

# GCP/INT/157/EC Project

## Update « Action against desertification » - Restoration in Haiti.



## Presentation Plan

1. Country context
2. FAO-Haiti's agroforestry and watershed management projects
3. Results of the green border project (UNDP)
4. Haiti's AAD project: Local context
5. Update of what have been done for AAD-Haiti
  - A1.1. Capacity building in participatory development and local governance
  - A1.2: Municipal Development Plan of Bonbon
  - A2.1 Support to the development of a reference document Sustainable Land Management (SLM).
  - A2.2 Implementation of best agricultural Practices and agroforestry Models in Farmer Field Schools.
  - A.2.3. Nursery establishment, seedling production and plantation in farmers plots.
  - A2.4: Establishment of demonstration plot of forest plantations.
  - A2.5. Establishment of demonstration plot of energetic forest.
  - A2.6. Strengthening and improvement of quality seed and plant materials system.

# Haiti is located in Caribbean sea/ Hispaniola Island/boarder Dominican Republic



# COUNTRY PROFILE OF HAITI

- + 27,750 square kilometres;
- + 10.9 millions inhabitants (40% urban; 60% rural), 85% depend on agriculture.
- + UN Human Development Index: 158th / 187 countries (2011);
- + 77% under poverty (2\$US/person/day)
- + About 1million small farmers, 1 over 5 depends on livelihood (cropping + livestock);
- + Other income-generating activities: **charcoal production**, wage labour, extraction of sand, crafts and small-scale trade.

# MAIN ENVIRONMENTAL CHALLENGES

- + 64% of the country is mountains/ high slope land subject to deforestation and degradation;
- + Risks of natural disasters and hazard:
  - Country located on Hurricane way
  - Floods/ water flowing from nude mountains ,
  - Landslide and rockfalls on hillsides
  - Droughts (severe threats on crop production and food security)

# Deforestation and land degradation



# Non suitable agricultural practices leading to Soil erosion:

- Row crops on steep slopes;
- Slash-and-burn system in a context of rapid population growth;
- Top soil running down the see.



- + High pressure on local natural resources already over-exploited and vulnerable.



## Haiti contexte

- + Desertification is associated in Haiti with land degradation, erosion, loss of fertility, deforestation, forest fires, pasture degradation.



## Haiti contexte (next)

- ✚ Water erosion: the most serious and largest best known cause of land degradation in Haiti.
- ✚ >60% of land are sloping areas subject to high risk of erosion and not less than 6% are currently suffering from irreversible erosion.

✚ Average soil loss = 15 MT/ha/year across the country;



## 2. Agroforestry and watershed management projects: Main Results of FAO's Projects implemented in Haiti (from 2009 to 2014)

Development of value chain fruit tree species:

- Avocado
- Cashew nut
- Mango
- Citrus
- Acerola





Development of multi-purpose forest tree species: **Wood energy, Forage, Soil fertility**  
**Key species:**

- **Moringa oleifera :**

- edible young leaf can help children malnutrition;
- possibility of oil production for cosmetic industry

- **gliricidia, cassia, leucaena (leguminous trees)** are relevant for soil fertility and forage

- **Bayahonde** (*Prosopis juniflora*): suitable for semi-arid area/ **charcoal**



- Coffee and cacao agroforestry systems in humid highland:
- **Shade Tree** may provide wood (casuarina, pich pin) and additional income when harvested
- Carbon sequestration

# Main Results of FAO's Projects implemented in Haiti (from 2009 to 2014)

	Fort Liberté	Leogane	Gonaives Ennery	Petit Goâve	Aquin St Louis	TOTAL
Number of Nurseries constructed	15 locals 6 central	23	5	24	18	<b>86</b> capacity : <b>7,620,000</b>
Forest and fruit Trees seedling produced	600 000	950000	250,000	1,736,000	500,000	<b>4,036,000</b> forest tree and 40% fruit tree)
Restauration Agroforestry	400 ha	950 ha	250 ha	1876 ha	582 ha	<b>4048 ha</b>
Agroforestry demonstration plots		15 ha	50ha	30 ha	19ha	<b>114 ha</b>

# ✚ Agroforestry and watershed management projects: Main Results of FAO's Projects implemented in Haiti (from 2009 to 2014)

	Fort Liberté	Leogane	Gonaives, Ennery	Petit Goâve	Aquin / St Louis Sud	TOTAL
Soil conservation / Treatment of gullies	400 ha	235 ha	-	400 ha	-	<b>1035 ha</b>
# local technicians and leader of farmer's associations trained: in agroforestry / soil conservation/best practices/farmer field school approach	64	83	30	84	66 facilitators of field farmer schools	<b>327</b>
# of local committees set up for sustainable watershed management	52	2	5	6	15 farmers field schools set up	<b>73 local structures</b>

### 3.Results of the Green Border Project (UNDP-Haiti)

- ✚ Project objective: sustainable management of natural resources contributing to the well-being of communities;
- ✚ **Location:** Massacres and Pedernales watersheds prioritized by the Ministries of Environment of Haiti and Dominican Republic
- ✚ Dependence of people on natural resources /pressure on wood resources and agricultural land exposed to tremendous degradation.



