 to $172 billion across five sectors: agriculture, forestry and fisheries; water supply; human health; coastal zones; and infrastructure (see Table 2). A recent study by The World Bank (2010) estimates that adapting to a world that is approximately 2 degree Celsius warmer will cost developing countries between $75 and $100 billion per year between 2010 and 2050. Yet only about $4.4 billion per year is presently being directed

Table 2: Additional annual investment and financial flows needed by sector per year by 2030

SECTOR	SAMPLE MEASURES CONSIDERED	GLOBAL COST (2005; $US BILLION)	DEVELOPING COUNTRIES COST (2005; $US BILLION)	DEVELOPED COUNTRIES COST (2005; $US BILLION)
Agriculture, forestry and fisheries	Production and processing, research and development, extension activities	14	7	7
Coastal zones	Beach nourishment and dykes	11	7	4
Human health	Treating increased cases of diarrhoeal disease, malnutrition and malaria	5	5	Not estimated
Infrastructure	New infrastructure, as well as improvements to existing infrastructure	8–130	6–88	2–41
Water supply	Water supply infrastructure	11	2	9
Total		**49–171**	**22–105**	**27–66**

SOURCE: UNFCCC, 2007 AND UNFCCC, 2008

Box 3: Community-based adaptation

Community-based adaptation (CBA) activities, practices, research and policies involve identifying a community's vulnerabilities and supporting the channelling of international funds to address the community's adaptation needs. These efforts may include building community members' capacity to adapt to changing conditions (e.g. adapting to rising sea levels by building houses on stilts), integrating these tactics into national development plans, working with communities to develop community-based monitoring of changes in coastal and early warning systems, and documenting and sharing traditional knowledge and skills. Other actions include participatory risk assessment and alternative livelihood development.

Gender mainstreaming is particularly important for facilitating efficiency in the scaling-up of CBA projects. It includes sustained support for the participation of both women and men in all project aspects. In addition, it ensures that CBA projects include the knowledge and skills of all community members, address gender-differentiated needs, and include the experiences of women and men alike as part of the knowledge generated and lessons learned from CBA projects.

With a view towards ensuring that forthcoming CBA projects contribute to the achievement of gender equality and women's empowerment, UNDP recently published the guidebook 'Gender, Climate Change, and Community–based Adaptation'. This guidebook provides simple tools and practical advice on how to take a gender-sensitive approach to planning and implementing adaptation projects and programmes and is a useful reference for development practitioners or policy makers working in this field.

SOURCE: UNDP (2010)

towards adaptation efforts (Climate Policy Initiative, 2011).

Irrespective of the scale, the success of adaptation financing will be determined by how well defined and targeted the funded projects and programmes are. Both women and men are active and perform significant roles in all adaptation sectors. Successfully absorbing apportioned funds depends on how finely-tuned and calibrated the projects and programmes are to the priorities, concerns and needs of women, men and their communities. For example, women participate in areas such as crop and livestock selection, crop shifting, soil preservation, traditional water harvesting techniques and the efficient use of water. However, it is not clear how much adaptation funding has flowed into projects and programmes directed at women or into community-based adaptation initiatives (in which women are more likely to play key roles).

This is particularly notable in the agricultural sector, where women comprise 43 percent of the agricultural labour force (FAO, 2011). Evidence shows that if women and men had the same access to resources, agricultural output in developing countries would increase by 2.5 to 4 percent, which could help "reduce the number of undernourished people in the world in the order of 12–17 percent" (FAO, 2011). Yet, in many countries women produce on inadequate land, have irregular or no access to irrigated water and very little access to credit and technology. As with other areas of climate change financing, most agricultural approaches tend to overlook gender equality issues in programme design and implementation. Yet successfully increasing the adaptive capacity of the local and national environment will require the talents and skills of those most affected.

As such, adaptation financing in the agricultural sector must integrate women's and small-scale farmer's perspectives and concerns into projects and programmes. To achieve maximum impact, adaptation financing needs to remove the barriers to women's productivity and enhance their participation in projects and programmes under consideration. There should also be gender sensitization of extension workers, training of more female extension agents and gender sensitization of agricultural financial institutions.

The flows of funds for food security, subsistence and survival strategies are also critical areas of concern

for poor women and men. There are synergies and co-benefits to be derived from focusing attention on these areas as part of a strategy to decrease vulnerability and enhance adaptive capacity. While women and men (on their own initiative in their various capacities in the household and communities) take measures to avoid damage that can result from extreme weather events, they also need to be supported by a large inflow of investment funds into local infrastructure and for scaling up technologies.

CLIMATE INSURANCE

National governments are increasingly incorporating insurance schemes as important adaptation tools. Risk insurance mechanisms (e.g. crop insurance), traditionally available to wealthy and middle-income farmers and individuals, are being promoted as a climate change adaptation tool that can act as a risk transfer "mechanism to help people access resources needed to escape climate related poverty and as a mechanism to incentivize risk reduction" (Hellmuth, Osgood et al., 2009). In order to ensure that these new schemes benefit both women and men, gender-sensitive risk assessment must be incorporated into the design and implementation of financial risk transfer methods and weather index-based risk management tools. Such assessments must consider critical issues such as asymmetric information flows between men and women; differences in how women and men learn about the existence and nature of insurance products; and how to incentivize impact-insurance underwriters' behaviour so that they do not unfairly discriminate based on gender.

Unfortunately, insurance schemes are not always accessible to women due to factors such as lack of funds for premiums or lack of information about availability. In addition, prevailing gender asymmetries and biases may lead insurers to erroneously assess the risk of female insurees, resulting in higher premiums and rejection rates. This is particularly significant given the growing trend towards risk transfer or absorption mechanisms (e.g. weather-index insurance) as part of the set of risk management-oriented adaptation strategies. Adaptation efforts should take these limitations into account so that climate insurance and risk transfer serve a residual function and are not the primary or sole mechanisms for dealing with the impacts of climate events.

Mitigation financing

Mitigation financing can influence the removal of barriers to, and the promotion of, energy conservation, energy efficiency and renewable energy. It can also impact technology transfer and promote the transformation to a low-carbon economy.

Mitigation finance generally focuses on providing financial and investment flows to offset costs or to provide incentives for mitigation strategies and activities. In developing countries, private-sector finance (e.g. foreign direct investment), including both incremental costs and capital investments, provides approximately $55 billion (60 percent) in funding for these activities. Bilateral and multilateral fund-based mechanisms and proceeds from the carbon market provide an additional $35 billon, and voluntary and grant contributions provide $240 million (Climate Policy Initiative, 2011). Yet in 2010 approximately "68 percent of the renewable energy investments were located in China, 10 percent in Brazil and 5 percent in India" (ibid., p.46). Given this concentration of private climate finance activities within large emerging economies, least developed countries and other developing countries retain a higher dependence on other sources of finance.

Approaches to mitigation financing in developing countries cover two broad areas: support for decreasing greenhouse gas emissions and support for technology and capacity building. In these areas, mitigative investments primarily flow into the seven key sectors identified by the IPCC as major contributors to the production and release of greenhouse gases: agriculture, energy sources, forestry, industry, residential and commercial buildings, transportation and waste and waste water (IPCC, 2007a).

Though the financial return for household sector activities may be small-scale, less profitable or less likely to attract pure market mechanisms, improvements in the sector tend to achieve high social development co-benefits and are closely linked to enabling high-quality functioning of women and girls.

The household and informal sectors can also play a role in mitigating emissions through activities such as increasing the efficiency of cooking stoves, household appliances and lighting. Though the financial return for household sector activities may be small-scale, less profitable or less likely to attract pure market mechanisms, improvements in the sector tend to achieve high social development co-benefits and are closely linked to enabling high-quality functioning of women and girls. A gender-sensitive approach to mitigation financing would thus ensure that programmes and projects in these sectors also receive funds, that the sectors' contributions to mitigation and associated co-benefits are recognized, and that resources are invested in women and girls' capacities to engage in commercial-sector activities.

Unfortunately, mitigation financing typically occurs in a context in which, even when it does consider women, they are seen as vulnerable groups instead of environmental and agricultural producers or other actors; culturally ingrained preconceptions of the male

farmer, the male business owner and the male head of household continue to dominate financing approaches and programme design. It is therefore important to undertake gender and social impact assessments during programme and project design in order to address these issues as well as to ensure that women and indigenous groups do not lose rights to their traditional resources.

REDUCING EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION (REDD/REDD+)

Mitigation finance is increasingly focusing on reducing emissions from deforestation and forest degradation (more commonly known as REDD). As a result of deforestation, degradation and biomass decay, the forest sector accounts for nearly one-fifth of all CO_2 emissions (IPCC, 2007b). In addition to strong mitigation potential, forests support water catchments, regulate weather and biodiversity and provide food and livelihoods for local communities.

Global REDD initiatives have been established to offer developing countries financial incentives to slow down their rates of deforestation and degradation. Attention in this area has also emphasized sustainable forest management and afforestation in order to enhance forest carbon stocks, which underpin the 'plus' in 'REDD+'.

As per the Cancún Agreements, under REDD+ industrialized countries will pay low-income countries to maintain and preserve their forests, either by paying into a fund or by purchasing credits from them on carbon markets. Funding for national REDD+ readiness strategies occurs under the UN-REDD Programme, The World Bank's Forest Carbon Partnership Facility, the Climate Investment Funds' Forest Investment Program and other voluntary mechanisms. Additional sources of bilateral and multilateral funding in this area are also emerging quickly.

Because REDD+ incentivizes changes in current or planned land use, there is a risk that poor women and men who lack clear or strong land titles—or the capacity to enforce land claims—may lose access to traditionally used lands or be bypassed in receiving benefits from REDD+ programmes. Furthermore, some conventional land entitlement processes have been associated with the further marginalization of women and the dispossession of families from land.

