

## Case Study: Gender, Human Security and Climate Change in Senegal

This chapter<sup>1</sup> is based on a Case Study conducted by Yacine Diagne Gueye of ENDA (Environmental Development Action in the Third World) in Senegal. It gives an overview of the climate change situation in Senegal and draws out the implications for women's livelihood, security and gender equality. The situation of women in Senegal is also discussed in terms of how they manage to cope with the overall challenges of poverty and inequality, with specific reference to the consequences of climate change. Finally, national strategies and adaptation measures are reviewed from a gender perspective.

### 1. Climate change in Senegal

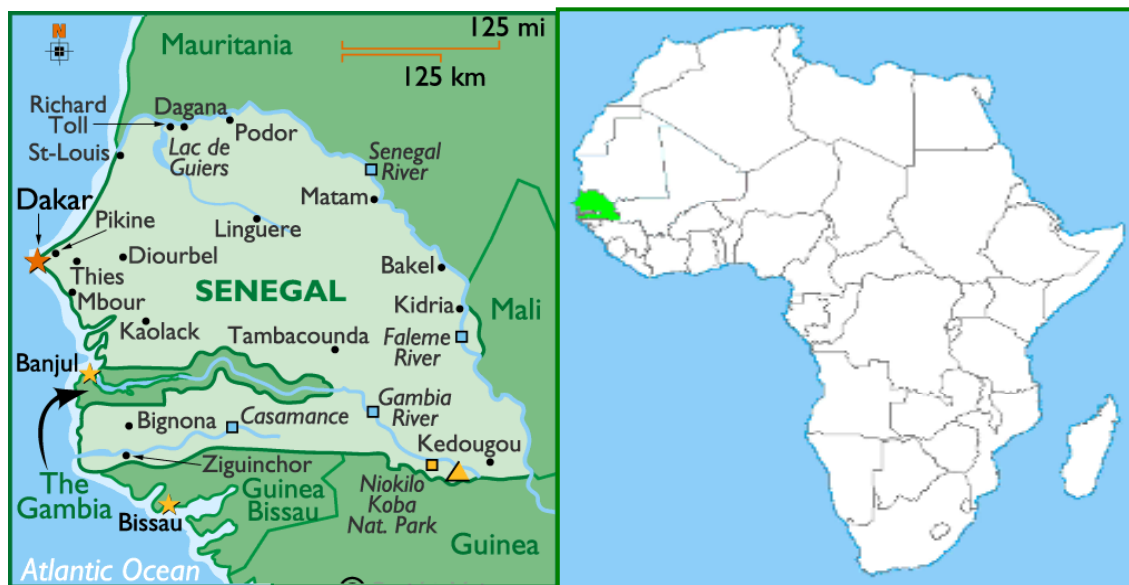


Figure 1: Map of Senegal and its position in Africa

Senegal lies in the westernmost point of the African continent and is a country that belongs to the Sahel<sup>2</sup> group. Senegal has a Sudanic and Sahelian climate dominated by two very distinct seasons: a dry season from November to June and a rainy season from July to October<sup>3</sup>. The climate is governed by the dynamics of strong winds. The duration of the rainy season and the intensity of seasonal distribution of precipitations vary from North to South, the annual heights of rains estimated between 1200 mm and 200 mm in the North. In general, precipitations are unstable and irregular from one year to another, and they can be very random in the northern part of the country.

<sup>1</sup> This chapter is excerpted from WEDO's study, *Gender, Climate Change and Human Security*, commissioned by the Greek chairmanship (2007-2008) of the Human Security Network. The report includes three country-specific case studies prepared by WEDO partners; the other country assessments are of Ghana and Bangladesh. Please see the full report for the references list.

<sup>2</sup> From Senegal to Chad, these countries have one thing in common: drought and climate uncertainty. They are located in the South of the Sahara and the Sudanic regions of the South. These countries form the Permanent Interstate Committee for Drought Control in the Sahel (CILSS).

<sup>3</sup> Season distribution changes from one year to another depending on eco-geographical regions of the country.