## GBP Project strategy

- Reforestation and restoration of degraded lands,
- Development of small-scale farming to improve livelihoods as a sustainable alternative,
- Institutionalization of cross-border cooperation on binational watershed,
- Environmental governance for the regulation and control of charcoal trade and other forest products.



## GBP Project Components

1. Restoration of forest cover
2. Strengthening institutional capacity both sides of the border
3. Demonstrations of sustainable alternatives through production models
4. Strengthening of binational technical cooperation .



## GBP Project Results

Output	Achievement
1. High value endemic, native and / or naturalized forestry and agroforestry Tree species produced in community nurseries	8 Nurseries established and operational 4 in each country  See the <a href="#">list of species</a>
2. Degraded areas are restored with forestry and agroforestry tree species	1515 ha reforested including: 779 ha reforested in Haiti with 580,000 seedlings (36% fruit trees and 74% forest trees) 736 ha reforested in DR with 950,000 seedlings 30 operational brigades - 16 in Haiti - 14 in DR

## GBP Project Results (next)

List of Tree species produced in community nurseries	Uses
<i>Cashew (Anacardium occidentale)</i>	Fruits, Nuts, Wood energy
Mangoe ( <i>Mangifera indica</i> )	Fruits, Wood energy, Timber for construction
Tamarind ( <i>Tamarindus indica</i> )	Fruits, Wood energy
Oak tree ( <i>Catalpa longissima</i> )	Timber
Mahogany ( <i>Swietenia mahogany and macrphylla</i> )	Timber
Earleaf Acacia ( <i>Acacia auriculiformis</i> )	Wood energy (charcoal); Construction poles, Soil fertilization
Cassia tree ( <i>Cassia siamea</i> ),	
Spanish cedar ( <i>Cedrela odorata</i> )	Timber
Saman ( <i>Samanea saman</i> )	Wood energy (charcoal);
Frene ( <i>Simarouba glauca</i> )	Timber
<i>Pinus ( Pinus carribeae)</i>	Timber, poles

# GBP Project Results

Output	Achievement
3. A participatory model to generate information on land tenure	Two maps developed showing the land tenure conflicts in the two watersheds
4. GIS and remote sensing tools to monitor deforestation are installed	Biophysical information collected
5. Community leaders and key stakeholders trained on NRM	60% of community leaders and key stakeholders sensitized, and trained,
6. Creation and set up of the national platform for in situ conservation and protection	3 forest fire control infrastructures and protection constructed 2 high value areas for biodiversity conservation
7. Irrigated agriculture drip for short cycle crops established	Planned indicator: 10 hectares of irrigated farmland drip by end of 2011 but not achieved.
8. Improvement of goat breeding	3 veterinary officers trained 140 people trained in goats livestock 240 goats distributed to beneficiaries 27 crossing station including 2 improved goat per station set up to breed local goats

# GBP Project Pictures

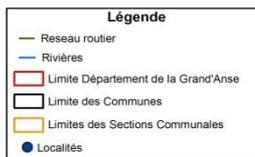
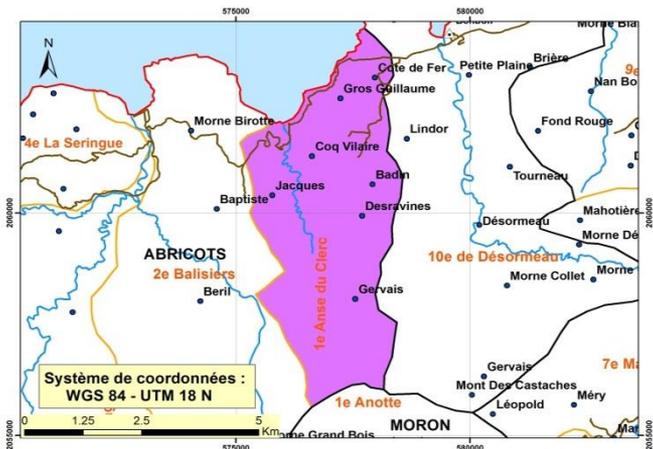


# 4. Haiti's AAD project

## Intervention location: Bonbon, Abricots, Jérémie, Moron and Dame-Marie

Localisation de la Section Communale Anse Du Clerc dans le Département de la Grand'Anse