In order to protect poor women and men from losing access to land without just compensation, initiatives and government action should ensure that structural and usage changes do not negatively impact women and men who lack legal land tenure but are traditional and customary users of the land. In addition, care and attention must be paid to ensure that poor women and men receive their equitable share of the new benefits to be derived from community resources.

Box 4: The UN-REDD Programme's efforts to mainstream gender in REDD+

As per its 2010–2015 Strategy and Global Programme Framework, the UN-REDD Programme has made gender equality a guiding principle of its programme and gender considerations a cross-cutting element of its activities. Supporting the design and implementation of gender-responsive REDD+ strategies promotes effective and inclusive national REDD+ governance systems and transparent, equitable and accountable management of REDD+ funds and benefit sharing. In collaboration with the UNDP Gender Team, the UN-REDD Programme seeks to link REDD+ mechanisms to existing national development strategies by:

- Establishing means for forest communities, indigenous peoples and women to participate in the design, monitoring and evaluation of national REDD programmes;
- Ensuring that REDD+ funds and benefits are equally accessible to poor women and men who manage the forests;
- Involving civil society organizations, and women-led community based organizations; and
- Ensuring that REDD+ programmes do not restrict women's access to the resources they depend on for their livelihoods.

Concrete applications include gender equality and equity criteria in the draft 'Social and Environmental Principles and Criteria'; a gender analysis and strengthening of UN-REDD operational guidance on engagement of stakeholders in REDD+; the design of gender-sensitive governance indicators in the participatory governance assessments for REDD+; and technical guidance and advisory services to countries requesting specific assistance.

To initiate a dialogue with REDD+ policy makers, the Programme has also developed a study, 'The business case for mainstreaming gender in REDD+', which seeks to rely on both a human rights and a pragmatic approach to considering gender issues in the design, implementation and evaluation of REDD+ programmes. The study examines how women's full and effective participation in decision-making related to property rights and land tenure, the management of forest resources and benefits deriving from REDD+ and enhancing ecosystems-based benefits of REDD+ is likely to lead to not only a more equitable REDD+, but also national REDD+ processes that are more efficient, effective and sustainable. This 'business case', which contains concrete recommendations, is accompanied by a guidance note for mainstreaming gender into all UN-REDD Programme activities.

This can be through community benefit sharing and gender-sensitive property rights arrangements or by supporting context-specific technical expertise in both formal and informal land use and titling practices. In addition, these frameworks should incorporate women's and men's different roles in forest resource management (women are traditionally more likely to be involved in subsistence activities, whereas men are more likely to be involved in commercial extraction activities). The more that gender equality priorities and commitments are made central to the national development planning process into which the REDD+ strategy is to be integrated, the more likely it is that outcomes will help promote gender equality and women's empowerment.

Technology financing

Under the UNFCCC, developed countries committed to providing funding for the transfer of environmentally sound technologies to the global South. Similar to the levels of funding necessary for overall adaptation and mitigation needs, estimates of the level of funds required for technology transfer vary widely. However, even if sufficient resources are mobilized, women will still be underserved if specific attention is not paid to the gendered constraints in acquiring and deploying technology.

In many countries, women face substantial barriers to market entry and technology adoption. Barriers include gaps in knowledge, credit, finance and investment. In order to contribute to gender equality outcomes, technology development should focus on areas that both promote adaptation and mitigation and help to

ease women's time burden, scale up their economic activities and promote their human development. As countries seek to upgrade to capital-intensive technologies (e.g. carbon capture and storage, clean fossil fuel generation and biofuels), they should ensure that the technologies are appropriate to the needs of different social groups.

For example, an assessment of agricultural technologies in rural Bangladesh showed that if technology is not targeted to women, its dissemination is more likely to benefit men and better-off households and have fewer poverty-reducing impacts (Quisumbing, 2007). Whereas men tend to remain current regarding acquiring and distributing new technologies, many women remain unaware of new technologies' availability or their relative costs and benefits. Even when women are aware of new technologies, they may not be able to make the transition due to their comparatively limited income and capital base—technology acquisition is often blocked by upfront purchase prices or administrative costs. These cases of informational and capital bias can be overcome by having funds specifically dedicated to capacity-building and knowledge sharing among similar cohorts of male and female actors or by creating special or thematic windows within technology funding mechanisms.

Energy interventions should examine women and men's actual energy needs and apply relevant technological interventions to meet those needs, rather than starting with a technology and assuming that it will have the intended impacts.

Technology financing interventions should also focus on improving productivity, particularly in the area of food production and other sectors in which women are active. In general, policy makers should ensure that agricultural technologies are targeted to women (within a context that builds on their own traditional knowledge and practices), promote food security and ensure sustainability. For example, solar or wind-powered water pumps for the drying of agricultural products, which in many developing countries is a female-dominated activity, could help promote their entrepreneurial activities. Likewise, energy interventions should examine women and men's actual energy needs and apply relevant technological interventions to meet those needs, rather than starting with a technology and assuming that it will have the intended impacts. Financing for climate-related technology development and dissemination must take these aspects into account.

Climate change financing creates an opportunity to address long-standing equity issues, including gender inequality and other forms of social injustice, and can help facilitate and build upon ongoing processes for promoting equality, fairness and justice in the global economy.

Public sector climate change finance and gender

Multilateral financing

Under the UNFCCC, three funds for climate change adaptation have been established and operationalized: the Special Climate Change Fund, the Least Developed Countries Fund and the Adaptation Fund. In addition, the 16th Conference of the Parties (COP) to the UNFCCC agreed to establish a new Green Climate Fund, which will "support projects, programmes, policies and other activities in developing country Parties using thematic funding windows" (UNFCCC, 2011). Another significant source of multilateral financing, the Climate Investment Funds, was established by The World Bank and other multilateral development banks. Analysis of this particular subset of multilateral funding sources provides valuable lessons and guidance for gender mainstreaming in the expanding body of funding sources.

In addition to other criteria for climate funds (e.g. that funds are adequate to finance adaptation

and mitigation needs, additional to existing official development assistance, appropriate with respect to responsibilities for causation, and predictable with respect to long-term planning), Article 11 of the Convention states that that the funds under its purview should be equitable and based on the Convention's principle of "common but differentiated responsibility and respective capacity."

THE LEAST DEVELOPED COUNTRIES FUND AND THE SPECIAL CLIMATE CHANGE FUND

Both the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF) focus primarily on providing local benefits and target projects with clear development objectives, such as food security, access to water for drinking and irrigation, disaster prevention and control of climate change-related spread of disease. The LDCF supports the preparation and implementation of National Adaptation Programmes of Action (NAPAs), which identify least developed countries' urgent and immediate adaptation needs (UNDP, 2011a). The SCCF addresses issues such as long-term adaptation responses, technology transfer and economic diversification as identified by countries' NAPAs (in least developed countries) or national climate change communication strategies (in non-Annex I countries).

The LDCF and SCCF share a number of similarities, including origin, governance, operational structure, and reliance on donations—though both are expected to leverage significant additional resources from bilateral and multilateral sources, including from recipient countries. The funds diverge in areas supported and in target recipients: the LDCF provides financing for least developed countries only; the SCCF is accessible to all non-Annex I countries.

The projects and programmes that the LDCF and SCCF finance are crucial to women and men's social well-being. It is thus critically important to ensure that both women's and men's priorities and concerns are considered within the operational frameworks of both funds.

By the end of 2010, the Global Environment Facility (GEF, which manages the funds) had taken clear steps toward systematizing the mainstreaming of gender in its programmes in general and in the LDCF and SCCF in particular. The 'Updated Results-Based Management Framework' for the two funds, adopted at the November 2010 GEF Council meeting, contains indicators newly disaggregated by sex (GEF, 2010c). In addition, the 2010 Revised Programming Strategy for the LDCF and SCCF states that the funds will 1) encourage implementing agencies to conduct gender analyses; 2) require vulnerability analyses to take gender into account; and 3) integrate gender as appropriate in all results frameworks and in updated operational guidance (GEF, 2010c).

Complimenting this revised strategy, a new GEF Policy on Gender Mainstreaming was approved

by the GEF Council in May 2011 with the objective of achieving gender equity within GEF operations (GEF, 2011). As highlighted by the Revised Programming Strategy, the LDCF and SCCF will benefit from this policy as it developed "specific operational guidance for strengthening socio-economic and gender analysis and identifying appropriate indicators," which then will inform and "become part of project design requirements and part of project review criteria" (GEF, 2011). Further, the new endorsement templates and review criteria introduced for the LDCF and SCCF place a "strong emphasis on gender equity issues" (GEF, 2010a), reflecting progress towards incorporating a gender perspective throughout the two Funds.

THE ADAPTATION FUND

The Adaptation Fund was established to finance adaptation projects and programmes in developing countries that are particularly vulnerable to the adverse effects of climate change. Operationalized in 2010, this fund is financed by a 2 percent levy on the sale of certified emissions reduction credits generated through Clean Development Mechanism (CDM) projects and by additional donor contributions. A key aspect of the Adaptation Fund is that once a country's National Implementing Entity has been accredited, it can access funds directly—as opposed to having to go through a multilateral implementing entity such as a UN agency or The World Bank.

As with most other climate change financing mechanisms, the Adaptation Fund is only beginning to reference gender as a cross-cutting theme. A first step was taken during a 2011 review of the Fund's 'Operational Policies and Guidelines', when the Guidelines' templates were revised to reference gender considerations (see Box 5). While this is an important step, it will be critical to ensure that gender considerations are meaningfully addressed in the development and implementation of Adaptation Fund projects and programmes.

