

Greening the Economy and Increasing Economic Equity for Women Farmers in Madagascar

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1. Introduction

Although gender considerations are relatively new in the climate change discourse, it is hardly surprising that they have been at the heart of recent activism and policy advocacy efforts by multiple actors. Socio-economic research and evaluations of development effectiveness both confirm that access to resources and the agency to use them are influenced by gender roles, responsibilities and differential access to opportunities and influence (World Bank, 2010; UNFPA, 2009; Lipper, 2001; Kabeer, 1999).

Indeed, the sources and degree of vulnerability to climatic changes also vary along gender, class, spatial and geographical lines. Women and men face the same challenges posed by the ecological and physical limitations to adaptation in the face of climate change, such as the critical thresholds beyond which ecosystems (for example, coral reefs) may not be able to adapt to sea-level and temperature rises. Thus, it is often posited that women are more vulnerable than men due to an additional set of limitations related to unequal access to economic, knowledge and technological resources. Moreover, they lack the financial resources and technical support that are needed to adapt adequately to a changing climate.

Social barriers are another source of vulnerability for women and men alike, and include institutional, cultural, behavioural and psychological factors that determine how they react to the effects of climate change (Jones, 2010). As the Intergovernmental Panel on Climate Change (IPCC) has underlined, "social and cultural limits to adaptation are not well researched" (IPCC, 2007: 737, cited in Jones, 2010), which confirms the added value of a comparative approach to the analysis of the experiences and impacts of climate change in different socio-cultural settings.

The findings of this research reveal the key role of informal and formal institutions in the local responses to climate change and, correlatively, the need for institutional strengthening as well as innovation in the existing 'traditional' coping strategies for climate shocks and hazards. The research findings also highlight the importance of gender inequalities as major social barriers to the development of adequate adaptation strategies by and for women.

In combination, women's specific vulnerability to climate change is defined by practical and strategic realities: both their lack of access to and control over land and other natural resources, technologies and credit, and their overall limited access to fewer resources to cope with seasonal and episodic weather and natural disasters, in addition to limited control over land use, farm inputs and produce. The link between climate change and gender must be emphasised in public policy and discourse, which should focus equally on adaptation and mitigation policies and practices. This is crucial in identifying the gaps in the existing body of literature and work on gender and the environment, which over the past two decades has focused on women's agricultural livelihoods, access to natural resources and disaster risk reduction (BRIDGE, 2008).

The United Nations Environment Programme (UNEP) (2011) defines a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. This approach to the green economy is a clarion call to strengthen zero-waste, low-carbon economic development approaches that enhance and restore the natural environments as well as access to alternative or renewable sources of energy while also providing new 'green' livelihoods, employment and entrepreneurial opportunities for women in small island developing states.

As UNEP has also pointed out, mounting evidence suggests that transitioning to a green economy has sound economic and social justification. Expanding this to incorporate the concept of inclusive growth, can build on a full understanding of the influence of gender inequality as well as socially and culturally defined gender roles on economic growth. Social inclusivity must be another key conceptual element of the green economy, to ensure that women and other disadvantaged groups are given specific attention, not only as the main victims of the negative impacts of climate change and environmental degradation but also as central agents in achieving sustainable development.

Otherwise, in the absence of appropriate social policies, the green economy may exacerbate existing gender inequities to the detriment of overall sustainability (Stevens, 2008). As workers, women are being excluded from the green economy due to gender-segregated employment patterns and discrimination. As consumers, women are more likely than men to buy eco-friendly products, but they also have limited purchasing power, potentially limiting the overall impact of such positive economic preferences. As citizens, women are crucial to good governance in the green economy but have little influence because very few women hold management positions in either the public or private sector. The author suggests policies that would assure a fuller role for women, including putting female empowerment at the centre of development assistance programmes. This strengthens the argument even further for green economies to be gender inclusive.