Carte #1



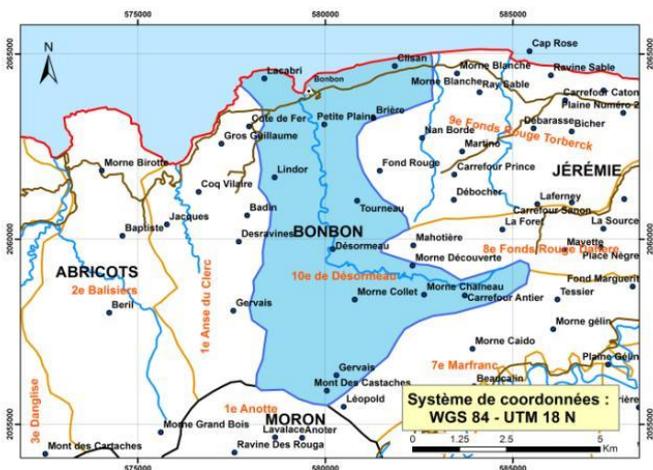
- Source de données : CNIGS  
- Préparé par : FAO  
- Date : Juin 2015

Localisation de la Commune de Jérémie dans le Département de la Grand'Anse



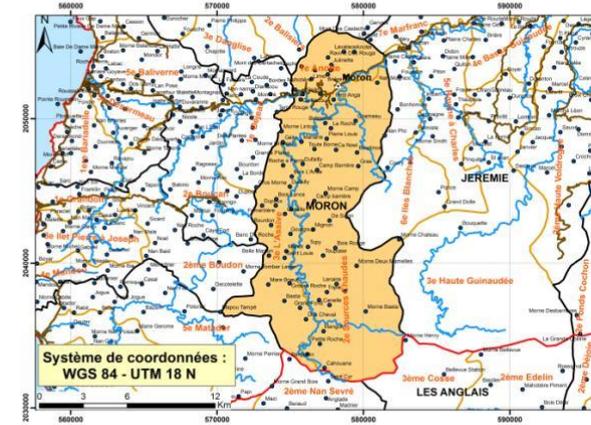
- Source de données : CNIGS  
- Préparé par : FAO  
- Date : Janvier 2015

Localisation de la Commune de Bonbon dans le Département de la Grand'Anse



- Source de données : CNIGS  
- Préparé par : FAO  
- Date : Février 2015

Localisation de la Commune de Moron dans le Département de la Grand'Anse



- Source de données : CNIGS  
- Préparé par : FAO  
- Date : Janvier 2015

# 4. Haiti's AAD project: Local context

## Results of the study of land use and land degradation:

From 1998 to 2015, agroforestry systems area have significantly decreased:

- Bonbon: 69%
- Abricot: 100%
- Jérémie: 100%
- Moron: 68%
- Dame-Marie: 54%



# Degradation by water erosion covers:

- Bonbon: 97%
- Abricot: 100%
- Jérémie: 77 %
- Moron: 100%
- Dame-Marie: 91%



## Results of the study of land use and land degradation (next):

Land with low and very low potentiality is covering:

- Bonbon: 78 %
- Abricot: 84 %
- Jérémie: 72 %
- Moron: 81%
- Dame-Marie: 79 %

# Project Strategy:

- + Ensure that local stakeholders have adopted **best agricultural production practices** and have **decrease charcoal** production to reverse the decline of agroforestry system and initiate **restoration practices** and soil protection;
- + Development of **agroforestry technologies** for sustainable management of natural resources and crop production;
- + Restoration of degraded lands productivity;
- + Development of agricultural production to enhance the resilience of family farmers.

# Project Strategy (next):

## Participatory local development:

- ✚ Participation of farmers in the management of natural resources, restoration of their landscape.
- ✚ Participatory approach focused on community base organization dynamics.



# Project Strategy (next):

## Building capacity:

- Farmer field school will help strengthening farmer's capacity in agricultural production, agroforestry, and pastoralism to fight against soil erosion and land degradation.
- Introduction of new agroforestry model and natural resources management model through farmer field schools, adoption and upscaling by farmers.



## **Project Results and Activities (what is done, what remains to be done)**

Result 1: The capacity of government institutions, non-governmental organizations and relevant stakeholders are strengthened to conduct effective cross-sectoral work in planning, financing, budgeting, implementation and monitoring and evaluation of actions in sustainable management of natural resources and the fight against land degradation in Haiti.

# Activity 1.1 Organization of a participatory workshop on capacity assessment and capacity building needs,

## What is not yet done?

- # The workshop is planned on March 21 to 23
- # Invitation will be send to managers of public institutions, member of universities and local authorities;
- # about 60 participants will participate to this workshop;
- # The questionnaire (5 sections) have been developed and adapted to Haitian context.
- # 4 working groups will be set up to discuss on questionnaire.

## Activity 1.2 Capacity building in participatory development and local governance

### What is done?

- Establishment of a **local development committee** in Bonbon municipality including:

- \* Mayor,
- \* Communal sections board of directors,
- \* Delegates of community based organizations (men, women, youth)
- \* President of the peace court,
- \* Representative of the Ministry of Agriculture
- \* Delegates of Churches;
- \* Representative of Police station

## Activity 1.2: Capacity building in participatory development and local governance (next)

### What to be done?

- Formulation of the Bonbon's **Municipal development plan**;
- The Local development committee will act like a steering committee.