Box 5: The Adaptation Fund's 'Operational Policies and Guidelines' gender criteria

- The Project and Programme Review Criteria ask:
  - Does the project / programme provide economic, social and environmental benefits, with particular reference to the most vulnerable communities, including **gender** considerations?
  - Are relevant targets and indicators **disaggregated by sex**?
- The Template for Project/Programme Proposals requests countries to:
  - Describe how the project / programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and groups within communities, including **gender** considerations.
  - Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including **gender** considerations.
- Instructions for Preparing a Request for Project or Programme Funding from the Adaptation Fund instruct program countries to:
  - List the stakeholders consulted, including vulnerable communities, including **gender** considerations, and the methods of consultation.
  - Specify how typically marginalized groups, such as **women**, will be involved in and benefit from the project/programme.
  - Include monitoring and evaluation arrangements including budgeted monitoring and evaluation plan and **sex disaggregated** targets and indicators.

SOURCE: ADAPTATION FUND BOARD, 2011

Box 6: The Global Environment Facility's Small Grants Programme

The Global Environment Facility's Small Grants Programme (SGP), implemented by UNDP, is a delivery mechanism for sustainable development projects at the community level. Established in 1992, the SGP provides grants of up to $50,000 for community-based projects in the areas of biodiversity, climate change adaptation and mitigation, land degradation, international waters and persistent organic pollutants, while simultaneously promoting poverty reduction and empowerment. Within the climate change focal area, the SGP promotes the use of renewable energy technologies such as micro-hydro, wind, biomass, biodigesters and solar technology; the adoption of energy efficiency practices at the community level; sustainable transport; and climate resilience.

In its capacity-development objective, the programme places emphasis on reaching out to indigenous people and women's organizations. The portfolio of SGP projects that focus on women grantees has grown over the years. One of the criteria for the selection of SGP projects is its consideration of gender equity, and the programme requires the meaningful involvement of women throughout the projects' design and implementation. The success of innovative new approaches and technologies as well as the growth of a critical mass of empowered grantees has also influenced national development planning and policy for enhanced financial flows to the grass-roots level.

The Mekhe Solar Cooker Project in Senegal demonstrates the impact of SGP in mainstreaming gender into climate change initiatives. The Project trained women in the use and maintenance of solar cookers as an alternative to firewood. This not only prepared them to use the technology, but also to promote it. Further, the Project built their capacities to lead efforts to prevent deforestation and land degradation. As a result, 3,132 forest trees and 719 fruit trees were planted.

The project generated direct benefits to 107 women and indirect benefits to 1,700 people. By using the solar ovens, women were able to increase their income, acquire entrepreneurial skills and improve their quality of life by having healthier cooking conditions, helping to avoid future respiratory diseases. In partnership with the government, the project is being replicated in eight other communities in the country, with the aim to scale-up nationally.

Another example is a project on solar training, conducted in partnership with the Barefoot College in India. This programme has provided training and solar equipment to 41 women from Africa and Asia, almost all of them illiterate. These women learned how to fabricate, install and maintain solar-powered household lighting systems and have become Barefoot Solar Engineers—transforming the lives of over 2,766 families in the first self-sufficient and self-reliant, solar-electrified villages in Africa and Asia. These projects have drawn the attention of high-level officials, and there are plans to scale up the initiatives.

While these funds represent an important source of climate finance for developing countries, multilateral funding for climate change is increasingly flowing outside the Convention's framework, including through The World Bank and various regional development banks. The World Bank in particular has played an increasingly significant role in climate change finance in recent years. Providing direct financing for adaptation and mitigation efforts, it is an implementing agency for the GEF, hosts the Administrative Unit for the Climate Investment Funds, and is Trustee for the Adaptation Fund (holding, managing and disbursing funds). The World Bank is also involved in energy-sector lending and leverages funds for energy projects.

The World Bank also engages in carbon market development and carbon trading and has developed several carbon funds. Many of these funds offer blended grant and concessional loan financing, which may lead to increases in developing countries' debt servicing obligations. This indebtedness and the absorption of the current stream of official development assistance can, in some contexts, risk crowding-out spending on social development and gender equality interventions.

Regional development banks, such as the African, Asian and the Inter-American Development Banks are also integrated in the global climate change financing system. All are GEF implementing agencies, and all are partners with The World Bank in the Climate Investment Funds. Increasingly, donors are channelling

funds directly into these banks, which are developing their own approach to financing adaptation and mitigation strategies, projects and programmes based on the specificities of their regions.

The Asian Development Bank, for example, is leveraging gender equality-based inputs to foster successful achievement of poverty, human development and environmental outcomes. This approach has the potential to demonstrate that integrating gender analyses, perspectives and tools (e.g. gender audits, gender impact assessments and gender action guidelines) will generate positive results for successfully achieving climate change goals.

CLIMATE INVESTMENT FUNDS

Jointly established by The World Bank and regional multilateral development banks, the Climate Investment Funds (CIF) comprise international investment instruments designed to offer developing countries interim funding to support their adaptation and mitigation efforts. The Funds' focus investments are in energy efficiency, low-carbon and renewable energy carriers, pilot forest investments and new approaches to building climate resilience in vulnerable countries. As of October 2011, approximately $6.5 billion had been pledged by Annex I countries.

Currently, the CIF include two main components: the Strategic Climate Fund and the Clean Technology Fund. While most CIF programmes did not meaningfully incorporate gender considerations at inception, UNDP has been working with the CIF Trust Fund Committees and Administrative Unit since 2010 to raise the profile of gender issues and to help ensure that these issues are taken into account in fund operations—and there has been considerable progress.

Programmes operationalized under the CIF include gender components to varying degrees. While the Clean Technology Fund has not integrated gender considerations into any of its operations, there may be a move to incorporate some sex-disaggregated indicators into its results framework. In the Strategic Climate Fund, programmes range from having an absence of gender considerations in the Pilot Programme for Climate Resilience's fundamental framework to a clause in the 'Programming Modalities and Operational Guidelines of the Scaling up Renewable Energy Programme in Low Income Countries', which notes "investments should seek to strengthen the capacity of women to be active participants in the economic sector and avoid negative impacts on women" (CIF, 2010). Irrespective of the operational requirements, CIF Trust Fund Committees and Subcommittees are increasingly recognizing the importance of gender and are consistently requesting that gender dimensions be taken into account in investment plans and project proposals.

Bilateral financing

In addition to multilateral funding processes, there is a web of bilateral climate change funding from donor governments. Most bilateral climate funding (approximately 85 percent) stems from official development assistance and comes from Organization for Economic Cooperation and Development (OECD) countries (Atteridge and Kehler Siebert et al, 2009). Bilateral funding for delivering climate finance to developing countries is available in a wide range of financing instruments, such as credit lines (loans and soft loans), debt, equity and grants.

Additional flows of financing for climate change adaptation and mitigation, particularly if offered through gender-sensitive sector-wide community development initiatives, can provide more resources for enabling women and poor communities to climate-proof residences and businesses and to develop new sources of income. Many developing countries rely on bilateral funds for both development and climate programmes. This budgetary support enables national governments to better facilitate programmes and projects that strengthen the capacities of poor women and men to cope with extreme climate events.

Bilateral mechanisms have both advantages and disadvantages compared to multilateral mechanisms, and can both underscore and reinforce multilateral activities. However, some argue that in contrast to multilateral funding, bilateral funding institutions tend to "conceptualize adaptation quite narrowly, focusing mainly on addressing some of the direct impacts of climate change and rather less on actions which reduce human and/or natural system vulnerability to climate change impacts" (Atteridge and Kehler Siebert et al, 2009). When bilateral funding excludes these areas, it is unlikely to achieve its maximum impact or to effectively protect women and men from the harms associated with climate events.

Because bilateral mechanisms are expected to meet the guidelines and requirements of the Paris Declaration on Aid Effectiveness, bilateral flows (whether from climate change funds or conventional development assistance)are more likely to be country-owned and in accordance with national social and development priorities.

However, because bilateral mechanisms are expected to meet the guidelines and requirements of the 'Paris Declaration on Aid Effectiveness', bilateral flows (whether from climate change funds or conventional development assistance) are more likely to be country-owned and in accordance with national social and development priorities. In addition, because bilateral flows tend to mainstream adaptation into development assistance, they are often sources of direct adaptation funding.

A significant advantage of bilateral finance is that it is likely to offer more flexible access to funds. Bilateral funding may therefore be more amenable to customization and fine-tuning to meet local needs, including gender sensitization. For example, funding can be tailored to the needs of the most vulnerable and towards the household and community sectors. Furthermore, some bilateral funds can be more responsive to

local needs by affording civil society groups direct access to funds, rather than requiring that they act through an intermediary implementing agency—though it is important to note that multilateral funds are starting to trend towards the direct access model as well.[3]

Similar to some multilateral assistance, however, bilateral assistance may be quite volatile in that it is short-term and susceptible to political cycles in donor countries. Projects' tendency to be small in scale and isolated (as opposed to being pooled and used cooperatively among groups of funders) exacerbates the *ad hoc* nature of bilateral funding. However, this small scope is one of the characteristics that makes bilateral funding attractive for projects run by communities and women's groups.

Another challenge that bilateral funding shares with some multilateral efforts is that the close linkages between bilateral funding and developmental assistance may lead to a blending of both into the official developmental assistance stream of financing, complicating the additionality requirement. It may also divert aid into climate change financing at a time when there is greater need for spending on other poverty reduction or gender equality issues.

National financing

National governments have a variety of fiscal measures at their disposal, such as tax incentives, grants and subsidies, public investment and insurance schemes, concessional financing, co-financing, and loans to targeted programmes, each with different equity and gender dimensions. However, national sources of funding may be quite limited, as many governments are already operating under severe budgetary constraints.

