



## Climate Risks and Development Projects

Assessment Report for a Community-Level Project  
in Gommier, Grand'Anse Region, Haiti

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*Bread for all*, November 2009

*Bread for all* is the Swiss Protestant Churches' development agency. It supports 400 development projects and programmes in 57 countries in Africa, Asia and Latin America. It also participates in development policy activities aimed at achieving more equitable international socio-economic structures, protecting "Creation" and building peace.

## I. Executive Summary

Climate change affects poor people in particular, because of their weak adaptive capacities. Development projects of all kinds can strengthen or weaken those capacities. At the same time, they can influence greenhouse gas emissions, the main cause of climate change, positively or negatively. It is therefore important to evaluate the impacts of development projects on adaptive capacities and mitigation, in order to find measures to improve projects in the face of climate change.

This Assessment Report presents the results and the lessons learned from the climate change analysis of a community-level rural development project in Gommier, in the Grand'Anse region of Haiti. The analysis was conducted with the Climate Proofing Tool from HEKS and Bread for All. The analysed project is run by the local NGO GRAMIR and supports a network of producer organisations called ROPAGA. It is financed by HEKS.

The evaluation shows that the beneficiaries of both projects suffer from droughts, cyclones, strong winds and floods. Global warming increases the frequency of droughts and floods as well as the intensity of cyclones. Therefore, climate change can clearly be expected to increase the exposure to natural risks in the area. Combined with the high vulnerability of a population which is heavily dependent on natural resources and disposes of only weak adaptive capacities, potential damages are high.

The analysed project mainly focuses on strengthening natural, financial and social resources, and has thereby a beneficial impact on adaptive capacities. Still, much more should and could be done. This report suggests that current services such as social credits systems and the diversification of incomes be extended, as well as that new measures such as index insurance, risk preventive measures such as dikes and reforestation, and better protection of agricultural resources, water, fishing and health be conceived.

ROPAGA's activities probably also have a beneficial impact on greenhouse gas emissions, mainly through the distribution of tree seedlings and some measures of soil conservation, but this impact is likely to be small. Larger reforestation and soil recovery activities would have high synergies in adaptation and could benefit from mitigation finance. It has to be noted, however, that carbon markets are virtually inexistent in Haiti today.

This fourth test application of the Climate Proofing Tool allowed some further lessons to be learned. First, successful experiences in another very different context were made. Second, the importance of very careful planning was highlighted. And third, it encouraged reflections on improving the exercises used for stakeholder consultations.

## II. Acknowledgements

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- The NGO GRAMIR/ROPAGA, for their warm welcome and support in organizing stakeholder consultations.
- The project beneficiaries for participating actively in the workshops, which allowed most of the information in this report to be gathered.
- The developers of CRiSTAL, a tool which forms the basis of the HEKS and *Bread for all* Climate Proofing Tool.
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## 1. Introduction

Climate change and development are highly intertwined: The risks of global warming could jeopardise decades of development efforts, particularly in the poorest regions of our planet. It is therefore vital to ensure that development projects strengthen their beneficiaries' capacities to confront climate change. It is also important to make sure that projects do not lead to excessive emissions of greenhouse gases.

HEKS supports community-level projects in rural areas in poor countries across the planet. Many of their beneficiaries are heavily threatened by climatic risks, mainly because of their high economic, social, environmental vulnerabilities. Even though HEKS does engage in specific climate change projects, it has grasped the need to consider those threats and the related vulnerabilities.

In order to gain experience for HEKS and *Bread for all* as a whole, Marius Keller, a consultant, carries out climate analyses in community-level projects supported by HEKS in various countries. In November 2009, he visited Haiti and evaluated a rural development project in Gommier, in the Grand'Anse region (see Figure 1). The following assessment shows that beneficiaries are very vulnerable to climate change.

The analysis was executed with the HEKS and *Bread for all* Climate Proofing Tool, which is based on CRiSTAL, a tool developed jointly by the International Institute for Sustainable Development (IISD), Intercooperation, the International Union for the Conservation of Nature (IUCN), and the Stockholm Environment Institute (SEI).



Figure 1: Map of Haiti and the GRAMIR/ROPAGA Project Area (CIA, 2009).

This report is organised as follows. First, the project and its context will be briefly described. Then, the climate context in Haiti is discussed. Third, the assessment results will be presented, following the structure of the Climate Proofing Tool. The last section discusses some lessons learned from the application of the Climate Proofing Tool.

