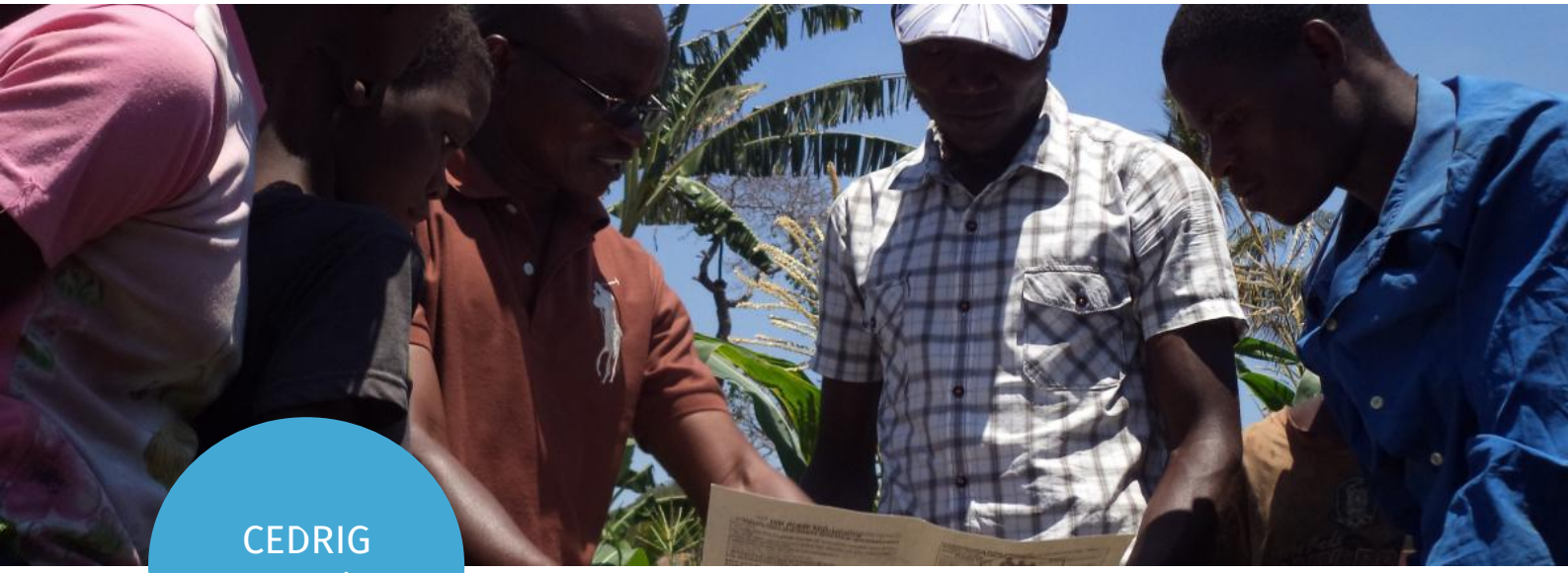
CEDRIG CLIMATE, ENVIRONMENT AND DISASTER RISK REDUCTION INTEGRATION GUIDANCE



CEDRIG Operativo

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

Michael Fink, Daniel Maselli, Fabian Mauchle

Junio 2019

HORTI-SEMPRE Smart Solutions for Smart Agriculture

swisscontact

GFA Consulting Group

CEDRIG es una herramienta desarrollada y ofrecida por

Schweizerische Eidgenossenschaft
Confédération suisse
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Agencia Suiza para el Desarrollo y la Cooperación COSUDE

Resumen

Información general

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Objetivo general
Horti-sempre, 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.

País
Mozambique

Presupuesto
6,500,000 CHF

Duración
01/2017 - 12/2020

Resumen

Descripción
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 estimates 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%.

Sectores de Intervención

Agricultura
Desarrollo rural

Seguridad alimentaria
Gestión del agua

Documentos

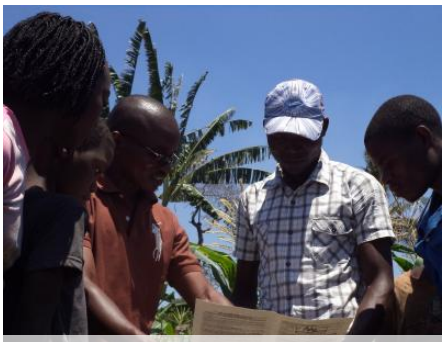
MER_Climate Change Profile (pdf, 1.2 MB)

FANRPAN_Fact Sheet Moz (pdf, 219.89 KB)

WORLD BANK_Climate Change Profile Moz (pdf, 2.61 MB)

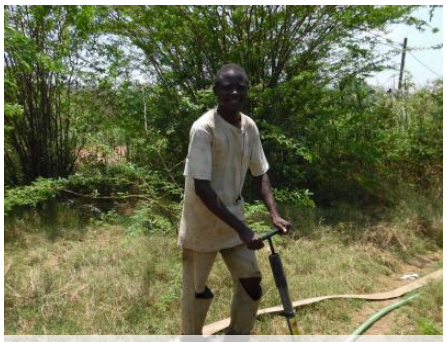
Presentation_Climate Data_Moz (pdf, 1.01 MB)