National funding can be particularly narrow in scope, volatile and unpredictable. In many cases, it should consider blending with larger funding sources from multilateral and bilateral climate change financing to support non-targeted gender equality interventions. Ultimately, however, national funding may be the most adaptable for gender sensitization, as it does not require intense lobbying across varying groups of countries. Furthermore, the obligations to ensure gender mainstreaming and gender equality are more binding at the national level.

To minimize policy choices having unintended consequences that are detrimental to women and/or impede development objectives, it is necessary to ensure that decision-making personnel at all levels of government incorporate gender perspectives into all processes and procedures, including through gender budgeting (see Box 7).

For example, some measures may limit tax revenues or otherwise constrain governments' development budgets. Governments may respond by cutting spending or diverting resources away from gender equality programmes and essential public services, or by increasing the range of taxable items or the tax on specific items. Thus, a tax or other incentive may result in lessened access to public or subsidized services or to an increase in the cost of goods associated with reproductive and unpaid care work. Such implicit or explicit policies could reduce women's disposable income more than men's, reinforce existing gender biases within a country's tax system and/or contribute to additional gender and power inequalities within households (UNDP, 2010). Alternatively, a tax write-off or new exemption to a sector or to business entities that provide specific activities that contribute to gender equality interventions (e.g. job training or technology support for

3. For example, the Adaptation Fund allows civil society organizations to become accredited as national implementing entities; GEF-5 provides provisions for direct access and it is likely that the new Green Climate Fund will include a direct access mechanism.

Box 7: Gender-responsive budgeting

Gender-responsive budgeting mainstreams gender in budgetary processes in order to promote gender equality and ensure that financial resources reach women and men equitably (African Institute for Economic Development and Planning and UNDP, 2010). It is necessary because even when gender-responsive policies and plans are developed and approved, they often fail to improve gender equality or empower women due to a lack of adequately allocated resources. Therefore, gender-responsive budgeting brings added value to the budget in its allocation, distribution and stabilization functions. Additionally, by enabling policy makers and planners to engage in broad-ranging budgetary consultations, gender-responsive budgeting holds policy makers accountable to their policies, increases the transparency of government and helps ensure that the benefits of policies and programmes advance gender equality and the fulfilment of women's rights.

Gender-responsive budgeting involves identifying interventions that are required to address gender gaps in government policies, plans and budgets and emphasizes re-prioritizing financial resources within sectors rather than increasing overall expenditures. It is often a multilayered process that assesses "the adequacy of policy and budgetary allocations for addressing the specific nature of gender inequity in a country" (The World Bank, FAO and IFAD, 2009).

Gender-responsive budgeting initiatives can focus on specific sectors or entire government accounts, and involves multiple actors (e.g. government officials, civil society and women's groups, gender experts). Gender-responsive budgeting also encompasses activities that include working with governments to develop measures that integrate gender equality principles into their public finance management systems, building planning and budget officers' capacities to create gender-responsive budget policies and outcomes, and tracking and monitoring policy implementation and service delivery.

Critical to gender-responsive budgeting is acknowledging that, given women's and men's different situations and needs, dividing the budget equally across genders is not necessarily equitable. For example, within the health sector women have additional reproductive health concerns—therefore requiring more assistance than men. Additionally, effective gender-responsive budgeting should focus not only on budget content, but also on the underlying budgetary processes to ensure the involvement of all stakeholders (both inside and outside government).

Gender budgeting is being actively promoted in many countries and efforts to assist civil society, planners and governments officials in implementing gender-responsive budgeting are currently under way by various organizations, including UNDP and UN Women.

SOURCE: UNDP 2011B; GENDER-RESPONSIVE BUDGETING WEB SITE, 2011; THE WORLD BANK, FAO AND IFAD, 2009.

Box 8: Targeted and non-targeted gender equality interventions

Targeted gender equality interventions include specific programs dedicated to improving outcomes for girls and women and gender mainstreaming activities such as gender training and gender focal points in sector ministries. This may apply to many sectors, including education, health, rural development, slum upgrading, water, sanitation and energy.

Non-targeted gender equality interventions are activities directed at improving social development, but which have spillover effects on gender equality. Projects and programs in these areas will work for the achievement of the MDGs as a whole, while synergistically promoting gender equality and women's empowerment. Activities may include the construction of feeder and rural roads, health clinics and water services.

SOURCE: BASED ON UN MILLENNIUM TASK FORCE AND GROWN ET AL 2006.

women's activities) may make positive contributions to gender equality, providing that it is not paid for by sacrificing parts of the social sector budget. Similarly, certain types of subsidies or removal of regressive taxes on resources such as food can also help contribute to poverty reduction and address social and gender equality concerns (UNDP, 2011).

Private sector climate change finance and gender

Private sector investments constitute 86 percent of global investments and financial flows (Murray Ward et al., 2008) and over 80 percent of climate change-related activities in the areas of clean energy technology, renewable energy and energy efficiency (UNFCCC, 2007). In developing countries, it is estimated that private sector financing is approximately three times greater than the amount provided by public sources (Climate Policy Initiative, 2011). The majority of this finance, however, is targeted towards mitigation initiatives in large emerging economies; the private sector does not yet play a significant role in smaller economies, or in financing adaptation measures (HPICA, 2009; Climate Policy Initiative, 2011). There is thus a need for increased private sector investments and opportunities within least developed countries and other developing economies—and for adaptation.

The majority of private finance in developing countries is targeted towards mitigation initiatives in large emerging economies; the private sector does not yet play a significant role in smaller economies, or in financing adaptation measures.

The nature, scope, composition and direction of private sector involvement in climate change financing are complex and dynamic and occur at multiple levels. There are actors who make long-term direct equity and debt investments in physical assets or in climate change-related activities, such as the development and production of renewable and efficient energy sources. In addition, some actors invest in speculative technologies such as carbon capture and storage.

Similar to other markets, adaptation and mitigation financing activities include investments in new infrastructure, mergers and acquisition with existing firms and angel or venture capital financing. These financial and investment flows occur both within and across borders. The range of actors in the climate change financing market includes utilities, investment banks, insurance companies, bond traders, hedge and carbon funds, emissions-trading exchanges and individuals. Non-profits, civil society organizations and philanthropic institutions also play active roles as aggregators, consultants and trading agencies.

Gender constraints and gaps play critical roles in influencing women's participation in financial markets, including the carbon market; effective participation requires proper understanding and the freedom to engage in transactions, which many women lack. Access and control over capital and other economic resources further constrain wider participation.

Unfortunately, gender segmentation and disparate access to tangible and intangible resources impact women's abilities and capacities to enter and exit the market. The private climate change finance market currently exhibits the same gender dynamics as traditional financial markets: women are under-represented and a high degree of gender biases and asymmetries inhibit their full participation. Further, actors with financial expertise and historical attachment to the environmental field—typically men—have been the early participants in trading innovative financial products (e.g. carbon credits). Early entry, experience and expertise in markets typically give these actors a range of advantages over newcomers.

Women also face challenges with access to credit. Reasons include lenders assigning a higher probability of default to small producers (many of whom are women), high administrative costs of extending and recovering smaller loans (more frequently extended to women due to the typical scale of their economic activities), gender asymmetries in the flow of information about credit markets and women's general lack of access to collateral. In addition, many financial institutions, even for the same activity or purpose, will usually offer women smaller loans than men (The World Bank, FAO and IFAD, 2009). These factors often combine to exclude or crowd-out women from existing credit markets.

Women are also discriminated against because credit institutions tend to assume that women borrow for consumption purposes and are therefore likely to have trouble repaying (van Staveren, 2002). But women's apparent consumption goods frequently serve dual purposes and are often transformed into capital goods that generate income in the informal and household economy (Baden, 1996). For example, women often utilize household refrigerators for cooling services for drinks and juices, ice production and sale, and storage

facilities either for their own activities or on a fee-based system for neighbourhood services. Similarly, women may use stoves and other equipment to make and prepare foods for sale. These activities, which are based on the convertibility of household appliances into capital goods-on-demand, become even more critical during times of crisis.

As a result of high transaction costs and frequent market failures, financial markets may actually increase or exacerbate the gap between men and women in terms of access to other tangible resources in the economy. For example, the International Finance Corporation (2006) notes that in Kenya, 48 percent of business owners are women, yet they hold only 7 percent of formal credit and own just 1 percent of land. Similarly, in Nigeria women own 25 to 30 percent of registered businesses, but access only 10 to 15 percent of bank credit. And in Uganda women account for 39 percent of businesses with registered premises, but receive only 9 percent of commercial bank credit (IFC, 2006b). This situation has serious implications for women's abilities to engage in the climate finance arena or to start or scale up initiatives aimed to respond to climate change.

The carbon market

The establishment of emission reduction targets and emissions trading by the Kyoto Protocol has led to the emergence of carbon as a new, internationally traded commodity. The carbon market constitutes the purchasing and selling of greenhouse gas emission allowances, carbon credits and emission offsets in order to enable countries, companies and individuals to meet their voluntary or required greenhouse gas emission reduction obligations.

At present, the carbon market utilizes two types of trading instruments: carbon offset credits and carbon allowances. Carbon offset credits are derived from projects that reduce, avoid or sequester greenhouse gases. Carbon allowances are created by regulatory frameworks and are allocated by foregoing the emission of greenhouse gases under certain conditions. On the carbon market, these instruments are exchanged in terms of various currencies, such as Assigned Amount Units, Certified Emissions Reductions and Emission Reduction Units (see Annex 2 for a broader discussion of how carbon trading functions).

Box 9: Key carbon market terms

Carbon credit: A permit that allows the holder to emit a unit of carbon dioxide.