As is the case with other small island developing states (SIDS) in the Caribbean and Indian Ocean, Madagascar is adversely affected by climate change, with a high level of vulnerability and limited adaptive capacity to the effects of climate change (UN DESA, 2010). These SIDS, because of their geography, location, small size, externally oriented economies and limited state capacity, are also vulnerable to the experience and negative impact of natural disasters. The climate crisis, therefore, presents a strategic opportunity for Madagascar to move towards more sustainable development pathways that are centred on the entitlements and needs of the most vulnerable groups, and can equally ensure economic, social and environmental resilience.

This study analyses the different dimensions of the gendered impacts and implications of climate change in respect of three main thematic areas:

- opportunities and barriers to women's contribution and leadership;
- potential co-benefits from adaptation and mitigation strategies; and
- possible alternative models for greening the economy.

This research undertaking is centred within a wider research project to unpack, analyse and better define the gender and climate change nexus within the policy framework of the Indian Ocean islands and SIDS at large. Furthermore, it takes a different approach from other ongoing efforts to better define the 'green economy', by focusing on the poverty reduction and equity outcomes and, in particular, how this can be tackled effectively for women in SIDS.

This study focused on an agricultural community in the south-western region and a coastal community involved in a locally managed marine area (LMMA) on the north-eastern coast of Madagascar, both with particularly high vulnerability due to livelihoods based on agriculture and fishing (CI and WWF, 2008). This research was supported by the UN Women Southern Africa Regional Office and the International Policy Centre for Inclusive Growth and conducted in synch with a similar study in the Caribbean funded by UN Women Caribbean.

2. Context

Madagascar is a western Indian Ocean island with a land area of 587,041 km² and 5603 km of coastline spanning more than 14 degrees of latitude. The total population is 20 million people, over half of whom live within 100 km of the coast. Coastal zones include some of Madagascar's most isolated and economically marginalised populations. Three quarters (76.5 per cent) of the total population live below the national poverty line (US\$234 per year/capita). The poverty rate is higher in rural areas (82.2 per cent) than in urban areas (54.2 per cent). Between 48 per cent and 50.1 per cent of the population are food-insecure. In the southern part of the country, 68 per cent of households are food-insecure, and about half of them do not have enough income to meet their food needs. Among these, female-headed households are disproportionately affected (MEF, 2010; De Schutter, 2011).

During the last 35 years, the island had been affected by 46 natural disasters that have affected over 11 million people, to an economic cost amounting to US\$1 billion. Already, many communities are experiencing water scarcity, including in the research sites for this study, where women and girls spend more time fetching water. This is a key issue at the nexus between gender and climate change in respect of women's reproductive roles, as the impacts of climate change are most likely to increase the burden of women's prime responsibility for collecting water to meet the needs of their households. In 2011, the Human Development Index for Madagascar was 0.480, placing the country at 151 out of 187 countries but *the 2011 Report did not include* a Gender Inequality Index score for Madagascar. In the same year, the World Economic Forum ranked Madagascar 71 out of 135 countries in its 2011 Global Gender Gap Report, with a score of 0.6797 where 0 represents inequality and 1 represents equality (World Economic Forum, 2011).

In the face of climate change, Madagascar stands as a typical example of the conjunction of systemic vulnerabilities arising from the critical dependence of the great majority of the population on natural resources and climate-sensitive sectors, unequal distribution of and access to resources, income inequality and volatility, and lack of economic and human resilience and technological capacity for adaptation and mitigation. Thus, Madagascar is among the tropical coastal countries with the lowest capacity to adapt to climate change, combined with very high vulnerability (Burke et al., 2011; Cinner et al., 2009).