## **Project Results and Activities (what is done, what remains to be done)**

Result 2: Local communities, government and non governmental actors in the project intervention area have adopted and use improved practices and technologies for sustainable management of land and forests

**Activity 2.1** Support to the development of a reference document on the evolution of Land use, Land degradation and Sustainable Land Management (SLM).

## **What is done?**

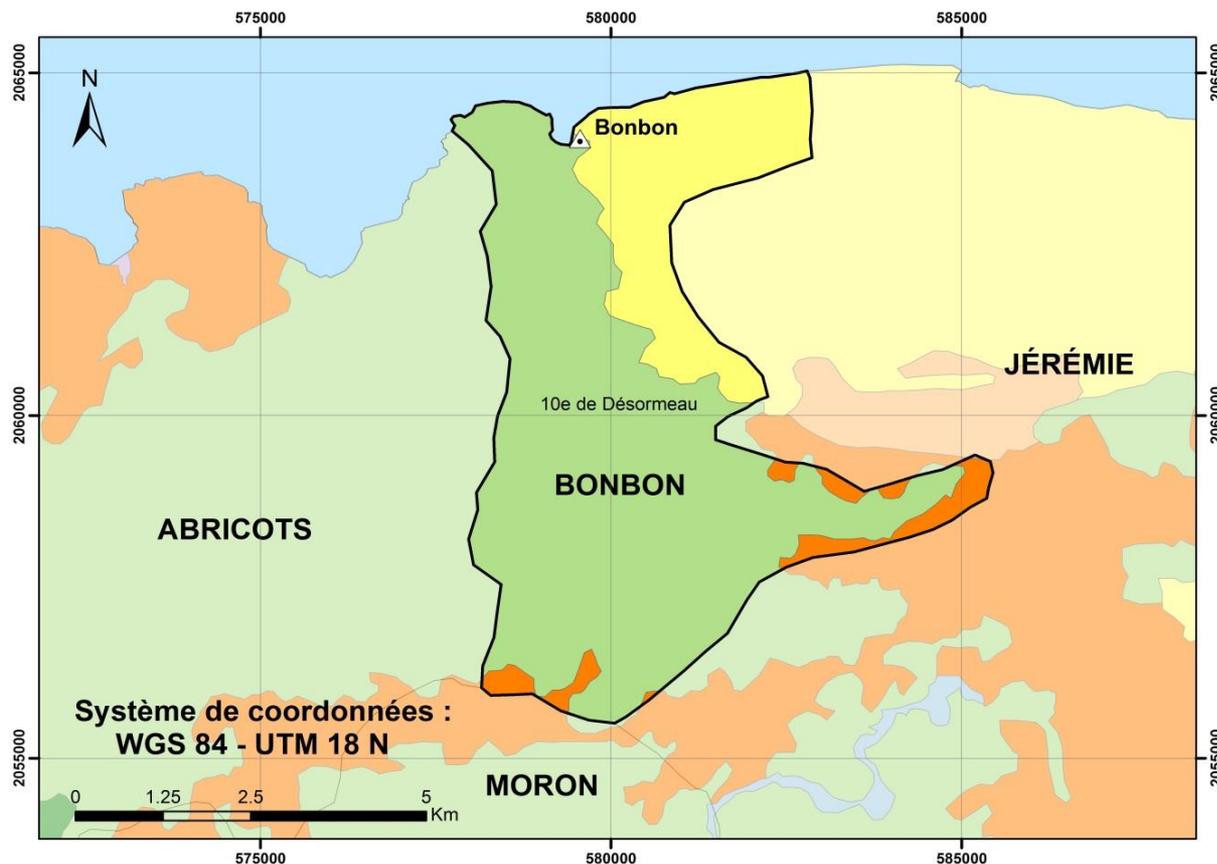
- ✚ Using remote sensing techniques and tools, Land use systems, Land degradation and Soil conservation techniques has been updated in 8 municipalities of Grande-Anse (Bonbon, Moron, Dame-Marie, Jérémie, Abricots, Chambellan, Anse d'Hainaut and Les Irois).
- ✚ Field verification and assessment using the QM LADA/WOCAT method was conducted in those communes;

## Activity 2.1 (next)

### What is done?

- # Field Document # 02/2015 was produced by FAO's Team;
- # This Document includes 104 maps of Land use system in 1998 compared to 2015; main types of land degradation; Intensity of major types of land degradation; groups of soil conservation practices; effectiveness of soil conservation measures.

