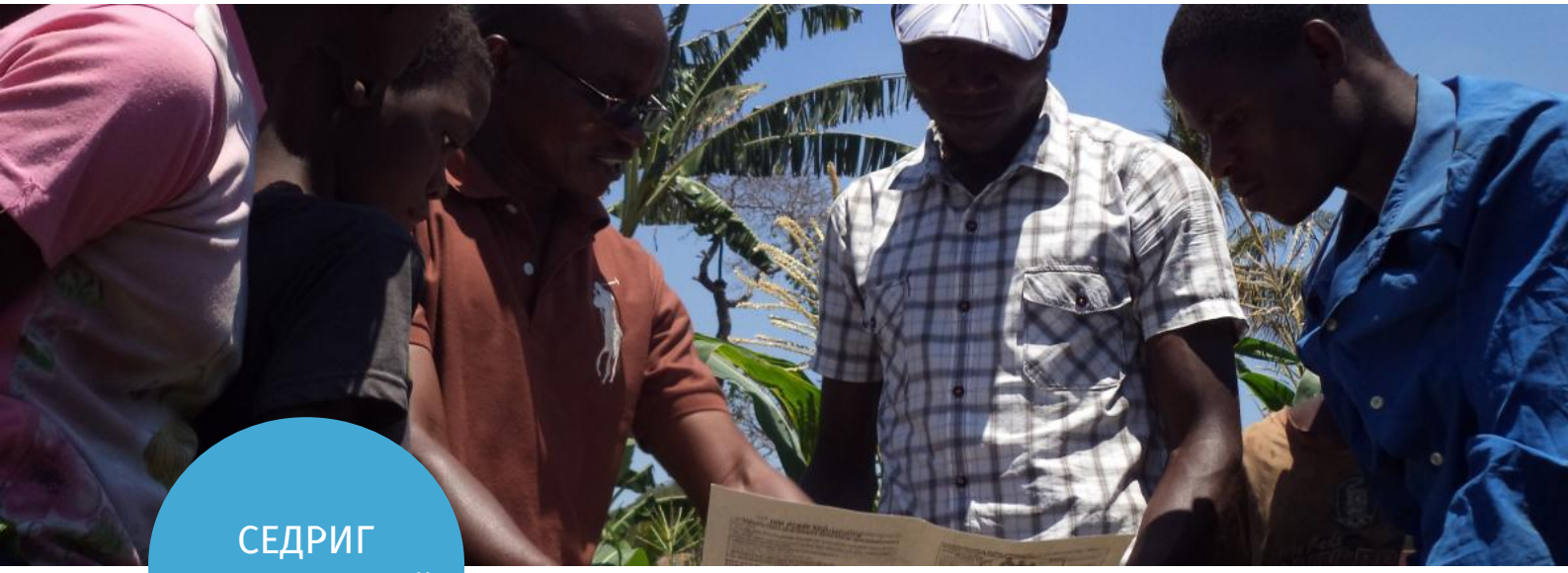
CEDRIG CLIMATE, ENVIRONMENT AND DISASTER RISK REDUCTION INTEGRATION GUIDANCE



СЕДРИГ
Оперативный

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

Michael Fink, Daniel Maselli, Fabian Mauchle
June 2019г.

HORTI-SEMPRE Smart Solutions for Smart Agriculture

swisscontact

GFA Consulting Group

СЕДРИГ - это инструмент разработанный и предлагаемый

Schweizerische Eidgenossenschaft
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Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

Обзор

Информация общего характера

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Общая цель
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.

Страна
Мозамбик

Бюджет
6,500,000 CHF

Продолжительность
01/2017 - 12/2020

Аннотация

Описание
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%.

Сектора, требующие оперативного вмешательства

Сельское хозяйство
Развитие сельских районов
Продовольственная безопасность
Управление водными ресурсами

Документы

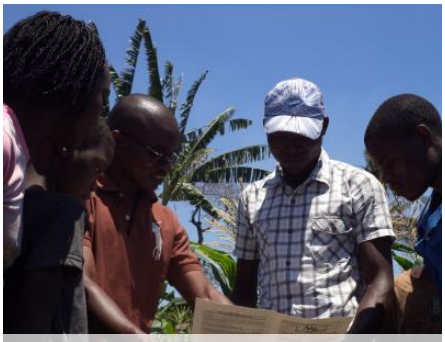
MER_Climate Change Profile (pdf, 1.2 МБ)

FANRPAN_Fact Sheet Moz (pdf, 219.89 КБ)

WORLD BANK_Climate Change Profile Moz (pdf, 2.61 МБ)

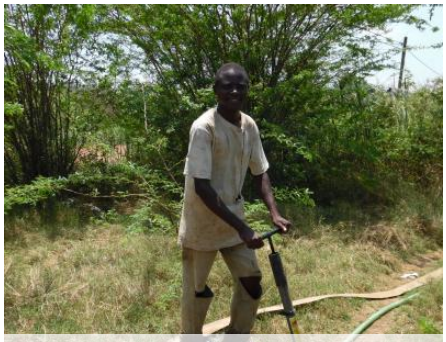
Presentation_Climate Data_Moz (pdf, 1.01 МБ)

Изображения



Training on affordable irrigation solution (hip-pump)

Training on affordable irrigation solution (hip-pump)



Affordable irrigation solution (hip-pump)