3. Key Findings

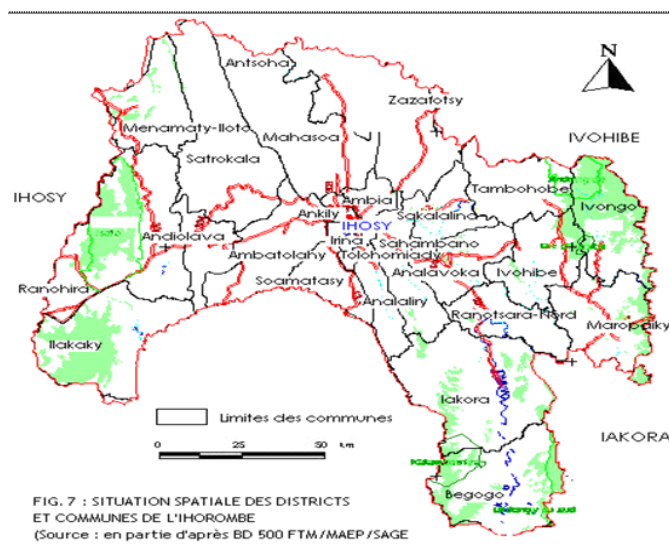
Against this backdrop, the policy and institutional frameworks for addressing climate change in Madagascar are constrained by the lack of financing, technical and scientific capacity, combined with the institutional instability since the beginning of the political crisis in 2009. Moreover, this study's research has exposed the critical policy gap on the social dimensions of climate change. The social dimensions of climate change from a sustainable, equitable development perspective, understood as "an irreducible holistic concept where economic, social and environmental issues are interdependent dimensions that must be approached within a unified framework" and where the overarching outcome is to fully promote human welfare and equal access to life-sustaining resources (Mearns and Norton, 2011: 2).

In particular, the findings revealed that the political frameworks implemented to address climate change are characterised by their gender-blindness, notably in terms of disaster risk management and reduction (DRM/DRR). The National Adaptation Programme of Action (NAPA) and other national policies and strategies related to climate change have not been gender-mainstreamed, leading to a critical 'gender policy gap' that tends to reinforce the marginalisation of women in policy processes around climate adaptation, mitigation and financing.

Women are highly vulnerable due to the specific barriers they face in their attempts to diversify their livelihoods. Their limited access to productive resources such as capital, equipment and technology are among such barriers, together with their low level of education that poses critical limits to their ability to acquire the technical knowledge and capacity to adapt to many of the climatic changes that fishing communities are experiencing.