## 2. The Project

The analysed project is called “Programme de développement local des Réseaux d’Organisations de Producteurs-trices de la Grand’Anse (ROPAGA)” (Local development programme for the network of producer organisations in the Grand’Anse region). The analysis in this report covers the village of Gommier, which belongs to the political community of Roseaux, and is located 10km away from the regional capital Jérémie, at the shores of the Caribbean Sea. The project is executed by GRAMIR, a local NGO, and ROPAGA, which has become an NGO itself. The activities described in this report are sponsored by HEKS/EPER, though ROPAGA works with other international donors, too.

The project’s overall objective according the logical framework is to improve, based on research-based action, the network of producer organisations through the structuring of strategic agricultural value chains, by helping associated producers getting access to production capital, having their fruits or key products valued at a fair price, and defending their rights and interests. This overall goal is detailed through the following specific objectives:

- Strengthening the autonomy of the ROPAGA network in its capacity of managing a local development programme together with member associations, by assuming an interface role to advance agricultural production, more particularly fruits, as well as the interests of producers.
- Strengthening and facilitating the associated producer’s access to sustainable services supporting production, that are developed through the structuring of the fruit value chain, by helping them to improve their agricultural knowhow.
- Promotion of commercialisation programs for fruits, through experiments on the valorisation of surplus fruit production or other agricultural products.
- Promotion of dynamics related to strengthening democratic procedures in producer organisations which are members of ROPAGA, by supporting the development of social action.
- Promotion of dynamics related to the structuring and strengthening of women’s leadership in producer organisations which are ROPAGA members, and to support the integration of women in the central and local ROPAGA structures.
- Strengthening organisational capacities among producers: Diagnose the functioning of existing social organisations; consolidation of groups and cooperatives; constitution of federative unions; collaboration with local chiefs.

Through these components, the project aims at strengthening all steps of the production and value chain, so as to counter the observed reduction in agricultural output in recent years.

The project lasts for the four-year period 2007 to 2010.

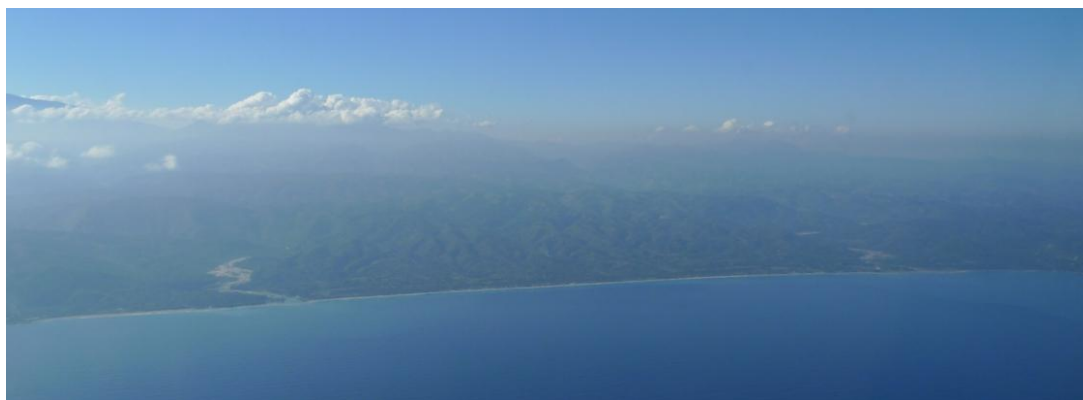
## The Project

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In Gommier, 3 producer associations belong to the ROPAGA network, from which they have benefitted through the following activities:

- Rural credit: Mutual solidarity programs are funded. Credits between 2000 and 7000 Gourdes (around 50 to 130 US dollars) are available.
- Organisational capacity building for local associations, of which there are 3 supported in Gommier, accounting for some 100 individual members.
- Commercialisation of fruits and other agricultural products.
- Distribution of seedlings (2000 units in 2009) for reforestation and fruit trees.

Apart from ROPAGA, there are other organisms supporting the local population of Gommier. The Food and Agriculture Organisation (FAO) of the United Nations distributes seeds and has offered a drainage pump to counter the impacts of floods. Action against Hunger supports the construction of wells. ProDep does electricity installations. The local government structure includes an administrative assembly in Roseaux and SNEP, a water service organisation. There is a Civil Protection office as well, which organises awareness and prevention campaigns for natural disaster risks, and operates an early warning system, which seems to work pretty well (no casualties during the 2008 hurricane season).



*Figure 2 View of Gommier: The village is spread along the coast, between the two rivers (Photo: Marius Keller)*

The local climate is pretty hot and rather dry. The village is located on the coast, and therefore has quite a different climate from the one present in the hills behind the plains upon which Gommier sits.