## Situation de l'Occupation de sols à Bonbon en 1998



### Légende

#### Occupation Sol

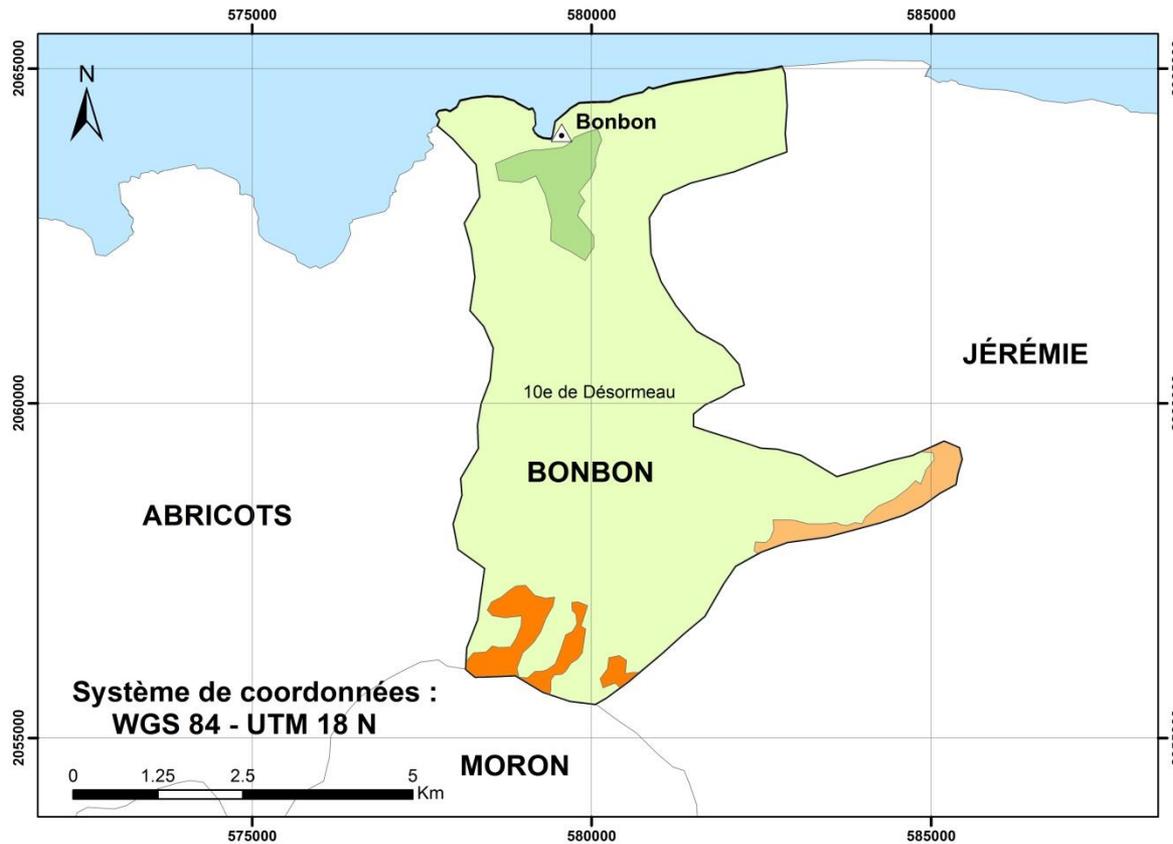
-  Cultures agricoles denses
-  Savanes avec présence d'autres
-  Systèmes agroforestiers denses