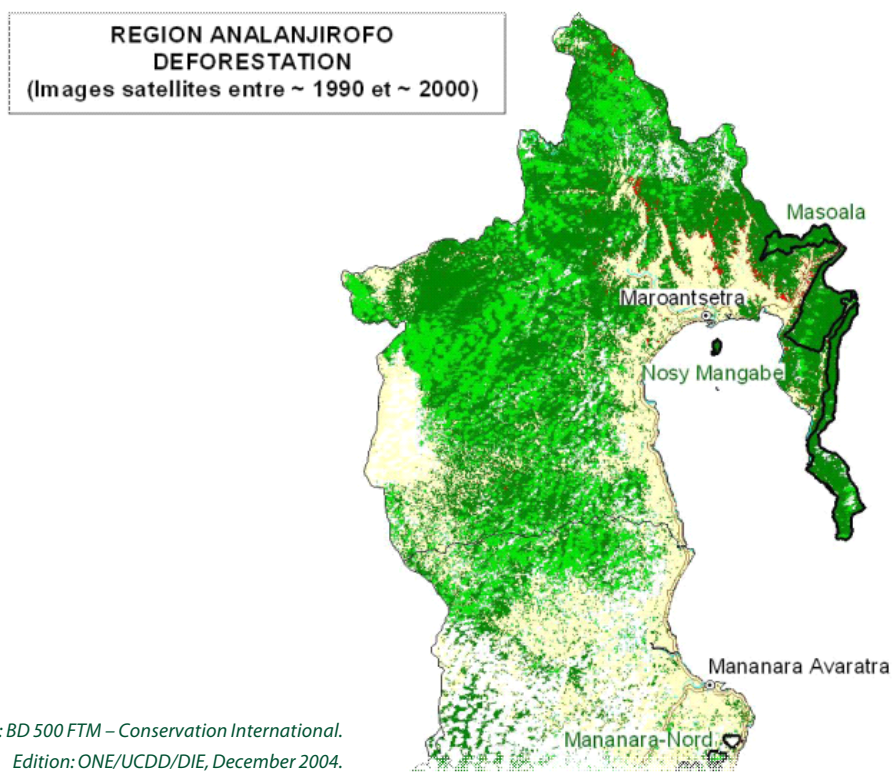
The rural community of Satrokala is located in the district of Ihosy, on the Ihorombe plateau. The population of Satrokala was estimated at 11,668 people in 2007, about half of whom are women.² The interviews and discussions with the different stakeholders during the field research revealed that social organisation at the community level is largely governed by traditional rules, whereby traditional authorities³ play a central role—albeit informally—and social relations are structured by patriarchal norms, with a distinct hierarchical order. Thus, elder men are at the top of the social hierarchy, while women and children are at the low end. Satrokala is part of the few communities where polygamy is predominant in Madagascar,⁴ and women tend to be seen mostly as reproductive assets—for both biological and social reproduction—rather than fully fledged citizens and rights holders. Furthermore, the low level of socio-economic development and, correlatively, the high prevalence of chronic poverty and food insecurity imply a high level of vulnerability to climate change. In terms of infrastructure, the village has no access to electricity and faces difficulties in access to drinking water, as the main water source is a small river near the village.

Figure 1
South-western Region: Satrokala



Source: BD 500 FTM – Conservation International.

Figure 2
North-eastern Coastal zone: Mananara Nord



Source: BD 500 FTM – Conservation International.
Edition: ONE/UCDD/DIE, December 2004.

The district of Mananara Nord is well known for its unique features in terms of biodiversity and marine ecosystems.

It has been classified as part of the international Biosphere Reserve and is located on the Antongil Bay in the region of Analanjirofo which registers the highest level of precipitation in the country (2000 mm/year on average). This biodiversity hotspot is threatened by different types of pressures, most of which are anthropogenic, such as the slash and burn practice of *tavy*. The region is also highly vulnerable to cyclones.

In both sites, most women are engaged in additional income-generating activities, namely as workers for jatropha production in Satrokala, and petty trading in both sites.

4. Perceptions of Climate Change

All respondents in Satrokala and Mananara Nord have heard about climate change, although it has different meanings for them, as summarised in Table 1.

Table 1
Perceptions of Climate Change among Respondents in Satrokala and Mananara Nord

Meaning of Climate Change	
Meaning	% responses
Hardship	51.5
Consequence of <i>tavy</i>	28.3
Consequence of deforestation	12.0
End of the world/Punishment from God	3.2
Diseases	2.0
Uncertainty about the future	1.7
Do not know	1.3
	100

Water scarcity, price increases, declining yields, land degradation due to droughts and the unpredictability of seasons were the changes resulting from climate change observed by all respondents. Most (90 per cent) of them also observed increased wind violence and health problems, and 65 per cent noted increased temperatures. Worsening water quality and food shortages were observed by, respectively, 32 per cent and 23 per cent of respondents, while 10 per cent mentioned the destruction of buildings.

The analysis of these patterns in respect of the perceptions of climate change shows that the respondents are very much aware of climate change. The different meanings it has for them, and the related changes they have observed, are mainly based on an empirical knowledge of climate change deriving from their lived experiences of its effects at different levels. Women have adopted specific strategies for coping with the effects of climate change, with little difference between the two sites in regard to the type of strategies.

