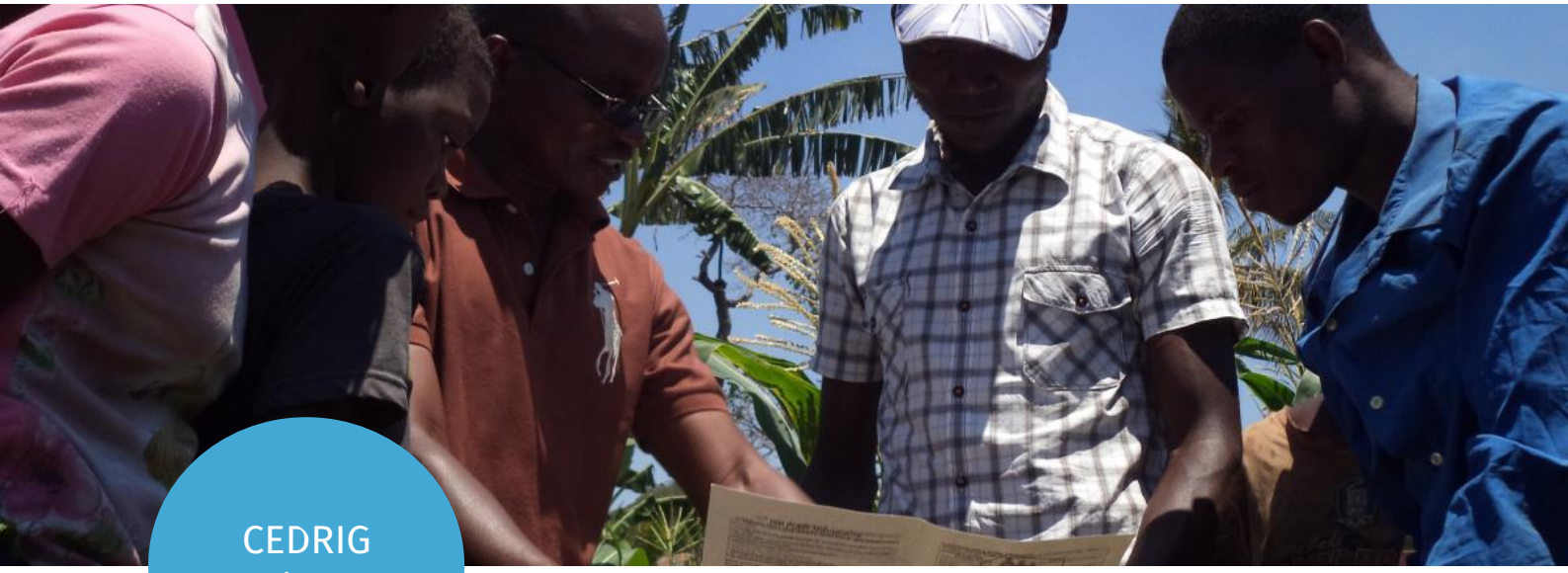
CEDRIG CLIMATE, ENVIRONMENT AND DISASTER RISK REDUCTION INTEGRATION GUIDANCE



CEDRIG Light

Horti-Sempre Phase 2, Nacala Corridor in Northern Mozambique

Michael Fink, Fabian Mauchle

June 2018

HORTI-SEMPRE Smart Solutions for Smart Agriculture

swisscontact

GFA Consulting Group

CEDRIG is a tool developed and offered by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

Overview

General Information

Contributors
Michael Fink, Swisscontact
Fabian Mauchle, SDC, Switzerland
FRANCO SCOTTI, SWISSCONTACT, Brazil
Tobias Sommer, SDC, Switzerland
Roberto Méndez, COSUDE-Ayuda Humanitaria, Bolivia

Overall goal
The overall objective of Horti-Sempre is to increase the annual net income of 25,000 smallholders by 30% against baseline by supporting the growth of the horticultural sector in Northern Mozambique in view of its proven importance as income creator.