#### Limites administratives

-  Limite de la Commune de Bonbon
-  Limites des Communes avoisinantes

- Source de données : CNIGS
- Préparé par : FAO
- Date : Février 2015

# Situation de l'Occupation de Sols à Bonbon en 2015



## Légende

### Occupation Sol

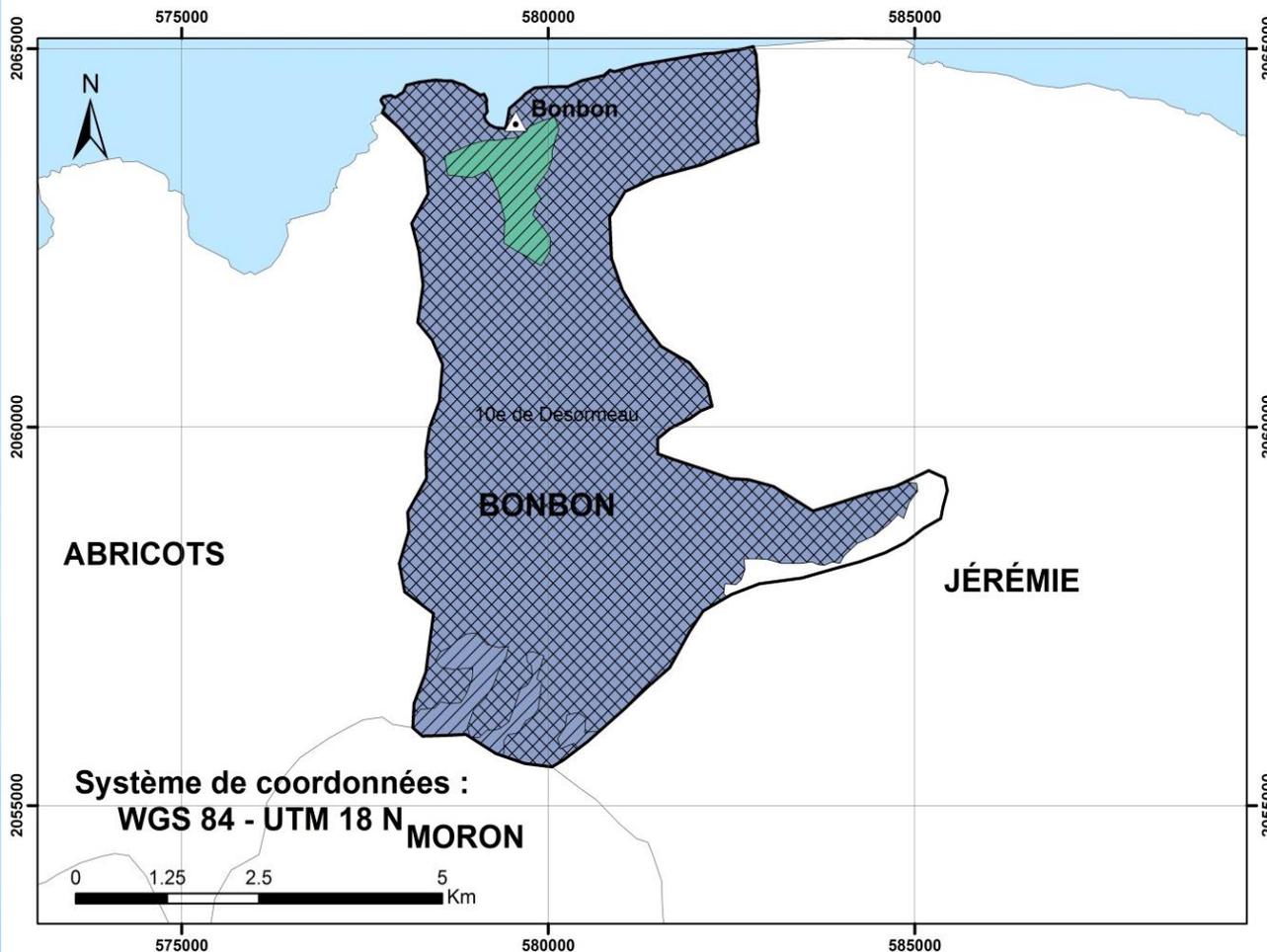
- Cultures agricoles denses
- Cultures agricoles moyennement denses
- Systèmes agroforestiers denses
- Systèmes agroforestiers moyennement denses

### Limites administratives

- Limite de la Commune de Bonbon
- Limites des Communes avoisinantes

- Source de données : CNIGS et Projet GCP/INT/157/EC
- Préparé par : FAO
- Date : Février 2015

# Groupes et Pratiques de Conservation des Sols à Bonbon



## Légende

### Pratiques de Conservation

- O : AUCUNE
- S : STRUCTURES PHYSIQUES
- V : PRATIQUES VÉGÉTALES

### Groupes de Conservation

- RH : CONTRÔLE DES RAVINES
- VS : BANDES / COUVERTURE VÉGÉTALE(S)

Note : Les pratiques et groupes de conservation représentés sont seulement les plus étendus.

### Limites administratives

- Limite de la Commune de Bonbon
- Limites des Communes avoisinantes

- Source de données :  
CNIGS et Projet GCP/INT/157/EC  
- Préparé par : FAO  
- Date : Mars 2015

## Activity 2.2 Implementation of best agricultural Practices and agroforestry Models in Farmer Field Schools, adoption and replication by farmers in their farm.

**What is done?** Achievement(DFID project): Jérémie, Moron, Dame-Marie

Best agricultural practices tested in Farmer Field School	Number FFS	Farmers
Agricultural product processing techniques and technology	8	202
Conservation agriculture (Maize and Beans crops): <b>Mulching; minimum tillage; crop rotation and intercropping;</b>	21	536
Best practices on vegetable crops production including: - <b>Management of soil fertility for vegetable crops;</b> - <b>Biological Techniques of plant protection.</b>	8	202
Soil conservation techniques on steep slopes: - <b>Slope agricultural land technology (SALT); - Improved mulching ramp;</b> - <b>Agro-sylvo-pastoral system.</b>	6	145
Cocoa farm regeneration techniques; Regeneration of mature cocoa plots and control of tree cover	5	127
<b>Total</b>	<b>62 FFS</b>	<b>1562</b>

## Activity 2.2 Implementation of best agricultural Practices and agroforestry Models in Farmer Field Schools, adoption and replication by farmers in their farm.

### What is not yet done?

In Bonbon and Abricots Municipalities:

- ✚ Identification of Farmers field school groups
- ✚ 36 FFS involving 900 Farmers are currently been setting up of which 18 in Bonbon and 18 in Abricots.
- ✚ Every FFS is established by a group of 25 farmers to learn agroforestry technology, slope agricultural land technology, agro-sylvo-pastoralism, then adopt and upscale them to their own plots of land.

