



CEDRIG
Opérationnel

Horti-sempre: Increasing the income of smallholders through horticulture in the Nacala Corridor

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Direction du développement
et de la coopération DDC

● Vue d'ensemble

Informations Générales

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| Objectif général | Horti-semble, Phase 2 overall objective 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. |
| Pays | Mozambique |
| Budget | 6,500,000 CHF |
| Durée de l'activité | 01/2017 - 12/2020 |

Sommaire

Description The overall objective of the Horti-Semple 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-semble 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 estimates that Horti-Semple 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%.

Secteurs d'intervention

Agriculture
Développement rural

Sécurité alimentaire
Gestion de l'eau

Documents

MER_Climate Change Profile (pdf, 1.2 Mo)

FANRPAN_Fact Sheet Moz (pdf, 219.89 Ko)

WORLD BANK_Climate Change Profile Moz (pdf, 2.61 Mo)

Presentation_Climate Data_Moz (pdf, 1.01 Mo)

Images



Training on affordable irrigation solution (hip-pump)

Training on affordable irrigation solution (hip-pump)



Affordable irrigation solution (hip-pump)

Affordable irrigation solution (hip-pump)



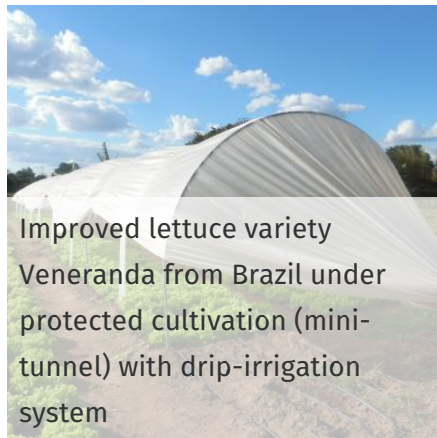
Construction of underground dam

Construction of underground dam



Underground dam (capacity to capture 10,000m3 water)

Underground dam (capacity to capture 10,000m3 water)



Improved lettuce variety Veneranda from Brazil under protected cultivation (mini-tunnel) with drip-irrigation system

Improved lettuce variety Veneranda from Brazil under protected cultivation (mini-tunnel) with drip-irrigation system



Improved onion variety IPA 11 from Brazil adapted to tropical climate with longer shelf-life

Improved onion variety IPA 11 from Brazil adapted to tropical climate with longer shelf-life



Training on good agricultural practices (tomato staking)

Training on good agricultural practices (tomato staking)

○ Perspective des risques

Aléas dûs à la dégradation de l'environnement

Nom de l'aléa **Dégradation (terres, sols, écosystèmes, biodiversité)**

Conséquence **Key consequences are lower yields due to degraded soil and higher need of farmers to use inputs (fertilizers); land conflicts possible**

> **Risque sélectionné**

| Gravité | Probabilité | Importance |
|----------|-------------|--------------|
| Nuisible | Probable | Risque moyen |

Vulnérabilités Natural vulnerabilities due to overexploitation, soil compactation and erosion

Mesure potentielle **Good Agricultural Practices (GAPs): e.g. no tillage, soil coverage, inter-cropping**
 Valeur (optionnel) 9.00
 Commentaires Affordable and easy to apply but depends on farmers' willingness to adopt.
 > **Mesure sélectionnée**

Mesure potentielle **Bio-fertilization with adoption of crops fixing nitrogen in the soil (e.g. beans)**
 Valeur (optionnel) 7.00
 Commentaires Low investment, but change in farmers' traditional production pattern needed.
 > **Mesure sélectionnée**

Mesure potentielle **Improving irrigation with calenders to avoid over-irrigation of soils (salinization)**
 Valeur (optionnel) 8.00
 Commentaires Highly depending on farmers' willingness to change habits (training needed).
 > **Mesure sélectionnée**

Mesure potentielle **Mediation in land conflicts; supporting farmers in acquiring formal land rights**
 Valeur (optionnel) 5.00
 Commentaires High policy investment needed, not part of project strategy.