### 3. Haiti and Climate Change

#### 3.1. The Impacts of Climate Change in Haiti

The observed warming will continue over the next decades. The predicted 0.2-0.3 degrees Celsius per degrees Celsius per decade warming is higher than the global average (Figure 3). Rainfall will decrease slightly according to IPCC projections for the 21<sup>st</sup> century. Contrary to this overall reduction, the intensity of single events will increase. In addition, interannual rainfall variability will increase, too. These factors lead to increasingly unstable rainfall conditions with more extreme rainfall, but also more drought periods. The projections of global climate models have to be interpreted with caution, since they cannot entirely reproduce the behaviour of tropical storms and hurricanes. The combination of reduced rainfall and increasing temperatures also lead to a reduction of river runoff by 40% until the end of the 21<sup>st</sup> century (GDR, 2007: *Bonnes Pratiques pour la Gestion des Risques et des Désastres dans l'Agriculture, Résumé du Rapport Haïti*. FAO et Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural, République d'Haïti. <http://www.fao.org/docrep/011/ak178f/ak178f00.htm>

GHF, 2009: *Human Impact Report: Climate Change – The Anatomy of a Silent Crisis*. Global Humanitarian Forum, Genève, Suisse. ISBN: 978-2-8399-0553-4

IPCC, 2007).

Future development of hurricane activity over the Atlantic Ocean has received a lot of attention in the of attention in the scientific community and the media. Due to difficulties in measuring past activity and modelling future activity, the effect of global warming on hurricanes is not yet well understood. The IPCC nevertheless concludes that the intensity of hurricanes as well as the precipitation and wind related to hurricanes will increase, but the number of tropical cyclones will decrease (GDR, 2007: *Bonnes Pratiques pour la Gestion des Risques et des Désastres dans l'Agriculture, Résumé du Rapport Haïti*. FAO et Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural, République d'Haïti. <http://www.fao.org/docrep/011/ak178f/ak178f00.htm>

GHF, 2009: *Human Impact Report: Climate Change – The Anatomy of a Silent Crisis*. Global Humanitarian Forum, Genève, Suisse. ISBN: 978-2-8399-0553-4

IPCC, 2007).

Sea levels continue to rise at a rate of some 3mm per year during the coming decades, due to the expansion of water volume and the melting of terrestrial ice caused by global warming. As a consequence of pronounced warming, the melting of the Greenland ice sheet and the Antarctic could increase and cause sea levels to rise by 1 meter until the end of the 21<sup>st</sup> century.

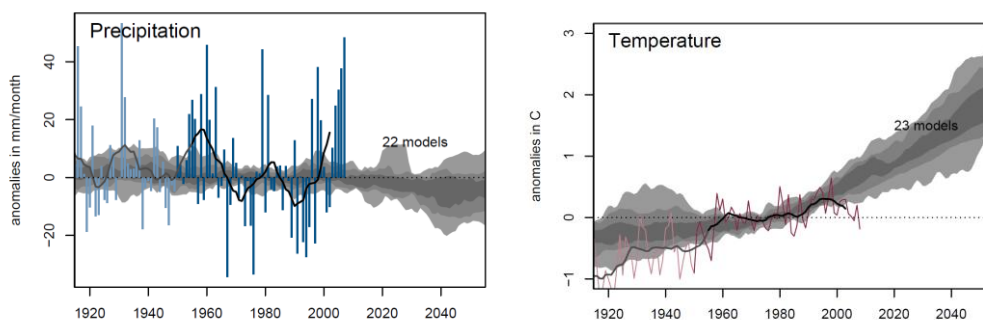


Figure 3 Observations of rainfall (GPCC, PCN, 2001 : *Première communication nationale sur les changements climatiques*. Ministère de l'environnement, République d'Haïti, <http://maindb.unfccc.int/public/country.pl?country=HT>

*Schneider et al. 2008) and temperature (CRUTEM3v, Brohan et al. 2006) in Haiti as well as simulations with 9 global models that reproduce precipitation. Greenhouse gas emissions follow scenario SRES A1B.*

Climate change affects socio-economic and natural systems. Predicted impacts in Haiti include (PANA, 2006: *Plan d'action nationale d'adaptation*. Ministère de l'environnement, Programme Changements Climatiques République d'Haïti, <http://maindb.unfccc.int/public/country.pl?country=HT>

and GDR, 2007):

- Reduced rainfall and drought periods reduce agricultural production. Ground-water levels decrease and water available for irrigation is reduced. During dry periods, winds erode uncovered and dried-up soils.
- The higher variability of rainfall leads to increased torrential rains with floods, soil erosion and landslides.
- Hurricanes become probably more intense and lead to increased damages in combination with higher sea levels and heavier rainfall.
- Output of traditional agricultural varieties is reduced due to increasing temperatures and reduced rainfall.
- Climate-sensitive diseases such as dengue, malaria and typhoid fever as well as cardio-respiratory diseases occur more often.
- Climate change also threatens terrestrial and aquatic ecosystems, leading to a loss of biodiversity such as the whitening of coral reefs.