Best agricultural practices tested in Farmer Field School	Number FFS in Bonbon	Number FFS in Abricots
Agroforestry system model made of mixture of fruit trees and forest tree with seasonal and perennial crop	5	5
Agro-sylvo-pastoralism system with mixture of trees, crop and livestock	5	5
Conservation agriculture (Corn and Beans crops): Mulching; minimum tillage; crop rotation and intercropping;	5	5
Best practices on vegetable crops production including: - Management of soil fertility for vegetable crops; - Biological Techniques of plant protection.	2	2
Cocoa farm regeneration techniques; Regeneration of mature cocoa plots and control of tree cover	1	1
Total	36 FFS	

## A.2.3. Nursery establishment, seedling production and plantation in farmers plots

### What is done?

Achievement(DFID project): Jérémie, Moron, Dame-Marie

- 8 Nurseries have been established
- 1,004,240 seedlings produced in 2015: 60% fruit species and 40% forest species.
- 3351 hectars of farmer land planted
- 3426 farmers beneficiary of seedling planting (agroforestry system)

## A.2.3. Nursery establishment, seedling production and plantation in farmers plots (next)

- + **Species selection:** Depend on farmer choice given their economic interests.
- + **Seed collection:**
  - \* There is no institution in charge of agroforestry and forestry seed in the country.
  - \* collection in local market
  - \* collection in trees on farm
  - \* problem of seed quality when they are collected in tree on farm.
  - \* stakeholder need training in seed collection

Species	Seedlings produced and planted	Uses
<b>Mangoe (<i>Mangifera indica</i> var. francisque)</b>	<b>27020</b>	edible fruit / cash income; timber, firewood, charcoal
Orange ( <i>Citrus sinensis</i> )	5550	edible fruit / cash income; firewood (charcoal)
Lemon ( <i>Citrus aurantifolia</i> )	2585	edible fruit / cash income; firewood (charcoal)
<b>Cocoa (<i>Theobroma cacao</i>, criollo &amp; trinitario)</b>	<b>275886</b>	cocoa beans/ export crop; firewood
<b>Coffee (<i>Coffea arabica</i>)</b>	21079	fruit/ export crop
<b>Avocado (<i>Persea americana</i>)</b>	<b>31414</b>	edible fruit/ cash income
Breadfruit ( <i>Artocarpus altilis</i> )	15639	edible fruit/cash income, firewood, timer
Cerise/acerola ( <i>Malpighia punicifolia</i> )	15445	edible fruit/juice (cash income), firewood
<b>cashew tree (<i>Anacardium occidentale</i>)</b>	<b>191915</b>	Cashew nut (cash income), firewood.
Quenepa ( <i>Melicoccus bijugatus</i> )	13780	edible fruits/food, cahs income, firewood
Jack fruit ( <i>Artocarpus heterophyllus</i> )	14626	edible fruits/food, cahs income, firewood
Papaya ( <i>Carica papaya</i> )	3600	edible fruit/ food, cash income
ackee apple ( <i>Blighia sapida</i> )	1483	edible fruit/ food, cash income, firewood
Soursop/Corossolier ( <i>Annona muricata</i> )	2613	edible fruit, fire wood, cash income
Grenadine ( <i>Passiflora quadrangularis</i> )	1200	edible fruit, cash income
Carambolier ( <i>Averrhoa carambola</i> )	1805	edible fruit, cash income
Custard apple ( <i>Annona reticulata</i> )	280	edible fruit, cash income, fire wood
<b>Total fruits tree</b>	<b>625920</b>	



Quenepa



Acerola



Cashew



Soursop/Corossolier



Breadfruit



Jackfruit



Ackee apple



cashimar



Cashew



Carambola

Species	Seedlings	Uses
<i>Moringa (Moringa Oleifera)</i>	69330	edible leaves / food, firewood, soil fertilization
<i>Cassia (Cassia siamea/Cassia Spectabilis)</i>	23328	timber, pools, firewood, soil fertilization
<i>Cedar (Cedrella odorata)</i>	112680	timber, pools, firewood, soil fertilization, shade tree.
<i>Acajou (Swietenia mahogani)</i>	74340	timber, firewood, shade tree. (artisanal products)
Florida-boxwood/bois capable ( <i>Schaefferia frutescens</i> )	10000	firewood, shade tree.
<i>Saman(Sammea saman)</i>	55540	firewood, shade tree.
Mahaut ( <i>Hibiscus elatus</i> )	9200	timber, firewood, shade tree.
Frêne ( <i>Simaruba glauca</i> )	15736	timber, firewood, shade tree.
Nakedwood/Bois pele ( <i>Colubrina arborescens</i> )	4920	firewood, shade tree.
<i>Eucalyptus camaldulensis</i>	3246	timer, firewood
<b>Total</b>	<b>378320</b>	

# Monitoring, follow-up and evaluation of seedling plantation

- ✚ Follow-up and monitoring was performed in January after the first drying season: 90% success rate.
- ✚ Next assessment in August after the second drying season.
- ✚ Next assessment of success rate after every drying season.
- ✚ Replacement of died seedlings after every assessment.