There is climate insecurity characterized by recurrent droughts. The most devastating one that affected Senegal occurred between 1968 and 1972. It was during that period of great drought that the term desertification was born, in order to explain the desolation and “dramatic consequences on the ecological equilibrium and all human activities undertaken in regions North of the Saloum” (Sagna and Roux, 2000). Rains are important especially for rain-fed agriculture, hydrology and all farming activities. Therefore, climate insecurity constitutes a source of vulnerability for Senegal.

The issue of climate change in Senegal has become a reality today for experts and local communities. The impacts of climate change for people and the environment are now well understood. With a high rate of temperature rise all across the country, changes are felt by everyone.<sup>4</sup> Research on climate predicts that Sahelian Africa will experience a 4°C rise of average temperatures around 2100 and concurrently there will be a 20 percent decline in rainfall compared to present rainfall conditions (Diagne, 1997). Local populations recognize climate variability from what they experience on a daily basis and look for ways to deal with the consequences.

## **2. Women’s position and gender issues**

In Senegal, significant advances have been made on gender issues despite constraints related to women’s rights, social, and economic empowerment. Senegal has signed<sup>5</sup> a number of international conventions and passed some laws. They are reinforced by the new Constitution of 2001 that reaffirms the principle of equity and gender equality and prohibits all forms of discrimination based on gender. However, not much has been done to apply national laws in favor of women’s advancement; also most of the provisions contained in international instruments on women’s rights have not been made available in most of the national legislation.

Yet Senegal is committed to halving gender inequalities through its National Action Plan on Women (1997-2001) that ended with an assessment leading to the adoption of the National Strategy on Equity and Gender Equality (SNEEG) in 2003, in compliance with recommendations from the Beijing Platform for Action, strategic orientations from the Poverty Reduction Strategy Paper (PRSP) and the Millennium Development Goals (MDGs). That strategy is the national gender reference framework and the operational instrument designed to integrate gender in the development of sectoral policies.

In public and political life, as well as in the unions, there are a good number of women ministers, members of parliament and other public officials at all levels. In 2002, the President appointed the first woman Prime Minister and drafted and proposed a bill on gender equality in public office.

However, the most important challenge remains the daily lives of women who are still confronted with hardships, especially in rural areas where they constitute approximately 70 percent of the labor force. They operate with very limited resources and they ensure 80 percent of agricultural production. They are vulnerable to poverty due to lack of resources and income.

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<sup>4</sup> January is usually a cool month with temperatures in Dakar between 16 and 22° but this year the heat wave is alarming in the peninsula.

<sup>5</sup> CEDAW – Convention on the Elimination of All Forms of Discrimination against Women in 1985; Provision of the African Chart on Human and People’s Rights related to the rights of women in 2004.

With regard to women's access to social services, namely education and health, Senegal has been implementing different types of programs. The government is trying to reach parity in school enrolment even though a large majority of women are illiterate: 67.9 percent of women are illiterate today (compared to 78 percent in 1995 and 72 percent in 2001). In the health sector, attaining all the set objectives has been particularly challenging, especially due to high maternal mortality and morbidity rates during childbearing (410 deaths for 100,000 childbirths). Access to social services is hampered by distribution of health centers and lack of infrastructure.

Despite their large number in the labor force, women have less access to employment. According to SNEEG, in rural and urban areas, among the 37.2 percent of unemployed population, 66.8 percent are women. In Dakar, 41.1 percent are men and 62.1 percent are women.

Although women's activities are not really taken into account (according to the Gender Audit of Energy policies in Senegal in 2007), they greatly support the livelihoods of the majority of households (budget and time). The absence of gender-disaggregated data hampers a realistic interpretation of statistics related to the real contribution of women in the national economy.

However, gender roles tend to undergo transformations because of the changes that occur in people's lifestyles. As living conditions worsen, and poverty escalates, there is a greater need to generate earnings, thus reshaping relationships between men and women. Women acquire more freedom. They get involved in women's organizations; they sell in local markets, if they have capital. Today, women want to be able to meet their needs and look out for their own interests. Nevertheless, they are still dependent on the environment, the opinion of their husbands and the expectations assigned to gender roles in public life.