Imágenes



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)

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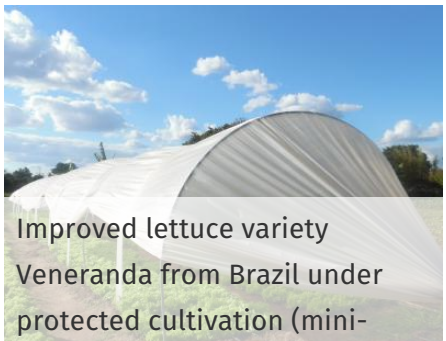

Improved lettuce variety Veneranda from Brazil under protected cultivation (mini-tunnel) with drip-irrigation system

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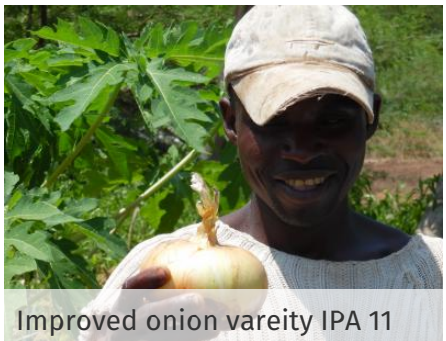

Improved onion vareity IPA 11 from Brazil adapted to tropical climate wtih longer shelf-life

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Training on good agricultural practices (tomato staking)

Training on good agricultural practices (tomato staking)

Perspectiva del riesgo

Amenazas que se producen debido a la degradación del medioambiente

Nombre de la amenaza	Degradación (tierra, suelo, ecosistemas, biodiversidad)

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

> Riesgo seleccionado	Grado	Probabilidad	Importancia
	Perjudicial	Probable	Riesgo medio

Vulnerabilidades Natural vulnerabilities due to overexploitation, soil compactation and erosion

Posible medida **Good Agricultural Practices (GAPs): e.g. no tillage, soil coverage, inter-cropping**
Puntuación (opcional) 9.00
Comentarios Affordable and easy to apply but depends on farmers' willingness to adopt.
> Medida seleccionada

Posible medida **Bio-fertilization with adoption of crops fixing nitrogen in the soil (e.g. beans)**
Puntuación (opcional) 7.00
Comentarios Low investment, but change in farmers' traditional production pattern needed.
> Medida seleccionada

Posible medida **Improving irrigation with calenders to avoid over-irrigation of soils (salinization)**
Puntuación (opcional) 8.00
Comentarios Highly depending on farmers' willingness to change habits (training needed).
> Medida seleccionada

Posible medida **Mediation in land conflicts; supporting farmers in acquiring formal land rights**
Puntuación (opcional) 5.00
Comentarios High policy investment needed, not part of project strategy.

Posible medida

Soil reclamation technologies (de-salinization, etc.)
Puntuación (opcional) 5.00
Comentarios Very expensive based on sophisticated technologies beyond project possibilities.

Nombre de la amenaza

Plagas y epidemias

Consecuencia

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

> Riesgo seleccionado	Grado	Probabilidad	Importancia
	Perjudicial	Probable	Riesgo medio

Vulnerabilidades

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

Posible medida

Crop rotation (i.e. different horticulture crops annually or by cycle)
Puntuación (opcional) 8.00
Comentarios 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.
> Medida seleccionada

Posible medida

Developing manual on proper use of defensives
Puntuación (opcional) 7.00
Comentarios Distribution of manual to farmers is key to promote correct use of defensives.
> Medida seleccionada

Posible medida

Development of knowledge on bio-defensives
Puntuación (opcional) 8.00
Comentarios Aiming at recovering knowledge on traditional bio-defensives abandoned over the last generations (e.g. moringa, tobacco leaves, etc.).
> Medida seleccionada

Posible medida

Good Agricultural Practices (GAPs) to reduce risks of diseases (spacing, tomato staking, etc.)

Puntuación (opcional) 6.00

Comentarios Affordable and easy to apply but depends on farmers' willingness to adopt.

> Medida seleccionada

Posible medida

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

Puntuación (opcional) 5.00

Comentarios 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.

Posible medida

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

Puntuación (opcional) 5.00

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

Amenazas naturales (hidrometeorológicas y geológicas)

Nombre de la amenaza

Olas de calor

Consecuencia

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

> Riesgo seleccionado	Grado	Probabilidad	Importancia
	Perjudicial	Muy probable	Riesgo alto

Vulnerabilidades

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.