Carbon market: a trading system through which entities buy or sell units of reduction credits for greenhouse gas emissions.

Carbon offset: allows purchasers to neutralize the carbon dioxide produced from their businesses and everyday activities—their 'carbon footprint'—by supporting a variety of emissions reduction initiatives sourced from external projects.

Carbon tax: a tax on the emission of carbon dioxide.

Cap and trade: a system in which the government sets an overall emissions limit (cap) and issues tradable permits to firms that allow them to emit a specified amount of greenhouse gases. Companies with excess allowances can sell (trade) these permits.

CO_2e: carbon dioxide equivalent, a measuring unit for greenhouse gases.

Emissions trading (or carbon trading): A market-based approach to achieving environmental objectives that allows those reducing greenhouse gas emissions below what is required to trade these excess reductions to a party that can use them to offset emissions that would otherwise be in excess of their permissible emissions levels (emissions levels can be imposed compliance requirements or voluntarily assumed limits). In general, trading can occur at the company, domestic, and international levels. Under the Kyoto Protocol, countries that have emissions units to spare (emissions permitted but not used) can sell this excess capacity to countries that are over their target.

GENDER AND CARBON MARKETS

From the vantage point of gender equality, market-driven carbon financing presents both opportunities and dangers. Opportunities exist in terms of market participants' ability to flexibly provide financial and technological capital to small-scale projects that are typically undertaken by women. Many of these projects are currently overlooked by financing mechanisms that focus on large-scale initiatives.

Challenges lie in the inherent gender biases and discrimination within the global finance sector. As with the broader climate change financing market, women are under-represented in carbon financing as sellers, buyers and investors. Additionally, systemic discrimination in access to credit and other resources often relegates women to small-scale activities, inhibiting their capacities to start or scale up mainstream economic activities. There are at least two challenges specific to carbon markets.

First, the market is relatively new, volatile, complex and disjointed (UNEP, 2008). Because carbon markets are evolving quickly, financial analysis frequently lags behind new developments in mechanisms and changes to its dynamics. This lack of information makes it difficult for actors in the market—fund managers, project proponents, buyers and sellers of carbon credits—to efficiently and effectively coordinate transactions. Thus, market dynamics and novelty make it challenging even for experienced actors, and hence particularly daunting to new entrants. Because factors such as the capacity to respond quickly to market conditions and opportunities, information disparity, capitalization levels, and extended networks of interrelated financial services can significantly affect actors' bargaining positions and access to opportunities, women's groups will be at a disadvantage compared to more vested, larger institutional investors.

Second, there is a high degree of uncertainty, political risk and lack of transparency regarding pricing and verification of carbon offsets. The major political risks include incomplete institutional arrangements, uncertainty and potential deadlock over key issues in UNFCCC negotiations and in national legislatures. These are interlocking factors—there is still controversy over matters such as auctioning, cap and trade and the reform of existing mechanisms. This is qualitatively different from conventional, established commodities markets and discourages investors with low tolerance for risk.

While these challenges are not gender-specific, they do have subtle gender undertones resulting from historical inequities that can work to the disadvantage of women. The primary factor is women's relative unfamiliarity and lack of expertise within the financial sector—particularly with the more esoteric aspects of the sector.

WOMEN AS INVESTORS

Globally, women business owners tend to concentrate in the services sector (Marcucci, 2001). However, there are entry points for expanding women entrepreneurs' participation, whether through wholly owned enterprises or through joint ventures with large entities, foreign companies or non-governmental organizations. Involving women in these

sectors in ways that generate significant qualitative changes in gender equality and women's empowerment will require adequate start-up financing and ongoing capitalization to enable the requisite levels of empowerment, education, development, networking and knowledge sharing. Public financial mechanisms may be an effective tool to leverage capital from private sector financial markets. Furthermore, public mechanisms could act as incubators for carbon funds focused on women beneficiaries.

In order to increase the likelihood that women will benefit from carbon markets, it is important to attract women investors, as they tend to support the growth of women-run businesses. Research studies note that women investors have a "heightened receptivity to investing in women owners and pay special attention to women-led businesses" (Kauffman Foundation, 2006). Many women angel investors (affluent individuals who provide capital for business start-ups, usually in exchange for ownership equity) also seek out opportunities to finance women-led businesses.

Similar to findings that women are under-represented in financial markets, ongoing research points out that women are under-represented as investors. For example, American women "own about half of [the] country's wealth but make up no more than eight percent of angel investors" (Kaufman Foundation, 2006). One researcher argued that "increasing the numbers [of women angel investors] could be a logical way of increasing overall financial and mentoring support for new companies" (ibid.).

This underscores the need for education and outreach on climate change financing instruments that targets women in both developing and industrialized countries. By educating and informing women investors about the opportunities and challenges of underwriting climate change and related products, they will be important sources of capital for women's adaptation and mitigation-related businesses that also promote gender equality. This would also be useful for increasing women's profile in the carbon finance sector.

Flexible mechanisms and the role of government

The Clean Development Mechanism (see Box 10) and Joint Implementation (a project-based system that regulates exchanges between industrialized countries and economies in transition) played a critical role in catalysing the market for carbon trading and are the foundation of the carbon market. These mechanisms create significant pathways for institutional participation in climate change financing.

Governments primarily impact the carbon market by establishing standards, oversight and regulation. Policy frameworks and national public financial mechanisms can leverage and channel private sector activities into desirable pathways of climate change activities. Governments can use public financial measures to improve the long-term effectiveness of private finance and to ensure fairness and equity.

Within these roles, governments can promote women's economic empowerment through a combination of public financing mechanisms and complementary national policy instruments. For example, governments can use taxation policies to promote women's economic empowerment in targeted areas. These policies can be designed narrowly or broadly, and can benefit individuals directly (e.g. exemptions for monies spent on education or vocational training), indirectly (e.g. credits for investing in women-owned businesses), or obliquely (e.g. tax incentives supporting private sector gender equality or women's empowerment initiatives).[4]

4. For further information, see UNDP, 2010c, 'Issues Brief: Gender Equality and Poverty Reduction: Taxation'.

Governments can also support capacity-building measures that enhance women's entrepreneurial activities in the adaptation and mitigation sectors.

Starting and growing a successful enterprise or effectively entering clean energy markets requires adequate start-up capital. The capital must be sufficient to support the ordinary needs of the business and to finance necessary complementary technologies and expertise (e.g. on-going expertise in content and processes). Governments can catalyse women's participation by providing technical assistance, stimulating partnerships between large and small firms, subsidizing loans, and establishing project development grants. These steps can also help ensure gradual and consistent capital infusion throughout businesses' growing phases.

Box 10: The Clean Development Mechanism

Established by the Kyoto Protocol, the Clean Development Mechanism (CDM) possesses two concurrent objectives: to reduce carbon emissions and to promote sustainable development. A market-based mechanism, the CDM generates funds through investments in emissions-reduction projects in developing countries. Upon successful implementation, CDM projects are issued credits known as Certified Emission Reductions (CER), which can be sold on the carbon market.

By identifying and funding cost-effective opportunities to reduce emissions, the CDM has helped reduce the overall costs of emissions reductions. Investments in registered CDM projects rose to $47 billion in 2010 (UNFCCC, 2011). Primary and secondary CDM market transactions were worth nearly $33 billion (Capoor, 2009) in 2008 and nearly $20 billion in both 2009 (Kassoy, 2010) and 2010 (The World Bank, 2011). However, the Mechanism has thus far been less successful in advancing development goals and has been widely criticized for prioritizing emissions reductions over sustainable development.

To date, CDM project proponents have tended to focus on large-scale initiatives, and poor women and men have consequently received few direct benefits from CDM project participation. For example, Alboher (2009) undertook a systematic review of 1,548 project documents registered with the CDM Executive Board as of March 31, 2009. The review found that only small minority (about 16 percent) had any reference to gender or women, and an even smaller set (less than 3 percent) had indications that the project would benefit women beyond the intermittent use of the word 'gender' or 'women' in the project design document. Moreover, due to a lack of sex-disaggregated data and the absence of verification, monitoring and evaluation processes, it was difficult to ascertain whether any project contributed to women's empowerment. Absent monitoring or on-site evaluations, there was no way of accounting for how (or if) the projects' gender aspects were implemented.

Yet the CDM has considerable potential to promote sustainable development goals, including gender equality—particularly in project activities that offer cleaner, more efficient and affordable energy for cooking, lighting and electrical appliances in rural households (GreenStream, 2010). One avenue for balancing CDM project revenue with development objectives is for governments to incorporate existing national measures, indicators (both poverty and gender equality) and compliance measures into CDM project approval processes. In doing so, governments should thoroughly integrate gender equality priorities and awareness into these processes, ensuring that prospective projects not only further development ends as part of their overall mitigation achievements, but also do so in a way that ensures that benefits are shared equally and that women are not adversely impacted by projects' unintended consequences.

Two other broad-based approaches that may be useful for incorporating development objectives into the CDM are taxation and earmarking. Some governments are considering imposing a sustainability tax on projects that earn high returns but show few sustainable development benefits. Revenue from the sustainability taxes could be used to invest in projects that promote development objectives and women's empowerment within the host country (Alboher, 2009). For example, China has instituted a scheme whereby all CER proceeds are taxed and then channelled into a fund that promotes sustainable development, helps provide loans to project developers and finances CDM capacity-building measures (Abele, 2008; UNEP and Baker & McKenzie, 2009). The scheme differentiates between projects with high and low levels of sustainable development benefits, taxing them between 2 percent and 65 percent, depending on the nature of the project. Similarly, some countries are ensuring sustainable development benefits by earmarking CER revenues. For example, South Africa mandates that CDM projects that show "disproportionately high profits from CER revenues to invest a part of the proceeds in additional sustainable development measures near the project location" (Sieghart, 2008). With sufficient political will, these investments could provide a new source of financing for advancing gender equality and women's empowerment.