Climate change is not the only factor influencing vulnerability to climate risks. Socio-economic factors such as the inappropriate use of natural resources (wood, soil, water) resulting from demographic pressure or the lack of infrastructure do their part, too.

### 3.2. Haiti's Contribution to Climate Change

In 2000, Haiti emitted greenhouse gases (including from land use change) corresponding to 11.2 million tonnes of CO<sub>2</sub>. This amount translates into 1.3 tonnes of CO<sub>2</sub>-equivalents (CO<sub>2</sub>e) per head. In comparison, the United States emitted 23 tonnes of CO<sub>2</sub>e per head and the global average was around 6.7 tonnes in 2000.

Haiti's emissions are mostly from agriculture (43%) and energy (41%). In addition, land use change and forestry contribute some 10% of overall emissions. Other sources are of minor importance (Figure 4). As reflected in sources, CO<sub>2</sub> is the most important greenhouse gas, contributing 48% to overall emissions. Due to the importance of agriculture and land use change and forests, the contribution of methane (28%) and nitrous oxide (24%) is very high. In Haiti, energy is mostly produced through natural resources, out of which wood is the most important, contributing some 70% of total energy needs in 1999. Only 20% of the energy come from petrol, which is imported.

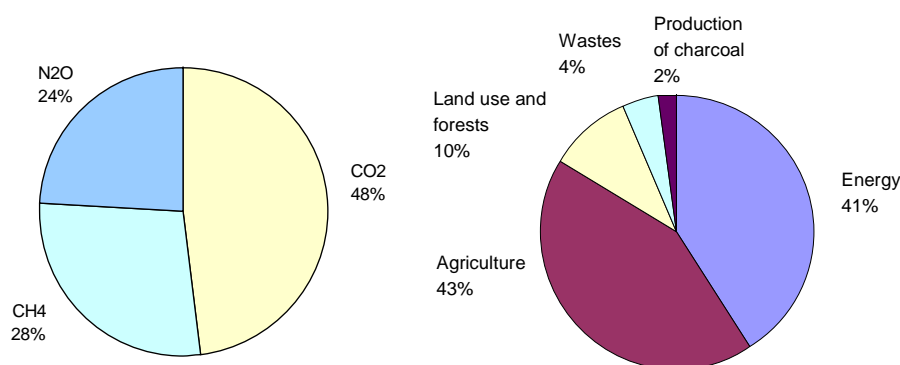


Figure 4 Greenhouse gas emissions of Haiti in 1994 (adapted and changed from **Error! Reference source not found.**)

In spite of having very low emissions on an international scale, some aspects still deserve some attention. Most emissions result from an increasing pressure on natural resources (fire wood, forest clearance for agricultural production, etc.). These emissions will increase with continuing population growth and without sustainable development. In addition, the destruction of the natural resource base leads to higher vulnerability to climate change.

## 4. Assessment of Activities of ROPAGA in Gommier

This section presents the results of the analysis on climate change conducted in November 2009 in Gommier, in the Grand'Anse region. The presentation follows

the structure of the Climate Proofing Tool which was used for the analysis. First, the project specific climate context is analysed. Second, current coping strategies are identified, followed by an analysis of livelihoods in the climate context. Then, the project's impact on adaptive capacities and on greenhouse gas emissions is evaluated. The last section looks at possible project revisions.

#### 4.1. Climate Context

##### *Scientific information*

Chapter 3 has already dealt with the impacts of climate change on a regional and national level. Scientific information on a more local level is not available. Therefore, the results of consultations with project representatives and beneficiaries as presented below have to help to identify the consequences of climate change on a local scale.

##### *Information from Stakeholder Consultations*

The information on the impacts of climate change was collected during two 4-hour workshops with the local population, one with women and another with men. The workshops took place on 27 and 28 October 2009 in Gommier. Both groups identified droughts, cyclones, the "Nordé" wind (strong wind blowing from the sea) and floods as the four most important risks.

*Droughts*, mentioned as the most important risk by men and the second risk by women, occur every year. Wind blows clouds into the mountains behind the village, as a result of which it doesn't rain often in the plains. Generally, the quantity of rain has diminished over recent years, and the duration of the rainy periods, (normally two a year, more or less April to July and September to October) is less stable and often shorter.

*Cyclones* are the worst risks from the women's point of view, where as men only ranked it fourth. They occur every 2-3 year according to women, and every 5 years according to men. This difference might be explained by the variation in intensity of cyclones. They often don't hit that very region, or at least only to a lesser extent. Both groups said cyclones were becoming more frequent.