Mesure potentielle **Soil reclamation technologies (de-salinization, etc.)**
 Valeur (optionnel) 5.00
 Commentaires Very expensive based on sophisticated technologies beyond project possibilities.

Nom de l'aléa Nuisibles et épidémies

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

> Risque sélectionné

| | | |
|----------|-------------|--------------|
| Gravité | Probabilité | Importance |
| Nuisible | Probable | Risque moyen |

Vulnérabilités Combined physical and financial vulnerability due to lack of availability and access to equipment and production tools; human vulnerability due to limited know-how on how to deal with pest and epidemics

Mesure potentielle **Crop rotation (i.e. different horticulture crops annually or by cycle)**
 Valeur (optionnel) 8.00
 Commentaires Pests accumulate over cycles and farmers need to change to crop families not prone to the same pests to break the cycle of pests. Change in traditional production pattern needed, but with little investment required.
> Mesure sélectionnée

Mesure potentielle **Developing manual on proper use of defensives**
 Valeur (optionnel) 7.00
 Commentaires Distribution of manual to farmers is key to promote correct use of defensives.
> Mesure sélectionnée

Mesure potentielle **Development of knowledge on bio-defensives**
 Valeur (optionnel) 8.00
 Commentaires Aiming at recovering knowledge on traditional bio-defensives abandoned over the last generations (e.g. moringa, tobacco leaves, etc.).
> Mesure sélectionnée

Mesure potentielle **Good Agricultural Practices (GAPs) to reduce risks of diseases (spacing, tomato staking, etc.)**
 Valeur (optionnel) 6.00
 Commentaires Affordable and easy to apply but depends on farmers' willingness to adopt.
> Mesure sélectionnée

Mesure potentielle

Directly supporting input suppliers in increasing range and sales of chemical defensives

Valeur (optionnel) 5.00

Commentaires Demand by farmers has no critical mass to justify increased supply and diversification on wholesale and retail level. Furthermore, the project does not actively address potential negative impacts of increased pesticide use.

Mesure potentielle

Introducing bio-predators to eliminate bugs, etc. (e.g. wasp)

Valeur (optionnel) 5.00

Commentaires Requires high technology and research investments, not common in Mozambique - potentially low adoption.

Aléas naturels (hydro-météorologiques et géologiques)

Nom de l'aléa **Vagues de chaleur**

Conséquence **Key consequences include a shortening of the growing season, crop failure (no yield) or crop losses (lower yields) due to burning of plants**

> Risque sélectionné

Gravité

Probabilité

Importance

Nuisible

Très probable

Risque élevé

Vulnérabilités

Hardware bottlenecks: Physical vulnerabilities due to lack of agricultural equipment (irrigation schemes, protected cultivation, e.g. greenhouses) linked to financial vulnerability as no capacity to invest in adequate equipment; Software bottlenecks: human vulnerability due to lack of knowledge on available, affordable solutions such as heat tolerant seeds.

Mesure potentielle

Introduction of heat resistant and short-cycle Open Pollinated Varieties (OPV)

Valeur (optionnel) 10.00

Commentaires Low investment needed (only 3% of estimated total cost of production) and costs not higher than of seeds currently in use

> Mesure sélectionnée

Mesure potentielle

Basic Climate Smart Agriculture (CSA) practices such as soil coverage to reduce evaporation

Valeur (optionnel) 10.00

Commentaires Easy to adopt, as no investment needed, only increase in labour; depending on farmers willingness to adopt

> **Mesure
sélectionnée**

Mesure potentielle

Affordable water transportation/ distribution (e.g. manual pumps) and harvesting solutions (e.g. underground dams)

Valeur (optionnel) 6.00

Commentaires Medium to high investment required; amortisation required for investment replacement (E.g. of pumps) - economically viable but maybe not financially.

> **Mesure
sélectionnée**

Mesure potentielle

Packaging and storage solutions to reduce post-harvest loss

Valeur (optionnel) 5.00

Commentaires Needs engagement of several players (farmers, retailers, traders, etc.). Added value justifies investment, but behaviour change needed at all levels.