### **3. Impacts of climate change and women: vulnerability in accessing resources**

Women who were interviewed by ENDA in the field state the following:

“We walk for long hours to find wood. Our wells are empty. Goods for sale are hard to find. Our land becomes idle. We don't have money. It doesn't rain the way it used to before” (Denton, 2005). Women who have been exposed to hardships and environmental insecurity have changed their lifestyles due to these issues. Today, we can assert that they are the primary victims of climate change in light of all their responsibilities in the family and the community.

Rainfall is a big determinant in women's activities since most of their activities to sustain livelihoods revolve around the environment and depend on natural resources. However, since 1996, there has been a 35 percent decline in rainfall, shortening of the rainy season and making the drought season more frequent (Diagne, 1997). The relationship between gender and climate change can be assessed best through a development approach because it encompasses all data related to health, education and women's training to improve their socio-economic conditions. To better analyze the impact of climate change on women, studies should be undertaken in the sectors where women are most active, such as water and fuel wood collection, agriculture, fishing and forestry.

#### ***Access to water***

The 35 percent decline in rainfall in Senegal—with a range of magnitude from 20 to 40 percent depending on the region—has been confirmed by a recent study on the impact of climate change on water resources (Ndiaye, 2007). In this context, women experience great difficulty accessing water,

particularly in areas where there are no bore-wells, electric wells, or worse, no connection to a water distribution network. Water collection has become a heavy burden that demands a lot of patience because women have to shuttle back and forth in order to keep checking the water level in the wells. Most wells have been drilled with a 45 to 50 meters depth because of the downward trend of the low water table, and sometimes they don't reach the drawing level. This is explained by climatic variability on underground resources which are affected by the discharge process during rainfall shortage periods. The decline has been measured up to 5 to 10 meters in the Northwest and 15 to 20 meters in the South of the country, where the drinking water coverage ratio remains low and below the standards established by World Health Organization (WHO)<sup>6</sup> (Malou, 1998).

Women have to walk long distances to fetch drinkable water because of challenges such as salinity, dry wells or water impurities. Despite the existence of 1000 electric pumps, 1500 manual pumps and more than 4600 modern wells, women still have problems accessing water (Ndiaye, 2007). Water quality and all the physical efforts affect their health and their children's health. The functionality of the infrastructure is not guaranteed, and water drawing is done in a traditional manner according to the women's testimonies featured in Denton's 2005 study on gender, energy and poverty. Since it is difficult to access water, women are unable to grow out-of-season vegetables for commercial use, neither can they deal with reforestation or engage in other creative opportunities despite their willingness to do so.



**Photo 1: A water well**



**Photo 2 : Women collecting water**

In critical situations and when distances are too long, men pitch in and use donkey-driven carts, which women and children can use, too. That way, large quantities of water can be collected and stocked in casks.

#### **Testimony: Ndèye Faye, Village of Kalom**

<sup>6</sup> Water coverage ratio needs in rural areas is about 64 percent but varies from 26 percent (Kolda) to 76 percent (Saint-Louis).

*Located in the groundnut basin, the Village of Kalom faces many problems. The primary problem is the water supply. The water table is very deep; there is a lot of salt in the water and overall the water is of bad quality. It cannot even water our livestock. All of us women, we are very tired. The only way to get water is through the tank truck that the president of the rural community has placed at our disposal. Everyday, the truck fetches water from other villages and brings us supplies.*

*We have to limit our needs in water because it is an expensive commodity. If we abuse the tank truck, it may break down and in that case, we will be left to fend for ourselves for a long time. Before we had the tank truck, we used to spend half a day going around looking for water. It was a burden for everybody, especially for us women, and also for men and children, who most of the time, had to drive the carts to go and fetch water.*

### ***Energy***

Because of the prevalence of traditional biomass as the main source of energy in Senegalese households, the energy sector remains one of the most critically affected by climate change, particularly for women. The 2005 annual report on the energy sector shows that wood and charcoal constitute 35 percent of total energy consumption, and 65 percent of household energy consumption, despite the introduction of butane gas by the government of Senegal (which contributed 7.8 percent of total energy consumption). The primary reason for introducing butane gas was to protect the country against the degradation of natural resources exacerbated by desertification, and to encourage urban populations to adopt modern fuels like gas since they were the biggest consumers of charcoal. The overall burden on rural women was not lessened by the initiative.