The "*Nordé*" wind, a strong wind hitting the village directly from the sea, was identified as the second worst risk by men and as third by women. It can arrive anytime in the year, but according to women happens mainly between September and December. It has become more frequent, and lasts normally some two weeks. The village's location on the coast makes it more vulnerable to this risk.

Floods are the least bad phenomenon of the four according to women, and the second worst according to men. They can occur at any time, with large variations in

their intensity, and they have become more frequent: according to men, they occur once or twice a year compared to every two or three years before.

Overall, the village's location next to the shore renders it particularly vulnerable to all four risks: Droughts are more intense in the plains, because the wind carries the clouds to the mountains. Cyclones and the "Nordé" wind hit the coast first. Floods are frequent, because two rivers descend from the hills and flow into the sea next to the village.

Other risks were identified, in particular diseases such as typhoid fever and malaria, which were mentioned by women as a very severe problem (but, as they said, are mainly caused by other risks and a lack of hygiene).

In an exercise on the impacts of those risks, participants identified the following consequences.

*Droughts* lead to:

- Reduction in agricultural yields
- Hunger due to damage to crops
- Sick animals
- Water shortage

*Cyclones and floods* lead to:

- Economic loss
- Hunger due to damage to crops
- Health problems (particularly malaria)
- Loss of animal life

The "*Nordé*" wind leads to:

- Hunger due to damage to crops
- Corrosion of roofs, because of the salt carried by the wind
- Respiratory diseases
- Plant plagues

The results of the women's and men's groups are quite similar, except for the different ranking of risks, and some differences in the identified consequences.

Most risks and impacts are consistent with climatic information available for Haiti as mentioned in chapter 3. Droughts can be in part explained by rising temperatures: Heat leads to higher evaporation rates. In addition to that, more erratic rainfall patterns can lead to longer drought periods. Projections show a reduction in average rainfall, which, in combination with higher temperatures, will only increase droughts.

Cyclones will probably become more intense, where as their frequency will decrease according to scientific studies. The “Nordé” wind doesn’t seem to be related to climate change. However, floods can well be explained by the instability of rainfall and the rising frequency of extreme weather events.

It is also worth noting that sea level rise will increase damages inflicted upon the population by cyclones and heavy winds. It can also lead to the salinisation of groundwater tables. Sea levels will continue to rise at a rate of some 3mm per year in coming decades.

The consequences of these risks are also largely confirmed by scientific studies. Reduced agricultural productivity, for instance, or the spread of climate-sensitive diseases such as malaria are direct consequences of climatic risks.

At the same time, one should not forget that the exposure to natural risks is not the only reason for all the damages. Local vulnerabilities such as environmental vulnerability related to deforestation explain a large part of the impacts, particularly floods.

#### 4.2. Current Coping Strategies

In the same workshops mentioned above, participants were asked to explain how they react currently to the impacts listed above.

Regarding the impacts of the droughts, participants identified the following coping strategies:

- Buy new seeds to counter reduced agricultural productivity: To the extent that seeds are more resistant to droughts, this strategy is sustainable and efficient, but in reality this is probably not the case. In addition, people need financial resources to execute this strategy.
- Buy food on credit to reduce hunger. This strategy works in the short run and as long as people have access to credit (see below). But it is obviously not sustainable.
- Economic alternatives to compensate for the damages to crops. Examples include apiculture (beekeeping) or fruit trees. Not many people execute these strategies, but for those who do they are sustainable and efficient.
- Against animal diseases, people call the veterinary agent to vaccinate and give medicine to animals. This seems to work normally, and it is not too expensive.
- Against water shortages, people have to look for water far away, or they have to buy it. Both are not desirable, even though it seems the worst effects can be avoided through them. In any case, it is not sustainable.

Regarding the impacts of cyclones and floods, participants identified the following coping strategies:

- Against the destruction of soils due to floods, people say they'll drain the land with a pump provided by the FAO, yet they also said they'd need some accessories to be able to operate the pump. As a result, they currently don't have any working strategy, and even drainage wouldn't protect them sustainably.
- Replanting of seeds after destruction by flood or cyclone, yet this strategy takes two to three months to take effect. It costs, because people have to buy seeds, and it is not sustainable.
- Buy food on credit to reduce hunger. This strategy works in the short run and as long as people have access to credit (see below). But this strategy is obviously not sustainable.
- Economic alternatives to compensate for the damages to crops. Examples include apiculture (beekeeping) or fruit trees. Not many people execute these strategies, but for those who do they are sustainable and efficient.
- Against diseases, people first use traditional medicine (plants), but they go to hospital in worse cases. There is no health centre is available in the village. The hospital costs some 60 US dollar cents per day. Both strategies work only partly, and they are not sustainable.
- Buy animals on credit: This strategy works, but it is expensive and not sustainable.