Country
Mozambique

Budget
6'500'000 CHF

Duration
01/2017 - 12/2020 (48 months)

Summary

Description
The overall objective of the Horti-Sempre Phase 2 Project is to increase smallholder's annual net income by 30% against baseline by supporting the growth of the horticultural sector in Northern Mozambique in view of its proven importance as income creator. To fulfil its mission and reach the overall objective, Swisscontact proposes for Horti-sempre Phase 2 a logic of intervention based on three main Outcomes that unfold around three main project components namely (1) inputs and practices, (2) irrigation and (3) sector competitiveness. OUTCOME No 1: Productivity of horticultural smallholders in the Nacala Corridor in Northern Mozambique increased OUTCOME No 2: Horticultural smallholders in the Nacala Corridor in Northern Mozambique increased their area under irrigation OUTCOME No 3: Market responsiveness and competitiveness of the horti-cultural sector in Northern Mozambique is increased The three components will be complemented with two transversal topics: Women's Economic Empowerment (WEE) throughout the different interventions and through special women targeted interventions and Access to existing funding options. Based on experience from Phase 1, Swisscontact beliefs that Horti-Sempre Phase 2 has the potential to reach 10'000 semi-commercial and 15'000 subsistence male and female smallholders in Northern Mozambique increasing their income by up to 30%.

Sectors of Intervention

Agriculture
Rural development

Food security
Water management

Documents

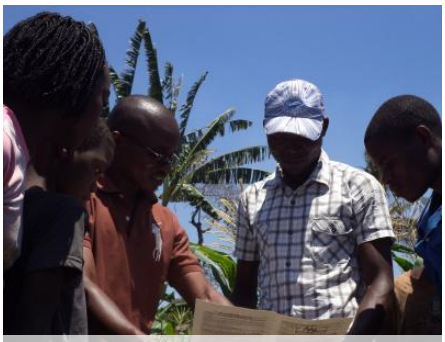
MER_Climate Change Profile (pdf, 1.2 MB)

FANRPAN_Fact Sheet Moz (pdf, 219.89 KB)

WORLD BANK_Climate Change Profile Moz (pdf, 2.61 MB)

Presentation_Climate Data_Moz (pdf, 1.01 MB)

Images



Training on basic irrigation solutions

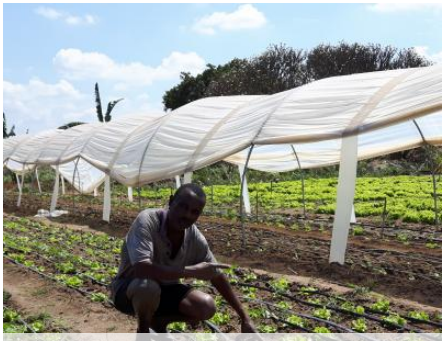
Training on basic irrigation solutions

Training on agricultural practices

Training on agricultural practices

Construction of underground dam

Construction of underground dam



Protected horticulture cultivation

Protected horticulture cultivation

Underground dam filled with water

Underground dam filled with water

Basic irrigation solution in use (hip-pump)

Basic irrigation solution in use (hip-pump)

Risk perspective

Hazards arising from environmental degradation

Hazard name: Degradation (land, soil, ecosystems, biodiversity)

Exposure: Yes

Comments: Soil degradation is frequently the result of poor conservation practices (no soil coverage, deep tillage, poor biodiversity) aggravated by heavy rains. Consequently, more inputs are needed resulting in a vicious circle of degradation.

Consequence: **Key consequences are lower yields due to degraded soil and higher need of farmers to use inputs (fertilizers)**

Likelihood	Extent	Risk Level
Likely	Harmful	Medium risk

Hazard name: Water pollution (surface and subterranean)

Exposure: Yes

Comments: Water pollution mainly in peri-urban areas due to urban water and soil contamination (e.g. from factories, waste, etc.).

Consequence: **Key consequences are the loss in product quality, as well as potential health risks for consumers. Assessment of hazard is difficult because of limited data availability on water and soil quality.**

Likelihood	Extent	Risk Level
Likely	Slightly harmful	Low risk

Hazard name: Pests and epidemics

Exposure: Yes

Comments: Pests and epidemics occur because of poor crop rotation and lack of knowledge or availability of properly formulated defensives (pesticides, insecticides, fungicides). Pests and epidemics are ocurring more frequently during the hot and rainy season compared to the cold and dry season.

Consequence: **Key consequences are crop losses (sometimes failure) and that farmers avoid production in warmer and wetter months of the year**

Likelihood	Extent	Risk Level
Likely	Harmful	Medium risk

Natural hazards (hydro-meteorological and geological)

Hazard name: Heat waves

Exposure: Yes

Comments: According to the World Bank, the number of hot days per year increased by 25 in the last 40 years, and much of this has occurred during the southern hemisphere autumn. This corresponds to the first harvest cycle of many major grains across the country, with significant implications for agricultural pests and yields.