## A.2.3. Nursery establishment, seedling production and plantation in farmers plots

What is currently done?

AAD project: Bonbon and Abricots;

- 1 Nurseries have been established by ROPAGA (LoA signed in December 2015)
- 100,000 seedlings to be produced of which 35000 is already produced including 10000 fruit species and 25000 forest species.
- 335 hectares of farmer land will be restored in April to May 2016.
- 246 farmers will benefit from seedling planting (agroforestry system);
- Species produced includes: Orange, Cashew, Cocoa, Mahogany, Moringa, Cedar, Florida-boxwood/bois capable, Nakedwood/Bois pele.

## A.2.3. Nursery establishment, seedling production and plantation in farmers plots

### What is currently done?

AAD project: Bonbon and Abricot;

- 5 LoA have been prepared with 5 CBO (3 in Bonbon and 2 in Abricots) for Nurseries establishment. Submitted for signature end February.
- 500,000 seedlings will be produced of which 40% fruit species and 60% forest species.
- 1500 hectares of farmer land will be restored in September-December 2016.
- 1250 farmers will benefit from seedling planting (agroforestry system);
- Species produced will include: citrus, cashew, cocoa, mahogany, moringa, cedar, frene, saman.

Activity 2.4: Establishment of demonstration plot of forest plantations and the development of participatory management system.

## What is not yet done?

- + Selection of species: acajou, spanish cedar, frene, oak tree.
- + Seedling production
- + Plantation: collaboration with the Mayor to find State Land that will be planted.
- + High density planting: 2500 seedling per hectar.

Activity 2.5. of energetic forest demonstration plots establishment for firewood and charcoal production and development of sustainable management system

## What is not yet done?

- + Selection of fast growing species: acacia magium, prosopis juniflora (bayahonde), campêche (Haematoxylum campechianum), Cassia siamea.
- + Seedling production.
- + Plantation: collaboration with the Mayor to find State Land that will be planted.
- + High density planting: 2500 seedling per hectar.

## Activity 2.6. Strengthening and improvement of quality seed and plant materials system (locally).

### What is done?

Achievement of DFID project in Jeremie, Moron and Dame-Marie: 180 seed producer members of 12 Artisanal seed producer groups (ASPG) were trained and supported in high quality seed and planting material production;

Crop/variety	Quantity of seed distributed to ASPG (2015)	Quantity of crop harvested (2015)
Lima pea: <i>beseba</i>	1600 kg	80 tons
Pigeon pea: <i>idiaf Primor</i>	1300 kg	65 tons
Corn: <i>chicken corn and tikamion</i>	4370 kg	260 tons
Beans: <i>DPC 40 , X-rav, Buena vista</i>	4375 kg	44 tons
Sweet Potatoes cuttings: <i>tisavien and mize malere</i>	480000	240 tons
Cassava cuttings: <i>CMC40</i>	240000	515 tons
Yam cutting: <i>guinee yellow and white</i>	200000	360 tons

## Activity 2.6. Strengthening and improvement of quality seed and plant materials system (locally).

### What is not yet done?

AAD project in Bonbon and Abricot:

6 CBO are selected and the capacity in seed production of 90 farmers member of these groups will be strengthened . They will be trained and supported in high quality seed and planting material production;

Crop/variety	Quantity of seed that will be distributed to 6 CBO in spring 2016)	Quantity of crop expected to be harvest (2015)
cowpea:	600 kg	30 tons
Lima pea: <i>beseba</i>	900 kg	40 tons
Pigeon pea: <i>idiaf Primor</i>	600 kg	30 tons
Corn: <i>chicken corn and tikamion</i>	900 kg	40 tons
Beans: <i>DPC 40 , X-rav, Buena vista</i>	1200 kg	120 tons
Sweet Potatoes cuttings: <i>tisavien and mize malere</i>	180000	120 tons
Cassava cuttings: <i>CMC40</i>	180000	120 tons
Banana suckers	30000	300 tons

# Project Management/ Project Team

- ✚ Steering committee (Min. of Environm, Min. of Agricult., FAO, EU, UNEP, Local; Authorities, delegate from local CBC)
- ✚ National director from MofE (GA Departmental Director of Environment);
- ✚ Project's Focal Point in the MofE (focal point of UNCCD);
- ✚ Project Manager, FAO-Haiti;
- ✚ Project National coordinator.
- ✚ Technical staff(national and international)

# Communication

Following communication mechanisms will be implemented:

- + Communication for development: best agricultural practices;
- + workshops
- + Article in newspaper
- + Website
- + Radio and television reports
- + SMS and telephon
- + Data base and GIS data base.

**THANK YOU FOR YOUR  
ATTENTION**