Regarding the impacts of the "Nordé" wind, participants identified the following coping strategies:

- Replanting of seeds after destruction by wind, yet this strategy takes two to three months to take effect. It costs, because people have to buy seeds, and it is not sustainable.
- Buy food on credit to reduce hunger. This strategy works in the short run and as long as people have access to credit (see below). But this strategy is obviously not sustainable.
- Economic alternatives to compensate for the damages to crops. Examples include apiculture (beekeeping) or fruit trees. Not many people execute these strategies, but for those who do they are sustainable and efficient.
- Against diseases, people first use traditional medicine (plants), but they go to hospital in worse cases. There is no health centre is available in the village. The hospital costs some 60 US dollar cents per day. Both strategies work only partly, and they are not sustainable.

Analysing these coping strategies shows that the local population has a few strategies to reduce negative impacts of natural risks, but it is nevertheless very vulnerable and its adaptive capacities are low. This is because strategies are reactive rather than preventive. In addition, responses in case of disasters are heavily based on credit (this was particularly mentioned by women). Credits are normally handed out through a bank in Jérémie (the regional capital), with interest rates as high as

5% per month, that is 80% per year. Therefore, many people are very indebted, and some have already lost all their assets for failing to repay their credits.

#### 4.3. Livelihood Resources

This section first presents the most important resources for the local populations' livelihoods. In a second step, the impact of climate hazards on those resources are analysed, and in a third step, their importance for the current coping strategies is evaluated. The results were identified by project beneficiaries in the workshops mentioned above.

##### *Identifying Livelihood Resources*

Participants of the two workshops identified the following resources as their most important livelihoods:

- Natural resources: Agricultural soils, fish, water and trees (the last two only mentioned by men) as well as gravel (only mentioned by women).
- Physical resources: Community buildings (churches, schools, an administrative building), roads and dwellings (the last one was only mentioned by men).
- Financial resources: Agriculture, fishing, traditional animal husbandry (the last one only mentioned by men), and small trade (only mentioned by women).
- Human resources: Capacities in health service, construction (both mentioned by women), agriculture and fishing (both mentioned by men) as well as teachers.
- Social resources: Producer associations, women's groups (this one only mentioned by women) and churches (only mentioned by men).



Figure 5 Exercise on livelihood resources, with a women's group in Gommier  
(Photo: Marius Keller)

#### *Impacts of Climatic Risks on Livelihoods*

In the same workshops mentioned above, participants were asked how the different risks identified in the first section of this chapter influence their livelihoods.

All *natural resources* are very affected by most risks. Soils are susceptible to damage by all hazards. Even the “Nordé” wind can degrade soils through the salt it carries from the sea. Water is less available during droughts, whereas its quality can suffer during floods and cyclones. Fish can be alienated by polluted water, and they cannot be caught during cyclones and heavy wind. Even droughts can affect them, if the low river runoff changes the salt content of water near to river mouths. Gravel can be inaccessible during cyclones. In future, droughts and floods will become both more frequent and more intense, cyclones will probably be less frequent but more intense, and sea levels will rise. As a result, the vulnerability of natural resources will continue to increase.

*Physical resources* are less affected, but cyclones and floods can damage homes, buildings and roads. In addition, the “Nordé” wind can carry salt and contribute to the corrosion of roofs.

Among *financial resources*, agricultural production is particularly vulnerable, due to the impact of natural risks on soils, as mentioned above. Small trade is largely op-

erated with agricultural goods. Less vulnerable primary production such as fruits or beekeeping is not yet widely practiced. Fishing is less vulnerable than agriculture, yet cyclones and floods can affect it. Traditional animal husbandry is also less affected, but it is still at risks from several hazards.

*Human resources* are not directly affected, but they cannot add value in case of disasters, when schools are closed, construction is suspended, and agriculture cannot be practised.

Finally, the functioning of *social resources*, namely producer and women's associations and churches, can be disrupted, but their existence is not at risk.

Overall, almost all livelihood resources are affected in one way or another, yet natural resources are the most vulnerable, and because of that, financial resources are also endangered. Physical resources are a third significantly affected category, whereas human and social resources suffer less.

#### *Importance of Livelihood Resources for Coping Strategies*

The importance of resources for coping strategies was evaluated in the workshops mentioned above.

It is interesting to note that most coping strategies rely on credit from banks, who often charge very high interest rates. As a result, financial resources are very important for adaptation. In this context, social resources are also relevant, because associations can get access to cheaper credit through producer and female associations.

Natural resources are also very important, for example for putting in place economic alternatives such as beekeeping or fruit trees, as well as medical plants.

The other resources are not particularly important.