Consequence: **Key consequences include a shortening of the growing season, crop failure (no yield) or crop losses (lower yields)**

Likelihood	Extent	Risk Level
Very likely	Harmful	High risk

Hazard name: Droughts

Exposure: Not sure

Comments: Since the 1960s, mean rainfall has decreased by an average of 2.5 millimeters per month (3.1%) per decade. Increased rainfall over the northern regions, highly variable conditions in the central regions, and persistent drought periods coupled with episodic floods in the south. In Northern Mozambique, seasonal droughts are occurring, meaning that rains are delayed.

Consequence: **Delayed rains result in loss of seeds of rainfed crops (e.g. maize) and the need to rebuy and re-sow crops**

Likelihood	Extent	Risk Level
Likely	Harmful	Medium risk

Hazard name: Storms, tornadoes, hurricanes, strong winds, sandstorms

Exposure: Yes

Comments: Frequency of storms has increased, but events are seasonally concentrated and farmers normally wait with sowing until the risk has decreased.

Consequence: **Destruction of basic infrastructure and crops in early stage of growth**

Likelihood	Extent	Risk Level
Unlikely	Harmful	Low risk

Hazard name: Flash floods, floods

Exposure Yes

Comments The proportion of days with heavy rainfall events has increased by 2.6% per decade according to the World Bank. The number of days with heavy rainfall currently amounts to ~25 per year. However, events are seasonally concentrated and farmers normally wait with sowing until this risk is lower.

Consequence **Destruction of basic infrastructure and crops in early stage of growth, destruction of trade infrastructure (e.g. bridges and roads)**

Likelihood	Extent	Risk Level
Likely	Harmful	Medium risk

Hazard name Erratic Rains

Exposure Yes

Comments Recently, rainfalls in Northern Mozambique are out of usual patterns which farmers rely on. Tendency towards delayed rainfalls.

Consequence **It is difficult for farmers to predict the start of the rainy season. Due to a delayed start of the rainy season, the growing cycle is postponed into the hot season when it is difficult to produce horticulture. Higher risk of pests due to humidity.**

Likelihood	Extent	Risk Level
Very likely	Harmful	High risk

Hazards arising from climate change (and climate variability)

Hazard name General trends towards higher or lower mean annual temperatures

Exposure No

Comments Temperatures have generally increased by 0.6° C over the last fourty years, with particularly pronounced increases observed during the hot season (September - March). This increase has so far not considerably affected horticulture as the vegetables are produced during the drier and cooler winter months (April - August).

Hazard name Changes in frequency and intensity of climatic extreme events and associated disasters (e.g. cold and heat waves, flood, drought, storms, hurricanes, cyclones)

Exposure No

Comments Frequency of floods is increasing in the country, but mostly in the South and Centre where Mozambique does not control the dam system on the main river (e.g. Limpopo, Save, etc.). Other events (hurricans, cyclones, etc.) are also concentrated in the South/Centre.

Hazard name Shifts in season

Exposure Yes

Comments A shift of seasons is observed in Northern Mozambique. Average annual rainfall has remained similiar (or even slightly increased). However, the precipitation patterns have changed. More erratic and locally concentrated rainfall is observed which often results in floods and a shorter growing season.

Consequence **Shorter growing season, longer idle season (hunger period - epoca de fome), unpredictability of sowing time, loss of first seeds (investment), extension of growing season into warmer months, loss of 1 or more production cycles**

Likelihood	Extent	Risk Level
Very likely	Harmful	High risk

Detailed risk assessment needed?

Yes - A detailed risk assessment is needed

Impact perspective

Estimate impact on the environment

Environmental Area	Ecosystems
Component of the activity	Underground Dams
Impact on environment	Small-scale rainwater retention increasing soil humidity potentially changing the ecosystem; limited additional pollution due to the plastic used to build the dam

Environmental Area	Soil
Component of the activity	Inputs (Fertilizer & Pesticides)
Impact on environment	Use of fertilizer and pesticides by horticulture smallholders is common. However, the used amounts are very limited due to a lack of financial resources. Thus, a small negative impact on the soils can be expected. The Project only gives technical advice following a market-approach and does not directly promote and increased use of fertilizers and pesticides for the horticultural production.

Estimate impact on climate change

Component of the activity	Increasing volumes and de-seasonalization of horticulture production
Impacts on climate change	Possibly decreasing emissions of Greenhouse Gases (GHG) due to local horticultural production and shorter transport routes. The international and inter-regional imports might decrease due to a higher availability of locally produced vegetables.

Detailed impact assessment needed?

No - A detailed impact assessment is not needed