Governments can also play an effective role in ensuring that climate change finance markets deliver society-wide benefits. If properly designed and enabled with sufficient capacities and capabilities, public financial mechanisms can leverage private market instruments for social goods while ensuring equitable outcomes. These outcomes could be promoted by regulations that ensure adequate burden-sharing and that direct portions of earnings into gender equality interventions and social and poverty reduction programmes and projects.

As individuals and firms benefit from carbon market transactions, it is anticipated that some of these beneficiaries will make the necessary adaptive and mitigative transformations to their private residences, businesses and energy consumption patterns. These expenditures will strengthen the country's overall ability to withstand climate change shocks and, because funding is flowing from outside the country, the expenditures will relieve some of the government's burden to provide these services itself. However, these actors and their actions will not directly contribute to the public aspects of adaptation, such as fixing infrastructure or climate-proofing health systems. To assist funding these needs, governments should examine the feasibility of raising revenue domestically.

Governments can also play an effective role in ensuring that climate change finance markets deliver society-wide benefits. If properly designed and enabled with sufficient capacities and capabilities, public financial mechanisms can leverage private market instruments for social goods while ensuring equitable outcomes.

Direct taxes, for example, generate predictable revenue flows that can be directed towards projects that meet the needs of local communities and women's and men's practical and strategic interests in those communities. It is possible that carbon tax or allowance auction revenues can support community services more efficiently than relying on the carbon market to generate investment funds for climate change responses. Though ensuring that the resulting revenues flow towards adaptation, mitigation or development needs will require sufficient political will and commitment, lessening the financial pressure on other accounts would help create space in these budgetary areas. Nonetheless, the imposition of such taxes would have to be part of a comprehensive fiscal package that ensures or offsets any additional cost burdens that may occur for poor individuals, households and micro- and small businesses. Such offsets could involve implementing tax exemptions or value-added tax reforms that lower the price of basic goods and

services disproportionately consumed by poor communities and women (UNDP, 2010).

Government's public financial mechanisms have broad and important roles to play in stimulating carbon markets and ensuring women's equal participation and enjoyment of its benefits. For example, in underserved areas and communities, the government can assist with monetizing future cash flows of advanced sales of carbon credits (UNEP, 2008b). Though not entirely risk free (buyers may not materialize; projects may fail for other reasons), this could generate the necessary initial capital for an infrastructure project. By adjusting the provided capital with respect to future value, the government may recoup its full investment or receive a new stream of funds.

Likewise, through its taxation policies (such as tax credits for education training, research and development), governments can help to stimulate investments in programmes that bolster women's and indigenous groups' intellectual property rights as well as support the refinements, extensions and dispersion of indigenous and women's technological innovations. Governments can also use their fiscal and labour market policies to encourage employment in the clean energy sector—particularly for women.

Summary and recommendations

There is substantial dynamic interplay among gender equality, women's empowerment and climate change. Successful adaptation and mitigation efforts are critically linked to gender equality; women's empowerment cannot successfully or sustainably occur without resolving the challenges of climate change, and adaptation and mitigation efforts cannot reach their full potential without incorporating gendered concerns and priorities. Therefore, as the climate change financing regime seeks to promote global benefits, it should also consider the gendered implications of its activities and decisions, incorporate gender equality and women's empowerment goals, and promote sustainable development and MDG achievement. Further, climate change finance should reinforce positive trends towards gender equality and women's empowerment and minimize unintended consequences that disadvantage women or reinforce structural inequalities. It should also ensure equitable benefits to women and men in the formal, informal and household sectors of the economy.

It is important for climate change financing to focus on transforming and upgrading women and men's livelihoods in order to promote the necessary behavioural, institutional and policy changes that are essential to achieving climate change objectives.

It is also important for climate change financing to focus on transforming and upgrading women and men's livelihoods in order to promote the necessary behavioural, institutional and policy changes that are essential to achieving climate change objectives. Adaptation and mitigation financing present an opportunity to modify traditional gender roles and divisions of labour and to address long-standing gender inequalities. Investments in building women's adaptive capacities will promote development by enhancing and protecting current achievements and by strengthening women's roles in society. Investments in mitigation capacities can empower women to expand their participation in traditionally male-dominated sectors and increase the likelihood that they will benefit from new carbon finance opportunities. Not only do the benefits of investments in adaptation and mitigation overlap among the two areas, but they will also enhance women's capacity and engagement across all segments of society. The result will be an economically stronger world that is closer to achieving the MDGs and better prepared to contend with climate change impacts.

However, the current climate change financing regime does not systematically take gender issues into account. Rather, it reflects features that have been identified with the larger global financial architecture; a combination of gender-blind and/or male-biased decision-making that has led to systematic patterns of gender segmentation and gender asymmetries in the allocation of finance that disadvantages women—poor women in particular.

To address these imbalances, the climate change finance architecture should be grounded in the same set of principles as the climate change policy environment. Two broad groupings should be considered. The first includes principles such as adequacy, additionality, appropriateness, equity and predictability. These principles stem from the Articles of the Convention and have been reaffirmed and expanded by decisions of the Conferences of the Parties. The second set includes distributive, corrective and gender justice.[5] These principles relate to the development, social and gender dimensions of climate change and support affirmative action scenarios for groups who face historical and continuing disadvantages in accessing resources (e.g. set-aside programmes for women).

Together, these sets of principles will generate an imperative to create financial mechanisms and processes that are sensitive to both women and men's needs, challenges and constraints. When combined with the principles undergirding the UNFCCC normative framework (e.g. common but differentiated responsibilities, the precautionary principle, a focus on the most vulnerable), these provide a comprehensive set of principles that are both necessary and sufficient to generate gender equality outcomes through climate financing.

5. Gender justice is "the ending of, and if necessary the provision of redress for, inequalities between women and men" (Goetz, 2003). Inclusion of a gender justice framework within the context of climate change policy would require institutional "response and answerability," to not be prejudicial to the interests of women (paraphrased from Goetz, 2003 and Goetz, 2007).

Addressed properly, climate change financing will ultimately create opportunities to address past inequalities and to improve women's and other historically disenfranchised groups' economic and social situations.

Towards a gender-sensitive post-2012 climate change finance architecture

As governments adjust policy frameworks to support their economies or sectors to meet the explicit costs of climate change, economic variables and analyses will determine which industries or sectors will be encouraged to grow and which sectors will shrink (Walz and Shleich, 2009). Therefore, attention must be directed to the limitations of these variables and analyses in terms of their social- and gender-differentiated effects. Scrutiny from a gender analytical and gender justice perspective must be focused on the constraints that will determine the capacities of individuals, households and businesses to respond to climate change. These adjustment demands and responses will be incentivized by economic mechanisms and instruments in the context of climate policy.

Mainstreaming gender into the climate change policy framework will require integrating gender perspectives into institutional-level discussions, negotiations and policy documents. While efforts in this area have already begun to make progress at the global level, gender policies and gender mainstreaming must also permeate climate change institutions at national and local levels. These efforts must also include increased coordination with women's bureaux, ministries of women's affairs and local gender experts and women's groups.

Expanding use of gender analytical tools will also capture—and then present to decision makers—the full value of a project that would otherwise be looked over in favour of one that appears to have greater direct financial benefits. For example, the marginal return of a project that reduces carbon output by increasing cook stove efficiency may appear smaller than that of a project that reduces carbon emissions by improving a factory's machinery. However, a comparison that utilizes gender-based analytical tools may show that the decrease in hours required to gather cooking fuel—and the resultant increase in productivity as some of those hours flow to the labour market—has a greater overall positive effect on the economy than the factory's savings and the associated lower price of its goods.

In such cases, it is financially rational for a government or aid programme to subsidize or leverage available funds to support implementation of the smaller project. By determining and providing the economically efficient subsidy amount, the two projects will appear to investors as fiscally neutral—their actual return will be identical. Easing the fiscal impact, governments may eventually recoup investments through increased tax earnings from higher economic productivity. Even when not revenue-neutral, the increased social benefits may offset the direct difference in investment return—and investors may be willing to pay a premium for such development benefits.

GENDER-SENSITIZING PROCEDURES AND MECHANISMS

Climate change adaptation and mitigation efforts create a wide range of programmes, initiatives and bodies, from funding mechanisms to capacity-building programmes, project implementation organizations and oversight agencies. Ensuring that climate change financing more equitably impacts both women and men entails seeking opportunities within each. Suggested actions include:

Incorporate gender analytical tools into all phases of programme design, implementation, monitoring and evaluation: Utilizing gender analytical tools will help ensure that both women's and men's needs, concerns and perspectives will be incorporated into programme frameworks, will facilitate equality in the delivery of programme benefits, and will help avoid negative unintended consequences. Incorporating gender analysis (including relevant data collection) into monitoring and evaluation processes will ensure that programmes maintain a focus on gender targets and goals throughout their cycles, and will assist in re-evaluating or refining objectives. See Annex 3 for a tentative outline of a gender-sensitive climate change risk analysis.

Compile sex-disaggregated data on how climate policy and economic mechanisms incentivize individuals, households and businesses: Gender assessments, including the collection of sex-disaggregated data, should inform decision-makers with a view towards maximizing the impact of their decisions and avoiding suboptimal outcomes that perpetuate existing inequalities. Integrating gender-sensitive indicators and proxies into climate risk and vulnerability analyses will also delineate those investments that will have the greatest impact on gender equality and women's empowerment.