> **Mesure
sélectionnée**

Mesure potentielle

Protected cultivation (mini-tunnels, greenhouses with sombrite)

Valeur (optionnel) 7.00

Commentaires High investment, although ROI will justify. Need for access to investment capital. Importance of building storm-proof infrastructure (e.g. concrete footings for greenhouses).

> **Mesure
sélectionnée**

Mesure potentielle

Introducing heat tolerant hybrid seeds

Valeur (optionnel) 5.00

Commentaires Seeds are expensive and only responsive/perform well under best practices and high-input agriculture.

Mesure potentielle

Sophisticated irrigation systems (e.g. sprinkler systems, drip irrigation, etc.)

Valeur (optionnel) 5.00

Commentaires Are expensive and only solve water distribution problems, but not water availability.

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

| | | | |
|--------------------------------|--------------------------|-------------------------|----------------------------|
| > Risque sélectionné | Gravité Très nuisible | Probabilité Probable | Importance Risque élevé |
|--------------------------------|--------------------------|-------------------------|----------------------------|

Vulnérabilités Physical vulnerability due to poor protective infrastructure (e.g. dams); financial vulnerability due to limited cash for re-purchasing seeds, equipment and additional labour for re-sowing and land preparation

Mesure potentielle

Construction of flood-proof underground dams

Valeur (optionnel) 9.00

Commentaires Relatively low investment based on community labour; little maintenance needed; long-lasting infrastructure not affected by floods compared to traditional dams.

> Mesure sélectionnée

Mesure potentielle

Short-cycle open pollinated varieties (OPV; e.g. 60 dias cabbage)

Valeur (optionnel) 10.00

Commentaires Give farmers the flexibility to recover their production cycle quickly after the loss of a cycle.

> Mesure sélectionnée

Mesure potentielle

Storage infrastructure

Valeur (optionnel) 7.00

Commentaires Minimize risks, but do not completely eliminate the risk of flooding that can take away the building. Not always viable depending on location and costs.

Mesure potentielle

Recommending relocation to less risky areas

Valeur (optionnel) 5.00

Commentaires Depends on topography, normally farms only spread across low areas close to rivers due to lack of water transportation systems. Relocation implies costs and reduced access to water.

Mesure potentielle

Early warning system

Valeur (optionnel) 7.00

Commentaires Depends on public institutions and investments beyond project scope.

Mesure potentielle

Financial safety nets to recover lost investments after floods (e.g. seeds, infrastructure, etc.)

Valeur (optionnel) 8.00

Commentaires Savings and lending groups are already widespread as coping and risk transfer mechanisms in Northern Mozambique (called Xitique). Other funding mechanisms (e.g. loans from micro-finance institutions) focus on economic activities with a fast turnover such as small trading, and not on agricultural production.

Aléas dûs aux changements climatiques (et à la variabilité du climat)

Nom de l'aléa **Modifications des saisons**

Conséquence

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.

> Risque sélectionné

Gravité

Probabilité

Importance

Nuisible

Très probable

Risque élevé

Vulnérabilités

Combined physical and financial vulnerability due to lack of availability and access to equipment and production tools; human vulnerability due to limited know-how on coping strategies to deal with erratic rainfall patterns

Mesure potentielle

More rustic, short cycle and tropicalized varieties to produce in hot season

Valeur (optionnel) 10.00

Commentaires Low investment needed (only 3% of estimated total cost of production) and costs not higher than of seeds currently in use.

> **Mesure sélectionnée**

Mesure potentielle

Affordable irrigation solutions (manual pumps, santeno, underground dams, etc.)

Valeur (optionnel) 6.00

Commentaires Medium to high investment required; amortisation required for investment replacement (E.g. of pumps) - economically viable but maybe not financially.