Even though they encounter numerous problems in fuel supply and their health and their children's health is affected, rural women are still dependent on traditional biomass. Finding wood is an enterprise in itself in parts of the country where forest degradation has become a serious obstacle. Women don't have a choice but rely on non-conventional<sup>7</sup> use of fuels that cause continuous health hazards; the reason is a lack of other alternatives. The main causes of the extinction of forest resources in Senegal are of environmental and anthropogenic origins. Senegal has rainfall shortfalls, cyclic droughts and a low rate of vegetation re-growth. Deforestation that is undertaken to find wood-fuel and to produce charcoal<sup>8</sup>, along with agricultural development and exports of wood-made articles, deplete environmental resources. Consequences are dramatic for women: they face constraints related to accessing fuels and they suffer financial loss because there is an increasing scarcity of forest products.

However, problems related to energy in the framework of climate change are not limited to cooking, but encompass a whole range of issues. Limited access to energy services also impacts access to health services, water, education, and engagement in business development, productivity, and participation in decision making.

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<sup>7</sup> Cow dung, plastics, crop residue.

<sup>8</sup> Statistics from the Direction de l'Énergie du Sénégal indicate that 104,000 tons of gas have saved in 2002 337,500 tons of charcoals that would have demanded the deforestation of 40,500 ha of forests. The increase in gas consumption continues to save approximately 700,000 cubic meters of forest woods.

### **Testimony: Satou Diouf, Village of Gadiag**

*We the women are responsible for feeding our families. The bush has now become a desert shrub in my area and there is nowhere to go to fetch wood. It is prohibited to cut acacia trees. If caught, one has to pay a fine. Every morning, we go to the bush with our bassinette to fetch cow dung for cooking. Unfortunately, during the dry season, it is rare to find foraging livestock. Therefore, we don't have a choice but to go against the Department of Water and Forests and cut acacia trees.*

*One day, unable to find enough wood after a long search, I used some branches to cook. Since the wood was not enough, I cut my plastic bassinette in pieces to fuel the fire. My bassinette was gone before I finished cooking. Then I took the wooden bench where I was seated and cut it to feed the fire. That was not enough. I also had to use my bed sheet for the fire so the food could cook.*

*After serving the food, my mother-in-law refused to eat. She said she didn't think food cooked with plastic bassinette and bed sheet was edible. I told her that if she doesn't eat, the children would eat her portion. Still, she refused.*

*Since that day, I have been crying whenever I think of that incident. My children who don't understand why my eyes are always watery keep asking me why I cry, and I tell them that I am not crying; that's the way my eyes have become!*

### ***Agriculture***

In Senegal, beyond the flood zones and the intra-dune basins, over 90 percent of agriculture depends on the amount of precipitation that varies from year to year. The unreliability of rain has resulted in loss of soil fertility, poor harvests, food shortages, and impoverished populations, especially in rural areas. The poor conditions have led to out-migration of men in search for employment in urban areas. Women largely have been left to fend for themselves and their families, although they are now beginning to migrate too. Those remaining adopt intensive agriculture practices and extend the cultivation of land to combat the effects of climate change. Unfortunately, this type of agriculture has further diminished the productiveness of the soil.

Over 70 percent of women are active in the agriculture sector, yet they own only 13.4 percent of land.<sup>9</sup> They farm family lots. In addition, they are also responsible for agricultural processing. The annual report on the energy sector shows that agriculture in Senegal is not modernized. Farmers use only 6.4 percent of energy—0.1 percent of the overall energy allocation in that sector. Women use rudimentary tools and are subjected to tough physical activities in the field and at home where they have to do household chores.

In rural areas, agriculture takes up a lot of women's time because they have to deal with problems related to soil erosion and impoverished, infertile land. Limited access to energy services exacerbates their predicaments.