Establish gender-based criteria in fund allocation, selection, and other aspects of decision-making: Integrating gender considerations into allocation and selection criteria throughout every stage of financing activities—from initial project preparation through implementation—and initiating programmes designed to assist in securing financing or approval will help ensure that project proponents and advocates consider gendered impacts starting from the earliest stages of policy, project and programme design.

Advocate for strong property rights: Protecting access to land and resources is necessary to counterbalance long-standing disparities in property rights between women and men and between poor and moneyed interests. As previously undervalued assets (e.g. forests) gain value in response to adaptation and mitigation efforts, and as informal property uses calcify into formal property rights, it will be necessary to support women's and indigenous groups' continued access to and use of these assets (particularly in REDD/REDD+ and related mechanisms). This will require activities such as systematic analysis—and credible documentation—of historical ownership and usage rights to lands to which they have had historical access; strong advocacy of policy-makers; and incorporation of gender-aware land use criteria within project development pipelines. In addition, the time-sensitive nature of securing land use claims will require proactive community outreach and awareness-raising activities in order to limit avoidable losses. This is particularly imperative in circumstances in which poor women and men stand to not only lose traditional access to resources, but also miss out on benefiting from the assets' newly created gains.

Use regulatory, budgetary, and tax policies to provide resources: Subsidizing adaptation and mitigation efforts that are unlikely to be financed through investor-backed sources—yet have high development and gender equality benefits—will promote the general welfare of communities and nations and will enhance overall climate resilience. Policy frameworks and public financial mechanisms that highlight the benefits of projects with traditionally non-monetized or ancillary social outcomes can leverage and channel private sector activities into desirable pathways of climate change activities. Governments can further reduce or eliminate market barriers through a combination of public financing mechanisms (e.g. credit lines, guarantees, grants and technical assistance) and complementary national policy instruments (e.g. regulation, taxes and market mechanisms).

Governments can also include gender-based and other development criteria as required components of project approval processes. Additionally, as governments realize new income streams from market-based

climate change finance activities, they can direct a portion of these additional funds to development activities.

Ensure women's effective and balanced participation in decision-making: Securing women's and gender experts' participation in decision-making will promote a focus on gendered needs and concerns and result in greater implementation of gender-balanced policies and practices. Not only will this serve to enhance individual bodies' gender awareness and related outcomes, it will also increase the number of women holding positions of authority, creating a body of experience and knowledge upon which other areas of the community can build.

Develop women's capacities to engage effectively: Though many women hold leadership positions in diverse fields, historical discrimination in education and employment and other cultural norms have long constrained opportunities. In order for women's representation in decision-making bodies to be more persuasive and effective, they must have the capacity and freedom to contribute. This may entail organizing capacity-building programmes that are focused not only on technical competencies specific to climate change, but also on core analytical and econometric techniques. It is also important to build the capacities of all decision-makers to incorporate gender-based analysis into deliberative processes.

In addition to fundamental technical trainings, it is necessary to organize capacity-building programmes that are focused on women's leadership, business, and management skills. This can be further enhanced by maintaining platforms or developing networks in order to facilitate knowledge-sharing and to benefit from lessons learned. Enhancing the calibre of leadership will not only improve decision-making bodies' overall functioning—and thereby improve a country's climate change resilience—but will also serve to help embed such skills and proficiencies within communities.

MAINSTREAMING GENDER

Improving infrastructure, public health, and disaster preparedness is centrally important for women's social reproduction roles and care activities—as well as climate change responses. Because elder- and childcare tasks are typically performed by women, ensuring their ability to carry out these tasks is critical to communities as a whole. Funding is also needed for gender equality interventions and for promoting women's empowerment; gains in these areas will improve individual, local and national adaptive and mitigative capacities. Suggested actions include:

Ensure that projects' and programmes' broader social implications are factored into decision-making processes: In order to achieve greater impact, climate change financing should contribute to projects and programmes that focus on improving social development or have spill-over effects on non-targeted gender equality interventions. However, the current climate change financing regime tends to fund capital-intensive and large scale, high-technology projects. This paradigm tends to exclude projects and services that support livelihood and sustenance activities that also generate adaptation and mitigation outcomes (e.g. mixed and rain fed farming, agroforestry, rainwater harvesting and recharging well water).

Maximize synergies between mitigation, adaptation, poverty eradication, gender equality and women's empowerment: This would include considerations such as employment effects and monitoring and assessment for distributional and equity effects. Other avenues for sensitizing funding include promoting gender equity in supply chains; enhancing household energy services (e.g. lighting and cooking); promoting the spread and diffusion of technology and small appliances; promoting alternative, community-developed energy sources; promoting the transition from traditional biomass fuels to biofuels; and ensuring that projects and programmes protect the land, water, human and labour rights of indigenous peoples and women. These approval processes should also provide opportunities for supporting or scaling up women's activities that support climate change responses.

Streamline application processes and support women's and small-scale initiatives' participation in adaptation and mitigation activities: Financing mechanisms' expertise-intensive application processes and projects' significant upfront costs tend to preclude women's and community groups from accessing adaptation and mitigation funds. Most climate change funds and instruments are designed to accommodate large-scale, well-capitalized projects which tend to have access to professionals versed in grant writing, project design methodology, business administration and climate science, facilitating their progress through funding processes. It is difficult for grass-roots organizations, which are typically focused on smaller-scale activities and have smaller staffs, to pursue the time-consuming applications processes and implement the associated requirements.

In order to address these challenges, it is important to reduce the time and cost of accessing resources. This entails streamlining processes such as application, registration, approval, implementation, evaluation and monitoring of funds. In addition, comprehensive assistance and capacity-building programmes—project development grants, training, technical assistance and extension services specifically geared towards small-scale organizations—should be created to provide small projects, particularly those operated by women or community groups, with better opportunities to access funds.

Grounded in overall social net benefits, targeted interventions should address the high transaction costs that women and community groups face within existing financing mechanisms and eliminate the pervasive gender bias and segmentation inherent to these mechanisms. Proactive actions could include creating special application windows for gender-sensitive adaptation and mitigation projects, subsidizing the administrative costs of registering projects developed by women and community groups, or promoting the use of donor-sequestered or -earmarked contributions within national development banks and funds.

EMPOWERING WOMEN

Many climate change adaptation and mitigation efforts will impact women's various roles, such as direct or indirect beneficiary, participant or community member. It is imperative that climate change finance mechanisms and programmes reflect women's interests and maximize their opportunities to participate in, benefit from, and influence all aspects of adaptation and mitigation efforts. Furthermore, adaptation efforts should focus on tempering the disparity between women's increased vulnerability to climate change impacts relative to men's. Suggested actions include:

Improve infrastructure, public health, and disaster preparedness: Establishing and funding workshops and seminars on steps women, men and children can take to secure their homes and devising intercommunity disaster coordination plans are important investments in a community and its ability to cope with climate

change impacts. Increasing individuals' and communities' abilities to respond to climate change-related events is important to women's social roles and care activities. Though small-scale projects that increase homes and communities' climate resilience may be only marginally financially viable, the overall effects would be to drastically reduce loss from climate change-related weather events.

Ease women's and girls' care burdens: Reducing women and girls' care burdens will not only lessen the labour and time commitment required to provide basic services for their families, but can also strengthen communities by allowing for more girls to attend school and for women to provide their talents and labour to adaptation and mitigation efforts and economic activities more broadly. It is therefore important to examine a project's non-pecuniary outcomes in addition to its financial value. Furthermore, such projects may be economically competitive with other projects when financial analysis is broadened to examine wider effects and benefits.

Promote women's economic empowerment: Eliminating or reducing market barriers to women entrepreneurs and funding gaps between women and men will ease women's entry into non-traditional business areas (e.g. infrastructure construction, maintenance and repair). As adaptation and mitigation efforts grow with increasing evidence of climate change and increasingly severe impacts, opportunities to capitalize on the provision of related goods and services should not follow conventional gender lines. Rather, empowering women to take advantage of financial opportunities will require both market capitalization and capacity-building. Capitalization can be secured via mechanisms such as soft or hard loans or targeted development grants.

Related capacity-building will require a broad, context-specific approach. Depending on current capacities, programmes such as those that teach fundamental accounting practices, technical training or other essential business-related skills will facilitate the transition to entrepreneurship. In establishing capacity-building programmes, adapting to ongoing business support needs and updated training will be essential to maintaining women entrepreneurs' ability to compete. This support is key to rectifying past discriminations and disadvantages that have forestalled the establishment of widespread support networks and resources for women.

Women's economic empowerment can also be expanded beyond direct project intervention. For example, selection criteria can ensure that gender equality is promoted throughout supply chains.

Embed adaptation and mitigation strategies into gender equality projects: Partnering with new or existing gender equality projects and programmes can be a cost-effective method of increasing a community's climate resilience. For example, programmes and projects targeted at improving maternal health or women's safety could also incorporate components on disaster preparedness or provide early warning equipment packages and kits.

MARKET AND NON-MARKET MECHANISMS

Ultimately, the nature and scope of economic and social empowerment processes must be deepened in order to better meet climate risks. In order to develop a proactive agenda geared towards ensuring gender equality and women's economic and social empowerment, additional work is needed to understand—and then map—the evolving relations among the growing networks of private and public sector climate change financing instruments, mechanisms, funds, facilities, programmes and projects. Suggested actions include:

Utilize a mixed system of market- and non-market mechanisms: Adaptation and mitigation measures that take advantage of both market and non-market mechanisms will yield a range of high-impact gender equality benefits. To realize these benefits, it is critical that investment and financial support increases women's access to resources and enables both women and men to scale up their entrepreneurial activities. This also includes support to local and household infrastructure, such as clean energy stoves, water pumps and generators powered by low-carbon energy sources, and a focus on areas such as information and communication technologies. Government subsidies and other fiscal measures should continue to be useful sources of funds for small-scale and women-run projects that may not otherwise be able to access financing.