Posible medida

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

Puntuación (opcional) 10.00

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

> Medida seleccionada

Posible medida

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

Puntuación (opcional) 10.00

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

> Medida seleccionada

Posible medida

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

Puntuación (opcional) 6.00

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

> Medida seleccionada

Posible medida

Packaging and storage solutions to reduce post-harvest loss

Puntuación (opcional) 5.00

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

> Medida seleccionada

Posible medida

Protected cultivation (mini-tunnels, greenhouses with sombrite)

Puntuación (opcional) 7.00

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

> Medida seleccionada

Posible medida

Introducing heat tolerant hybrid seeds

Puntuación (opcional) 5.00

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

Posible medida

Sophisticated irrigation systems (e.g. sprinkler systems, drip irrigation, etc.)
Puntuación (opcional) 5.00
Comentarios Are expensive and only solve water distribution problems, but not water availability.

Nombre de la amenaza

Crecidas repentinas, inundaciones

Consecuencia

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

> Riesgo seleccionado	Grado	Probabilidad	Importancia
	Sumamente perjudicial	Probable	Riesgo alto

Vulnerabilidades

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

Posible medida

Construction of flood-proof underground dams
Puntuación (opcional) 9.00
Comentarios Relatively low investment based on community labour; little maintenance needed; long-lasting infrastructure not affected by floods compared to traditional dams.
> Medida seleccionada

Posible medida

Short-cycle open pollinated varieties (OPV; e.g. 60 dias cabbage)
Puntuación (opcional) 10.00
Comentarios Give farmers the flexibility to recover their production cycle quickly after the loss of a cycle.
> Medida seleccionada

Posible medida

Storage infrastructure
Puntuación (opcional) 7.00
Comentarios 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.

Posible medida

Recommending relocation to less risky areas
Puntuación (opcional) 5.00
Comentarios 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.

Posible medida

Early warning system

Puntuación (opcional) 7.00

Comentarios Depends on public institutions and investments beyond project scope.

Posible medida

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

Puntuación (opcional) 8.00

Comentarios 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.

Amenazas que se producen debido al cambio climático (y la variabilidad del clima)

Nombre de la amenaza

Cambios en las estaciones

Consecuencia

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.

> Riesgo seleccionado	Grado	Probabilidad	Importancia
	Perjudicial	Muy probable	Riesgo alto

Vulnerabilidades

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

Posible medida

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

Puntuación (opcional) 10.00

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

> Medida seleccionada

Posible medida

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

Puntuación (opcional) 6.00

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

> Medida seleccionada

Posible medida

Diversification with shorter-cycle crops or varieties (e.g. cabbage, lettuce, etc.)

Puntuación (opcional) 8.00

Comentarios High impact with switching to other crops but need to convince farmers about new pattern of production (behaviour change).

> Medida seleccionada

Posible medida

Protected cultivation (tunnels and mini-tunnels)

Puntuación (opcional) 7.00

Comentarios High investment, although ROI will justify. Need for access to investment capital.

> Medida seleccionada

Posible medida

Hydroponic production

Puntuación (opcional) 7.00

Comentarios Medium/high investment and need of intensive training on hydroponic production (limited outreach).

> Medida seleccionada

Posible medida

Good agricultural practices (GAPs): e.g. high beds, mulching, spacing, tomato staking, disease control

Puntuación (opcional) 8.00

Comentarios Affordable and easy to apply but depends on farmers willingness to adopt.

> Medida seleccionada

Posible medida

Production calendars for scaling of production

Puntuación (opcional) 8.00

Comentarios Effective, but depends on farmers behaviour change.

> Medida seleccionada

Posible medida

Large-scale irrigation schemes / infrastructure that provides holistic irrigation solutions (water harvesting, capture, transportation and distribution)

Puntuación (opcional) 6.00

Comentarios Expensive investment out of scope of the project.

Adapte su proyecto

Impact Logic (pdf, 651.13 KB)

Logframe_HS_Phase2 (pdf, 201.84 KB)

CEDRIG_Score (xlsx, 12.69 KB)

Perspectiva del impacto

Impacto negativo en el medioambiente

Componente del proyecto	Underground dams
Posible impacto negativo	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
Importancia	Low. Underground dams are small-scale infrastructure with catchment areas of only approximately 0.8ha and neglectable amount of plastic used in construction.

Componente del proyecto	Inputs (fertilizer & pesticides)
Posible impacto negativo	Use of fertilizer and pesticides by horticulture smallholders is common, and sometimes not correctly applied with negative impact on the soil (over-fertilizing)
Importancia	Medium. Amount of fertilizers and pesticides used is very limited due to low capacity of investment, thus limited impact on soil. **> Impacto seleccionado**
Posible medida	**Dissemination of information on correct use of fertilizers and pesticides (amount and frequency)** Puntuación (opcional) 8.00 Comentarios 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. **> Medida seleccionada**

Componente del proyecto	Introduction of tropicalized varieties from Brazil
Posible impacto negativo	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.

Importancia 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.

> Impacto seleccionado

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

Puntuación (opcional) 8.00

Comentarios 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.

> Medida seleccionada

Impacto negativo en el cambio climático

Componente del proyecto **Increasing volumes and de-seasonalization of horticulture production**

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

Importancia 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.