### **Case: Women's vulnerability in the rural communities of Keur Moussa.**

The Rural Community of Keur Moussa is located between Dakar and Thiès and comprises a number of villages; the majority of them lie on the Ndiass single-wall buttress. The Ndiass is a

<sup>9</sup> Audit on Gender and Energy Policy and Programs in Senegal. ENDA-ENERGIA 2007.

plateau with a maximum elevation of 120m. Surrounded by the massifs, villages and their surroundings are exposed to fast-running surface water because of steep slopes. Water erosion is a serious problem here and has drastic consequences on the environment (resource degradation, soil pickling, gully erosion, absence of water infiltration) and on the communities (deadly accidents, housing collapse, inaccessibility to resources).

Women have difficulty accessing water. They also encounter all sorts of problems with agriculture. They are unable to grow off-season vegetables. Arable areas are lost due to soil degradation. Available lots are infertile because of water flow that uproots vegetation and crops. Therefore, agricultural yields diminish and earnings dwindle. Young people migrate and leave women and the elderly to fend for themselves. In the villages of Landou, for instance, there are about 118 women and only twenty or so men.

Water flow on slopes is not compatible with the infiltration of groundwater. This situation exacerbates water shortages especially in the areas where wells have been dry for two months during the winter season. In some places around the massifs, the level of groundwater is at 30m below the sea (Ndiaye, 2007), thus contributing to the intrusion of salt water and the breakdown of hydraulic equipment such as drilling machines.

Organizations have helped women control erosion in order to retain water and soils, and recover arable land for better agricultural yields: this is a good example of adaptation to climate change.



**Photo 3: Water Erosion**



**Photo 4: Half moon pit to retain rainfall water**

### ***Fishing***

Apart from agriculture, fishing represents one of the main activities for women in Senegal: more than 90 percent of women are involved in fishing processing. The processing sector is controlled by women. This activity takes place along the Atlantic shorelines where fishing products are discharged.

The fact that Senegal is located on the Western coast offers great opportunities for communities to invest in fisheries and in various economic enterprises, since the main industrial and economic activities of the country are concentrated in the coastal area. However, the Senegalese coasts are exposed to climate change through the erosion of sandy shorelines, as experienced in the

backtracking of the shoreline of 1.25 to 1.30m a year (Niang-Diop, 1997). Erosion destroys the infrastructure and housing in sensitive areas. There is no doubt that there will be drastic biophysical and socio-economic consequences.

The fishing industry will suffer from major disturbances due to limited resources. Social and economic impacts will be inevitable. Women will be affected by the disappearance and the displacement of their work centers and habitat inland. Even though resettlement sites exist already in Rufisque, Djiffer and Mbour, it is predicted that the worst resettlement will take place between 2050-2100. There is also a lot of insecurity in the processing sector due to the hard working conditions women encounter and due to the lack of energy services in the drying of fishing products.

#### **4. Women's contribution to climate change**

Women's contribution to climate change has not been well documented in Senegal. All human activities contribute to greenhouse gas emissions (GGEs) and in order to quantify women's contribution, their roles must be analyzed. The inventory of GGEs in Senegal shows that women are involved in the following sectors: energy, agriculture, land, forest exploitation, and wastes. If they appear to be users and operators, their activities impact the entire population.

The use of resources depends on how much power and control women have over them. In most cases, they are still dependent on the male head of the family; they own only 13.4 percent of arable land and 22 percent of livestock<sup>10</sup>. In forestry exploitation, they became operators in wood and charcoal processing thanks to the Program for Sustainable and Participatory Management of Traditional and Alternative Energy (PROGEDE). Originally, that sector was exclusively run by men. However, agriculture and traditional fuels are considered the main source of GGE. These fuels have been counted from the source; in this case, women cannot be held responsible. Furthermore, despite the weakness of forest resources regeneration, women are very much involved in reforestation. They have also adopted some modern technology to improve their households. Therefore, they often contribute to reducing GGEs.