Focus on positive incentives in policy-making: In order to increase national governments' support, climate change finance mechanisms must also commit to utilizing positive incentives, rather than what in some contexts can be burdensome economic or other forms of policy conditionalities.

Integrate gender priorities into private-sector regulations and policy frameworks: The private sector finances many investments in adaptation and mitigation initiatives, helping drive innovation in clean energy and other climate-related technologies. Mechanisms and processes need to be developed to ensure that gender-specific priorities and concerns are integrated into policies and programmes that influence this area. Governments can foster this effort by incorporating gender impact assessments into subsidies, tax policies, public financing and technical assistance programmes. Government enforcement of gender equality requirements in tender, bidding and procurement processes and mechanisms will also support these efforts. In many countries, gender-sensitive employment, health and safety regulations provide appropriate blueprints for the kinds of gender-sensitive processes that should underlie financial sector regulations.

Ensure that information and analysis for decision makers accounts for gendered differences: Financing should be based on differentiated estimates so that the livelihood costs and consequences are understood through a gender, age and ethnic lens. These estimates should incorporate the values, contributions and time spent by women and groups whose productive and reproductive activities are not reflected in traditional markets indicators (Castañeda and Gammage, 2010).

Expand gender sensitization efforts to the business and philanthropic communities: Developing ties to communities that traditionally work outside of gender and climate change will reveal new linkages and expand opportunities to support gender equality, women's empowerment and climate change efforts. This should function synergistically with work undertaken to introduce gender equality concerns into the operations and scope of funding instruments and mechanisms.

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Annex1: The carbon market

The primary purposes of the carbon market are to reduce the costs associated with reducing emissions and to ensure economic efficiency in emissions reductions. Working together, two entities with significantly different costs to reduce can achieve the same net level of greenhouse gas reduction for an overall lower cost. The entity that has the lower cost to cut emissions reduces them to levels below its existing reduction commitments (thereby creating credits or offsets equal to the amount it reduced below its commitment). The entity with the higher cost to reduce purchases these additional reductions, which allow it to also meet its emissions targets for the lower cost.

As regulatory frameworks place limits on the amount of carbon companies can emit, purchasing and using emissions reduction credits and offsets becomes attractive, as these instruments allow entities to emit more than their initial limit. Because emission reductions' mitigative impact is independent of the geographic source of the emission, this additionality aspect allows the purchaser of the instrument to emit its CO2 equivalent while still achieving global emissions reduction targets.

For example, consider a hypothetical regulatory framework that requires a country to reduce its carbon emissions by 1,000 units. Consequently, each emitter must reduce its emissions by a set amount to achieve these reductions. The cost to reduce depends on many factors (e.g. current technology in place, the nature of its carbon dioxide production, etc.), and will vary from emitter to emitter. In this scenario, if two firms with different costs to reduce need to reduce by 500 units each, the total economic cost will be the sum of their individual cost:

Reducing emissions without carbon trading

	COST TO REDUCE BY 1 UNIT	NUMBER OF UNITS TO REDUCE	COST TO PLANT
Plant A	$100	500	$50,000
Plant B	$50	500	$25,000

Total emissions will be reduced by 1,000 units, and the total cost to the economy will be $75,000.

However, if the two firms are allowed to trade reductions, then Plant A can reduce by less than 500 units—and make up the difference by paying Plant B to reduce its emissions (at its lower cost) beyond Plant B's required amount. As long as there is a sufficient price difference between the two firm's costs to reduce, any dollar amount lower than Plant A's cost to reduce and higher than Plant B's cost will result in lower total costs to both plants and overall lower costs to the economy—all while still achieving the desired level of carbon emission reduction:

Reducing emissions with carbon trading

	COST TO REDUCE BY 1 UNIT	NUMBER OF UNITS REDUCED	COST OF EACH PLANT'S OWN REDUCTION	COST TO BUY ADDITIONAL REDUCTIONS AT $55 PER UNIT (ASSUMING TEN PERCENT SURCHARGE ON PLANT B'S COST TO REDUCE)	REVENUE FROM SELLING ADDITIONAL REDUCTIONS	TOTAL COST OF REDUCTIONS
Plant A	$100	250	$25,000	$13,750		$38,750
Plant B	$50	750	$37,500		$13,750	$23,750

Total emissions are still reduced by 1,000 units—but each plant spent less to reduce, resulting in lower costs to both individuals and the overall economy.

Carbon offsets work similarly. For example, if it is less costly for a firm to provide carbon-reducing technology (e.g. solar-powered stoves), it can utilize the carbon market to facilitate the arrangement. Further, if a project proponent calculates that she can reduce emissions for lower than the current price of a tradable carbon unit, implementing that project could create a new revenue stream.

There are many factors (e.g. changing marginal costs to reduce) that affect overall carbon pricing. However, given that firms will face different costs to reduce, these factors will be reflected in the final price of a reduction unit and will invariably lead to overall lower economic costs, serving to ease developing nation's mitigation and adaptation costs, and in many cases, creating completely new revenue streams.

Because pricing decisions in carbon markets are based on parties' relative efficiencies in reducing emissions, governments and designated national authorities may have the flexibility to impose a levy on these transactions without unduly dis-incentivizing such trades or severely impacting the overall amount of emission reductions achieved. Though any tax will shift the supply curve inward, resulting in higher selling prices and lower units traded, the actual changes to price and quantity depend on several factors in addition to the tax amount. For example, because this does not affect reduction commitments, the shape of the demand curve is fairly inelastic: the quantity purchased is less responsive to shifts in price.

To achieve maximum benefit, countries supplying emissions reduction units should examine their capacity to reduce and the overall pricing context (e.g. competition from other countries; the existing two percent levy for the Adaptation Fund) and determine the appropriate taxation level that will be sufficient to fund adaptation, mitigation and development while remaining price-competitive and maintaining incentives to develop innovative reduction methods.

Emissions trading units in carbon markets

AAUs: Assigned Allowance Units: Emission quotas assigned to Annex I/Annex B countries under the Kyoto Protocol. These can be directly traded on a bilateral basis under international emissions trading.

CERs: Certified Emission Reductions, generated by Clean Development Mechanism projects.

ERUs: Emission Reduction Units, generated by Joint Implementation projects.

EUA: European Allowance Units, generated in the European Union Greenhouse Gas Emission Trading System.

RMU: Removal Unit, generated on the basis of land use, land use change and forestry activities such as reforestation, i.e. the development of domestic sinks.

Annex 2: A tentative outline for a gender-sensitive climate change risk analysis

To date there is no methodology that focuses on integrating gender and women's empowerment concerns and priorities into climate change risk and vulnerability analyses or into the framing of climate change financing. Yet there is a need for a robust analytical risk assessment framework that focuses attention on women and men's exposure to risks arising from climate change and adverse weather events. This can help ensure that climate finance responds appropriately to gender-differentiated risks and vulnerabilities.

A gender-sensitive climate risk and vulnerability assessment framework should clearly identify the risks that climate change poses for men and women's social and economic situation and provide the appropriate visibility so that these risks can be fully addressed. Such a framework can be developed or grafted onto the numerous emerging climate risk and vulnerability approaches. One amenable approach is Hart's 2007 qualitative climate risk analysis as applied to infrastructure finance risk assessment.[6]

Drawing on the emerging gender and vulnerability literature, it is possible to develop a rich gendered and well-contextualized qualitative risk assessment framework. Adapting Hart's qualitative infrastructure finance climate risk assessment framework to take gender dimensions into account suggests seven risk assessment categories: supply risk; market risk; operating risk-cost/losses; social and personal security risk; domestic/time burden risk; recovery risk; and participant risk. The economic effects can serve as key entry points and the basis for claims on both public sector financing and options for private sector financial opportunities.

A qualitative gender climate risk assessment for climate change financing

CATEGORY OF RISK	DESCRIPTION/LIKELY EFFECTS
Supply Risk	Supply interrupted; decrease access
Market Risk	Price or demand changes for food and input; food insecurity and livelihood loss
Operating Risk-cost/Losses	Loss of assets including shelter
Social and Personal Security Risk	Health/wellness disparity Information gaps Mobility and public space constraints Forced relocation Rise in violence Increase exposure to sexual abuse and harassment
Domestic/Time Burden Risk	Increased care and other work loads
Recovery Risk	Impaired ability to recover assets and resources after catastrophe
Participant Risk	Financial stability, asset holding/management; credit worthiness; inadequate administrative and technical capacity

6. Hart applied qualitative climate risk analysis to the Infrastructure Finance Risk Assessment Framework of Tinsley (2000). Tenley developed a 15 item framework: 1) Supply risk: supply interrupted or input price increase, 2) Marketing risk: price or demand decrease, 3) Foreign exchange risk: mismatched revenues and cost due to currency fluctuations, 4) Technology risk: technology failure or inefficiency, 5) Operating risk: failure in management performance, 6) Environmental risk: environmental liability or regulation, 7) Infrastructure risk: inter connections to other critical infrastructure, 8) Force Majeure risk: acts of nature (e.g. storms, fire earthquakes), acts of man (e.g. riot, war) and impersonal acts (e.g. financial system collapse), 9) Completion Risk: construction delay/overruns/defects, 10) Engineering risk: failure in engineering analysis, design and data, 11) Political risk: war unrest, nationalization, regulation, change in government, environmental activism, corruption, 12) Participation risk: competency/financial stability of participants—project sponsors, lenders, equipment vendors, etc. 13) Interest rate risk: float interest loan, 14) Syndication risk: lead banks ability to sell portion of loans to other banks and 15) Legal risk: enforcement of contract (Hart, 2007, Table 4.1).

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