Respondents indicated that the top three measures or services needed to help cope with climate change are (multiple responses):

- the eradication of *tavy* by enforcing the rules established at the community level (*dina*)—mentioned by 63 per cent of women in Satrokala and 45 per cent in Mananara Nord;
- reforestation—mentioned by equal proportions of women in both sites (61 per cent); and
- ensuring access to a minimum package of support services for agricultural production, income-generating activities, health and nutrition—recommended by 44 per cent of respondents in Satrokala and 55 per cent in Mananara Nord.

The main issues and concerns of particular interest to the respondents in both sites (multiple responses) are water scarcity (75 per cent), followed by price increases (63 per cent), health problems (51 per cent), access to energy (44 per cent) and the decline in production levels (37 per cent). These results match their perceptions of changes resulting from climate change, and point to the urgent needs that should be met in future support initiatives.

5. Women, Land and Fisheries

In the context of climate change, the set of factors underlying women's greater vulnerability include their lack of access to and control over land and other natural resources, technologies and credit, which not only means that they have fewer resources to cope with seasonal and episodic weather and natural disasters (IUCN, 2007), but they also have limited control over land use and farm inputs and produce. As a result, the findings of the research show that changes in agricultural conditions resulting from climate change have a considerable impact on women's farm production, incomes and food security.

The position of women in this context is worsened by the prevailing patriarchal norms and gender relations. They usually rank last in the list of access to land at the family level and are often dependent on male relatives for access to land, and their low status implies little participation in public debates and processes around land issues. Because of their high level of poverty and illiteracy, especially among female heads of households, most of them have not benefited from the land registration systems that have been established in recent years. These different forms of gender discrimination make women highly vulnerable to potential dispossession through large-scale investments in land, even though the field research did not find any cases of displacement from their lands among the women included in the survey sample.

Thus, it appears that the overarching issue in Madagascar is the lack of effective mechanisms to protect the rights and livelihoods of those directly affected by land acquisitions. Due to entrenched gender inequalities, poor rural women are likely to be the most affected by this regulatory failure.

Furthermore, small-scale traditional fisheries are critically important to food security, accounting for 20 per cent of the national consumption of proteins and the livelihoods of 100,000 fishermen and their families (De Schutter, 2011).

Climate-change-induced stresses coupled with over-fishing increase the vulnerability of fishing communities. Women are highly vulnerable due to the specific barriers they face in their attempts to diversify their livelihoods. Their limited access to productive resources such as capital, equipment and technology are among such barriers, together with their low level of education that poses critical limits to their ability to acquire the technical knowledge and capacity to adapt to many of the climatic changes that fishing communities are experiencing.

It is assumed that the only viable means of safeguarding the resilience of marine ecosystems, which underpin the food security and livelihoods of half of the population, is to promote sustainable fisheries management. The analysis of successful community-managed marine reserves in southern Madagascar (Harris, 2011) has pointed to the benefits derived from community sustainable fisheries management, including social inclusion, realising the economic value of marine natural capital as a sustainable long-term provider of ecosystem services, and the short-term financial incentive provided by the paybacks from such management.

6. Women and Biofuels

Madagascar has engaged in the production of biofuels based on its comparative advantage in terms of agro-ecological conditions as well as of land availability for large-scale plantations. The pilot plantation of jatropha established in mid-2009 by the Tozzi Green company has become the main source of employment in Satrokala and the surrounding area, especially for women, who form the majority of workers employed by the Tozzi Green company. The large-scale production of jatropha, which is fuelled by the growing global demand for liquid biofuels, is presented by its promoters as an important contribution to addressing climate change and energy poverty in Madagascar, as well as a way to create employment opportunities in remote rural areas such as Satrokala. In this regard, women constitute the majority (55.5 per cent) of the labour force for jatropha production in Satrokala, which is generally done in parallel with their farming activities. This high proportion of women reflects the high incidence of poverty among them, along with the lack of income-generating opportunities at the local level.