Nevertheless, women belong to the most vulnerable group and are deeply affected by poverty. The condition of fragility can lead them to use resources irrationally. That is the reason why they walk long distances and spend a lot of time fetching water, fuels and means of livelihood for their families. Consequently, they are the first ones to endure the impacts of climate change. The impacts on the population, and on women specifically, should bring the Senegalese government to identify adaptation needs that will help address all potential risks.

#### **1.5 Women's adaptation to climate change**

Many strategies are being implemented in Senegal in various sectors such as energy and forestry, agriculture, water resources and trade. They contribute to sustainable development and generate earnings at different levels.

##### ***Reforestation and Energy***

With the assistance of organizations, women draw lessons from their daily dealing with the environment and develop their own adaptation solutions, including reforestation and energy management. For a number of years, women have formed associations according to their field of

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<sup>10</sup> ENDA-ENERGIA: Audit on gender policies and energy programs.



work, cognizant that they have to use their own resources in order to cope in precarious situations. They have become very strong actors and can easily mobilize support for every action that they undertake.

The adaptation strategy adopted by the Regroupement des Femmes de Popenguine to control the degradation of natural resources and to protect their environment has drawn international attention and shown amazing results. This group lives between the mangrove area at the Atlantic coast and a region of stony soils inland. They wanted to regenerate the mangroves and reforest part of the forest. They looked for partners to sustain their activities and received a lot of support. Their achievements contribute to combating desertification, protecting biodiversity and mitigating the effects of climate change, even if it is low-scale.

Even though villagers engage in low-scale reforestation activities, they contribute to the strengthening of forest resources in villages. Reforestation is sometimes undertaken by the whole village, but women are the ones who initiate it and are joined later by men and young people. The upgrading of forest resources achieves three goals: (i) land regeneration, (ii) availability of fuel-wood in the village, and finally, (iii) availability of financial resources generated by log sales. However, in some cases, men abuse reforestation activities and the capital gained from selling logs.

To complement reforestation, some interesting initiatives, such as modernization of households and use of butane gas, were introduced. They were mostly funded by tontines—small, informal savings and loan associations—whereby the contributors pay premiums for a limited period at the end of which the subscribers divide the total amount between them. In some villages, they set up gallery stores in order to ensure that local populations buy and become familiar with products like butane gas.

The use of wind and solar-based energy technologies have helped women access water<sup>11</sup>, commercialize dry fruits and vegetables, and process agricultural products.

### ***Agriculture***

Women invest a lot in agriculture in areas characterized by problems related to frequent periods of food insecurity and erratic climatic conditions. Random agricultural yields exacerbate people's poverty and disturb the family equilibrium. Depending on the region, problems related to agriculture are different from one region to another, and women are often the ones who search for solutions. In the rural community of Keur Moussa (Pout), women have suffered a lot, but they have worked hard. Their efforts have paid off, and they are now reaping the benefits of their hard work. (See Box) With the assistance of external partners, they acquired new techniques and knowledge in combating land degradation by improving the quality of soils and their productivity.





### **Case: Adaptation strategy by women of Pout in the agriculture sector**

The Rural Community of Keur Moussa is composed of 37 villages; 17 villages are subjected to erosion and land degradation, which cause inadequate agricultural yields. Three villages (Santhie Sérère, Kessoukhatte and Landou) have been selected as experiment sites dedicated to control erosion in the framework of the Agrobio Niayes Program by ENDA Pronat. The project has been initiated by local populations and women in particular following consultations on problems and solutions to erosion, disappearance of arable land, uprooting of crops and trees, water scarcity and inaccessibility to villages. Committees were established according to priorities. The Anti-erosion Committee, in which women are very active, is one example.

To control water flow, they built stone barriers and engaged in reforestation. Those barriers are built along the shorelines of the rainwater and consist of stony borders, half-moon canals, vegetation fascines, infiltration ditches, and open trenches that slow water speed and direct it towards infiltration points.

Women are interested in solving the erosion problem because it is greater than what they encounter in agriculture and it makes it difficult to access drinking water. If they were given a choice, their priority would be to have more water resources. They are very active in building stony barriers. The impact of that hard work was immediately visible—groundwater is recharged, water bodies are created, soils are stabilized, rain water flow is slowing down; the vegetation is regenerating and there is diversity in herbal surface. The president of the organization said, “Now, there is a lot of water in our wells, and this year we spend less time drawing water, meaning 1 to 1.3 hours to recharge the well compared to 2 to 3 hours last year. We will continue our anti-erosion campaign for better results.” Agricultural yields improved and women began trading herbal plants, which they had not done in a long time.