#### 4.4. The Project and Adaptive Capacities

This section analyses the impact of the project on livelihood resources that are considered either heavily affected by natural risks or very important for current coping strategies, in order to evaluate the projects influence on adaptive capacity of its beneficiaries. Following the analysis in the previous section, natural, financial and physical resources, as well as local organisations are considered particularly important in the context of adaptation to climate change. The analysis was conducted through a meeting with the ROPAGA coordinators and by the author himself.

#### *Impact of the Activity "Rural Credit"*

Considering the heavy dependence of the local people on credit for their responses to natural disasters, this activity seems to be very important and helps to reduce vulnerability in the fact of risks as well as against high interest rates. They can also

facilitate the pursuit of economic alternatives. At the same time it seems that the funds available for credit in the system of mutual solidarity supported by ROPAGA are not sufficient.

*Impact of the Activity "Organisation Capacity Building"*

This activity strengthens the capacities of local organisation and has a positive impact on adaptive capacities because these organisations facilitate credit and other activities of the project

*Impact of the Activity "Commercialisation of fruits and other products"*

The commercialisation of fruits and other products strengthens financial resources, which are at the same time vulnerable and important for coping. In particular, this activity allows for economic diversification into alternative less vulnerable to floods and droughts and maybe other risks. Also, the activity indirectly strengthens natural resources.

*Impact of the Activity "Distribution of seedlings"*

The distribution of seedlings of fruit trees directly strengthens natural resources, as indirectly financial ones. It helps to counter soil erosion, and supports the diversification of incomes.

Reforestation, which is indirectly supported by this activity, is very relevant in higher areas behind the village. ROPAGA also works with communities in the hills, and soil recovery and reforestation there is very important for the people in Gommier, to reduce floods and erosion.

A rehabilitation programme put in place after a strong hurricane in 2008 has particularly focussed on plantations in the hills. However, it seems that in some cases the plantation of beans was encouraged, which can be dangerous because it makes soil erosion more likely in case of rain.

*Evaluation of the Overall Impact on Adaptation*

In sum, the project has a positive impact on adaptive capacities, particularly with respect to strengthening financial revenues and facilitating access to credit at affordable interest rates. They also support reforestation and agricultural diversification. One has to take account of plantations in the hills behind Gommier, too, as they can affect vulnerability of the villagers.

At the same time, one has to note that the project does not yet have a very large impact. The distribution of seedlings, for instance, was limited to 2000 in the year 2009. People still have to get credits from the banks, because the funds made available by ROPAGA are not sufficient. In addition, several resources don't receive any support at all, for example fishing, water, physical resources and traditional

animal husbandry. The section “project revision” below identifies some possibilities for enhanced support of adaptive capacities.

#### 4.5. The Project and Mitigation

This section deals with the project’s impact on greenhouse gas emissions, and essentially consists of looking at some potential sources or sinks for greenhouse gases, and analysing what the project’s impact on those sources is. The evaluation is purely qualitative, as no emissions or sink measurements have been conducted.

The project appears to be influencing the greenhouse gas balance of the zone as follows:

*Soil conservation*, practiced in the hills behind Gommier, has a positive effect due to the improved capacity to absorb greenhouse gases in healthy soils.

Reforestation, through the distribution of seedling, similarly improves absorptive capacity of trees.

Apart from the energy used for ROPAGA’s building and vehicles, there are no negative effects. In sum, therefore, the project probably has a slightly positive effect on climate change mitigation, thanks to its positive impact on carbon sinks, namely soils and trees. However, this effect cannot be large, due to the small scale of the project. It is, however, important to take those effects into account, particularly in view of a possible extension of soil recovery and conservation and tree planting activities.

One also has to note the large part of emissions due to land use and forestry in the national greenhouse gas inventory. The local situation shows that there are, in fact, reduction opportunities regarding the improvement of natural carbon sinks.

#### 4.6. Project Revision

Based on the previous two sections on the project’s impact on adaptive capacities and mitigation, this section seeks to identify areas where this impact could be improved by means of project revisions or the design of new activities. The analysis according to the project revision cycle provided in the Climate Proofing Tool is not discussed here, as it has been left to the project managers to decide how to move on regarding new or revised activities.

##### *Suggestions for Improvements Regarding Adaptive Capacities*

In spite of the above mentioned positive effects on adaptive capacities, a lot more can be done to render populations more resilient against natural risks. The following list proposes a number of activities which could reinforce those capacities.

First, already executed activities can be expanded. Examples include rural credit, economic diversification and reforestation. Credit is very important to finance coping mechanisms. In addition, micro-insurance systems or index assurances, namely systems that pay automatically when some natural disasters occur, could provide the necessary resources exactly in the moment when they are most needed.