> **Mesure sélectionnée**

| | |
|--------------------|--|
| Mesure potentielle | <p>Diversification with shorter-cycle crops or varieties (e.g. cabbage, lettuce, etc.)</p> <p>Valeur (optionnel) 8.00</p> <p>Commentaires High impact with switching to other crops but need to convince farmers about new pattern of production (behaviour change).</p> <p>> Mesure sélectionnée</p> |
| Mesure potentielle | <p>Protected cultivation (tunnels and mini-tunnels)</p> <p>Valeur (optionnel) 7.00</p> <p>Commentaires High investment, although ROI will justify. Need for access to investment capital.</p> <p>> Mesure sélectionnée</p> |
| Mesure potentielle | <p>Hydroponic production</p> <p>Valeur (optionnel) 7.00</p> <p>Commentaires Medium/high investment and need of intensive training on hydroponic production (limited outreach).</p> <p>> Mesure sélectionnée</p> |
| Mesure potentielle | <p>Good agricultural practices (GAPs): e.g. high beds, mulching, spacing, tomato staking, disease control</p> <p>Valeur (optionnel) 8.00</p> <p>Commentaires Affordable and easy to apply but depends on farmers willingness to adopt.</p> <p>> Mesure sélectionnée</p> |
| Mesure potentielle | <p>Production calendars for scaling of production</p> <p>Valeur (optionnel) 8.00</p> <p>Commentaires Effective, but depends on farmers behaviour change.</p> <p>> Mesure sélectionnée</p> |
| Mesure potentielle | <p>Large-scale irrigation schemes / infrastructure that provides holistic irrigation solutions (water harvesting, capture, transportation and distribution)</p> <p>Valeur (optionnel) 6.00</p> <p>Commentaires Expensive investment out of scope of the project.</p> |

Adapter le projet

[Impact Logic \(pdf, 651.13 Ko\)](#)

[Logframe_HS_Phase2 \(pdf, 201.84 Ko\)](#)

[CEDRIG_Score \(xlsx, 12.69 Ko\)](#)

○ Perspective des impacts

Impacts sur l'environnement

Élément du projet Underground dams

Impact négatif potentiel Small-scale rainwater retention to increase soil humidity might potentially change the ecosystem; limited additional pollution due to the plastic used to build the dam

Importance Low. Underground dams are small-scale infrastructure with catchment areas of only approximately 0.8ha and neglectable amount of plastic used in construction.

Élément du projet Inputs (fertilizer & pesticides)

Impact négatif potentiel Use of fertilizer and pesticides by horticulture smallholders is common, and sometimes not correctly applied with negative impact on the soil (over-fertilizing)

Importance Medium. Amount of fertilizers and pesticides used is very limited due to low capacity of investment, thus limited impact on soil.

> Impact sélectionné

Mesure potentielle

Dissemination of information on correct use of fertilizers and pesticides (amount and frequency)

Valeur (optionnel) 8.00

Commentaires The project follows a market-approach that does not control and/or increase directly the quantity of fertilizers and pesticides used by smallholders. However, information on correct use of fertilizer and pesticides is disseminated during crop days to protect soil and eventually smallholders' production.

> Mesure

sélectionnée

Élément du projet Introduction of tropicalized varieties from Brazil

Impact négatif potentiel Introducing new horticultural crop varieties has the potential to seriously affect the biological balance in the country by introducing exotic diseases and harming local biodiversity.

Importance High. Through accidentally importing vegetables and/or seeds that carry exotic pests or diseases, the agro-biodiversity can be seriously affected with strong impacts on the agricultural and forestry sector.

> Impact sélectionné

Mesure potentielle

Phytosanitary testing and certification of all new varieties before import with public agricultural research institute (IIAM)

Valeur (optionnel) 8.00

Commentaires To avoid any potential impact on the environment by importing exotic pests and diseases, each new variety undergoes a rigorous phytosanitary testing process at IIAM research station before an import permit is issued.

> Mesure sélectionnée

Impacts sur le climat

Élément du projet

Increasing volumes and de-seasonalization of horticulture production**Impact négatif potentiel**

Possibly increasing emissions of Greenhouse Gases (GHG) due to increased local horticultural production and related transport volumes.

Importance

Low. Current international and interregional imports might decrease due to a higher availability of locally produced vegetables, which offsets the increased local traffic in the Nacala Corridor.