At present, women are mainly involved as agricultural workers, and employment—mostly casual—is the main benefit they receive from biofuel production. However, for women to be able to enjoy all the benefits from biofuels and to become fully fledged actors in the green economy, they must participate in biofuel production in more meaningful ways, especially as economic agents and stakeholders. The pre-condition for this to happen is to ensure women's access to land, capital and technology, which is akin to eliminating the structural gender inequalities in access to productive assets.

The means and process for strengthening women's participation are equally important to ensure their control over the returns from their work and to promote their leadership in sustainable fuel production. Experience from other regions of the world suggests that by organising themselves into cooperatives, women could take advantage

of the economies of scale in biofuel production, while preventing the concentration of land in the hands of big foreign investors (Peskett et al., 2007, cited in FAO, 2008).

7. Conclusions

In Madagascar, as in other SIDS, the lived realities of climate change are clearly gender-differentiated. Women are confronted by gender-based constraints in terms of poverty, education, access to information and other resources needed to cope with the effects of climate change, and their low level of participation in decision-making at the community level. The gender impacts of climate change imply that the transition to a green economy must be premised on recognising that the current economic system has brought about increased inequality. The research findings shed light on the interrelated effects of the climate, environmental, economic and human development crises on women in Madagascar.

Women are more vulnerable than men due to an additional set of limitations related to unequal access to economic, knowledge and technological resources. The recognition of co-benefits in the transition to a green economy should be at the centre of both policy and research initiatives.

Gender mainstreaming into the NAPA and the overall policy framework for addressing climate change is a basic requirement to integrate gender perspectives and concerns at all levels in the formulation, implementation, monitoring and evaluation of climate-related policies and programmes/projects. In the potential transition to a green economy, attention should be paid to the opportunities brought about by climate change to diversify women's economic activities, as evidenced in the case of Satrokala in respect of changing rainfall patterns and the potential for the production of high-value crops. Whether or not these opportunities can be seized is primarily a matter of political will and policy choice.

Support to women as economic actors and leaders in the green economy should focus on building their collective agency as a priority action, to ensure that they will have the power to defend their interests. Women can turn climate change into an opportunity to overcome the structural barriers to their full participation as economic actors, and they can build on their ascribed gender roles in production and social reproduction to create market niches for their green businesses, such as sustainable agriculture, the production of clean and renewable domestic energy and the management of water resources.

The research findings point to a number of crucial entry points for UN Women and the IPC-IG and its partners in their support to policy reforms which mainstream gender in climate change as well as the green economy. The first one is consultative engagement on the research results with stakeholders at the national level, which is also an integral part of the research process. Such engagement will allow the results to be shared with the subjects of and participants in the research process, while contributing to the much-needed body of knowledge and information on gender, climate change and the green economy in Madagascar. Additionally, it can elicit views and inputs to the development of

adequate strategic and programmatic frameworks from a broad-based range of stakeholders, including policymakers, development partners, civil society, women's organisations, the private sector and the media.

Another crucial entry point is support to positive changes in the knowledge, attitude and practices of women, policymakers and other stakeholders in relation to the various dimensions of climate change. In addition to the possible programmatic interventions, UN WOMEN and the IPC-IG could provide support for the development of gender-sensitive indicators to measure such changes.

While gender mainstreaming is an integral part of its mandate, UN WOMEN and UNDP should also contribute to the mainstreaming of climate change considerations in the different sectors, especially in agriculture and coastal marine management. In this regard, UN WOMEN could build on its comparative advantage in working on women's

rights to provide support for the use of rights-based approaches and instruments. ■

1. Based on regional demographic data for 2008. Source: Direction Régionale de la Population, Iloilo.

2. Such as the *Lonaky* and *Mpita Hazomanga*, who continue to hold the power—both social and symbolic—as the ruling statutory leaders.

3. Polygamy is forbidden by the national 'modern' law governing marriage but is permitted by customary law and socially accepted in some regions of the country.

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