Bee-keeping and fruit trees could be promoted much more, since these activities are less vulnerable to climate and disaster risks. One of the main problems for the population is the lack of food after disasters. More resilient production options can therefore reduce their vulnerability, directly through food production, and indirectly through improved incomes.

In agriculture, one should think about drought-resistant seeds. Droughts will become more and more frequent and intense. As a result, the population need support to be less vulnerable against new climatic conditions. Fishing could also be supported, because even though fishing is at risk, too, it is less vulnerable than agriculture, and can therefore be an interesting nutritional and economic alternative (it is important to mentioned malnutrition here, which is a problem in the area due to the lack of proteins, as the women's group mentioned. Fish consumption can reduce this problem). The lack of water should also be taken into account regarding vulnerability reduction.

Overall, risk prevention measures should be taken. To date, coping strategies of the local population are reactive, which means they only tend to be aimed at occurred damages. Necessary measures include dyke construction, shelters, improvement of roads and homes as well as reforestation. The latter can also be supported through measures reducing the consumption of fuel wood such as fuel efficient stoves.

Health is another issue. People have only little means to prevent and cure diseases. Particularly women mentioned a number of diseases such as typhoid fever, malaria and respiratory diseases. Malaria and climate-sensitive diseases in general, will become more frequent due to climate change. One should take preventive and curative measures.

In a meeting with ROPAGA, its representatives mentioned that a disaster risk reduction approach will be introduced into its work. The present analysis can only welcome such a decision. If disasters are ignored, years of development efforts can easily be nullified by one single disaster. Climate change, which affects the frequency and intensity of many disasters and adds slower changes such as temperature rise constitutes a further justification for natural risk reduction.

Apart of using these results for designing new projects, they can also be used for advocacy. The Haitian government ratified the United Nations Framework Convention on Climate Change and the Kyoto Protocol, which stipulate some obligations regarding the protection of its population against climate change.

*Suggestions for Improvements Regarding Mitigation*

The reduction of greenhouse gas emissions or the improvement of sinks is not the primary concern of the rural poor, as they only minor emitters of greenhouse gases. Yet it is still worth considering emissions reducing or sink improving measures, for two main reasons. First, they could benefit from high synergies of mitigation and adaptation measures. Second they could become part of a project obtaining finance particularly for their mitigation impact, such as carbon credits. Thanks to this, adaptation measures with strong synergies in mitigation could be financed through such a finance mechanism. Unfortunately, Haiti has not registered any carbon reduction projects. At the same time, the UN is currently devising new mechanism for financing reduced emissions from deforestation and degradation of soils and forests.

#### 4.7. Conclusions

The analysis of the activities of the “Programme de développement local des Réseaux d’Organisations de Producteurs-trices de la Grand’Anse (ROPAGA)” (Local development programme for the network of producer organisations in the Grand’Anse region) in the village of Gommier, in the Grand’Anse region, Haiti, showed that the population is vulnerable to a number of risks, the most important being droughts, cyclones, the “Nordé” wind, and floods, of which several are related to climate change, and will as a result increase in impact in the future.

The local population lacks sufficient adaptive capacities, due to endemic poverty, violence, environmental degradation, and demographic growth. The project’s activities strengthen those capacities, yet further measures are needed, particularly considering the ongoing climate change. These measures should aim at increased protection of natural resources, in particular agricultural soils, woods and water, help to strengthen and diversify financial resources by extending existing credit schemes or introducing insurances, render the physical more resilient, and protect human health.

Mitigation programmes aiming at further soil recovery and reforestation activities would have strong synergies in adaptation and could bring in the needed finance for adaptation.

In sum, it is indispensable to take natural hazards into account, as they can endanger past and future achievements in development. In particular, climate change will increase the risk of natural disasters and add slower changes, to which the population will have to adapt.

## 5. Lessons learned from the application of the tool

The climate change analysis presented in this report is the fourth one conducted with the HEKS and Bread for All Climate Proofing Tool. Besides evaluating a spe-

## Lessons learned from the application of the tool

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cific project, the application of the tool also aimed at testing and improving it. The following lessons were learned:

- The first application in a coastal community has shown that the tool also lends itself to evaluations in this context. Its flexibility allows users to adjust the application to different circumstances.
- It has once more been shown that separated consultations with men and women can make the results both more interesting and more detailed.
- Consultations with the population were shorter than planned, due to communication problems with ROPAGA. All the crucial exercises could be executed, but the case shows the importance of giving precise details in a research plan, verify in advance whether everything has been put in place, and, if possible, to have one or two spare days as a buffer in case of delays.
- Some exercises are a bit long, and one risks to lose the attention of participants. More varied exercises could be developed, and animation breaks during the consultations could be included.

## IV. References

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## V. Annex

The protocol of the workshops held with project beneficiaries is available as an annex to the original French version of this report.