### ***Trade***

Trade is one of the highly valued activities for women. They sell cereals, fruits, vegetables and everyday products and find ways to build their own capital. However, they are exposed to many hardships: precarious living conditions, variable temperatures, and bad health due to poverty. They are left to fend for themselves without a husband, a son or a brother to send them money regularly. Sometimes they pack up and move to urban areas where they sell cereals, become domestic workers and, when the going gets tough, they become beggars.

Lack of initiatives at the local level triggers the exodus. If there were new initiatives in villages, women could undertake income generating activities instead of migrating. Partners and the public sector need to enhance sectoral development policies that will enable women to have better access to production tools, health and education, as well as to encourage their participation in decision-making. If these priorities are met, women will feel encouraged to become more active in sustainable development.

Women do not just devise adaptation strategies because of dry wells, loss of fertile soils, rain shortfalls or degradation of natural resources. Conflicts constitute another constraining factor for them, such as in Casamance, in the south of the country, where insecurity has been reigning for

decades. Women abandoned their lucrative fruit picking businesses in good food production areas because the areas had become too dangerous, and women had to run away. When they moved, they had to start up new businesses such as fishing processing and trade.

## 6. Climate change policies in Senegal

The Direction de l'Environnement (Direction of Environment) that oversees the follow up on the Convention on Climate Change set up a National Committee on Climate Change (COMNAC) and took necessary measures for its implementation. Senegal has a low capacity of greenhouse gas production<sup>12</sup> with a net emission of 3321 Gg ECO<sub>2</sub><sup>13</sup> in the following sectors: energy (40.6 percent), agriculture (31.7 percent), wastes (24 percent), industrial processes (3.7 percent) and forests with a sequestration capacity of 64 percent. The emissions have been calculated based on the IPCC methodology that was developed to conduct inventories. In order to respect its commitment, Senegal followed IPCC instructions and GIEC evaluation reports on climate evolution in the world. Countries have the obligation to limit GGEs and devise adaptation strategies.

So far, Senegal has produced national reference documents on climate change, has conducted specific technical studies on vulnerability to climate change and has devised possible adaptation strategies. The first inventory document on greenhouse gas emission (1994) was followed by the Initial National Communication (1997), which is an update of the first inventory, the National Strategy for UNFCCC Implementation (SNMO 1999), and the National Adaptation Programme of Action (NAPA). They were all complemented by sectoral studies. In order to identify the needs for a specific adaptation program, studies on vulnerability and adaptation were conducted in 2007 in water resources, fishing and coastal erosion.

The next step will be to draft a second national communication that will draw from all studies on vulnerability. It will focus on mitigation and adaptation strategies in all areas of the water sector, including supply and demand, water and health, agriculture, fishing, erosion and clean-up.

Unfortunately, gender was not on the agenda in the national documents on climate change. However, reference to women was made in the environmental programs and projects that were part of the implementation strategies of the NAPA<sup>14</sup>. Women participated in public consultations organized in every region in order to collect information on adaptation solutions at the local level because indigenous knowledge is important to the search for sustainable results.

The Poverty Reduction Strategy Paper (PRSP II 2006-2010) is the reference document that encompasses all strategies because it integrates new programs and sectoral policy guidelines. The integration of the component *Social Protection, Prevention and Management of Risks and Catastrophes* in the new version of the PRSP, acknowledges that natural cycles have negative effects on the economy and living conditions of the populations (e.g. droughts, floods, locust plagues and off-season rains).

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<sup>12</sup> Compared to the rest of the world Senegal produces 4 emissions parts of 10,000 out of biomass.

<sup>13</sup> Initial National Communication of 1997

<sup>14</sup> Different activities are undertaken for women and young people: wood, community tree-nurseries, micro credit, and training (NAPA 2006).