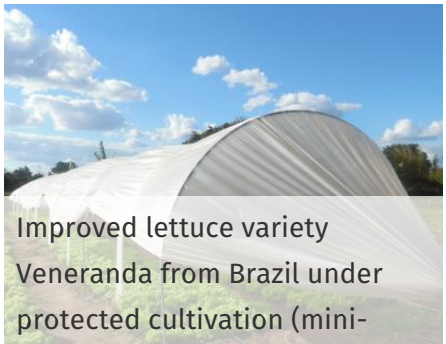
Affordable irrigation solution (hip-pump)

Construction of underground dam

Construction of underground dam

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

Underground dam (capacity to



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

Improved lettuce variety

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

Improved onion vareity IPA 11

capture 10,000m3 water)

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

from Brazil adapted to tropical climate wtih longer shelf-life

Training on good agricultural practices (tomato staking)

Training on good agricultural practices (tomato staking)

Факторы риска

Угрозы, возникающие в результате ухудшения состояния окружающей среды

Название угрозы Деградация (земель, почвы, экосистем, биоразнообразия)

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

> Выбранный фактор риска	Тяжесть	Степень вероятности	Значительность
	Средний ущерб	Возможно	Средний уровень риска

Выбранная уязвимость Natural vulnerabilities due to overexploitation, soil compactation and erosion

Потенциальная мера **Good Agricultural Practices (GAPs): e.g. no tillage, soil coverage, inter-cropping**
Баллы (необязательно) 9.00
Комментарии Affordable and easy to apply but depends on farmers' willingness to adopt.
> Выбранная мера

Потенциальная мера **Bio-fertilization with adoption of crops fixing nitrogen in the soil (e.g. beans)**
Баллы (необязательно) 7.00
Комментарии Low investment, but change in farmers' traditional production pattern needed.
> Выбранная мера

Потенциальная мера **Improving irrigation with calenders to avoid over-irrigation of soils (salinization)**
Баллы (необязательно) 8.00
Комментарии Highly depending on farmers' willingness to change habits (training needed).
> Выбранная мера

Потенциальная мера **Mediation in land conflicts; supporting farmers in acquiring formal land rights**
Баллы (необязательно) 5.00
Комментарии High policy investment needed, not part of project strategy.

Потенциальная мера **Soil reclamation technologies (de-salinization, etc.)**
Баллы (необязательно) 5.00
Комментарии Very expensive based on sophisticated technologies beyond project possibilities.

Название угрозы **Вредители и эпидемии**

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

> Выбранный фактор риска	Тяжесть	Степень вероятности	Значительность
	Средний ущерб	Возможно	Средний уровень риска

Выбранная уязвимость 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

Потенциальная мера
Crop rotation (i.e. different horticulture crops annually or by cycle)
Баллы (необязательно) 8.00
Комментарии 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.
> Выбранная мера

Потенциальная мера
Developing manual on proper use of defensives
Баллы (необязательно) 7.00
Комментарии Distribution of manual to farmers is key to promote correct use of defensives.
> Выбранная мера

Потенциальная мера
Development of knowledge on bio-defensives
Баллы (необязательно) 8.00
Комментарии Aiming at recovering knowledge on traditional bio-defensives abandoned over the last generations (e.g. moringa, tobacco leaves, etc.).
> Выбранная мера

Потенциальная мера
Good Agricultural Practices (GAPs) to reduce risks of diseases (spacing, tomato staking, etc.)
Баллы (необязательно) 6.00
Комментарии Affordable and easy to apply but depends on farmers' willingness to adopt.
> Выбранная мера

Потенциальная мера
Directly supporting input suppliers in increasing range and sales of chemical defensives
Баллы (необязательно) 5.00
Комментарии 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.

Потенциальная мера

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

Баллы (необязательно) 5.00

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

Природные угрозы (гидрометеорологические и геологические)

Название угрозы

Аномально высокая температура

Последствие

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

> Выбранный фактор риска	Тяжесть	Степень вероятности	Значительность
	Средний ущерб	Весьма вероятно	Высокий уровень риска

Выбранная уязвимость

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.

Потенциальная мера

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

Баллы (необязательно) 10.00

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

> Выбранная мера

Потенциальная мера

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

Баллы (необязательно) 10.00

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

> Выбранная мера

Потенциальная мера

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

Баллы (необязательно) 6.00

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

> Выбранная мера

Потенциальная мера

Packaging and storage solutions to reduce post-harvest loss

Баллы (необязательно) 5.00

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

> Выбранная мера

Потенциальная мера

Protected cultivation (mini-tunnels, greenhouses with sombrite)

Баллы (необязательно) 7.00

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

> Выбранная мера

Потенциальная мера

Introducing heat tolerant hybrid seeds

Баллы (необязательно) 5.00

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

Потенциальная мера

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

Баллы (необязательно) 5.00

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

Название угрозы Наводнения, внезапные паводки

Последствие

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

> Выбранный фактор риска

Тяжесть	Степень вероятности	Значительность
Чрезвычайно большой ущерб	Возможно	Высокий уровень риска

Выбранная уязвимость

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

Потенциальная мера

Construction of flood-proof underground dams

Баллы (необязательно) 9.00

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

> Выбранная мера

Потенциальная мера

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

Баллы (необязательно) 10.00

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

> Выбранная мера

Потенциальная мера

Storage infrastructure

Баллы (необязательно) 7.00

Комментарии 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.

Потенциальная мера

Recommending relocation to less risky areas

Баллы (необязательно) 5.00

Комментарии 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.

Потенциальная мера

Early warning system

Баллы (необязательно) 7.00

Комментарии Depends on public institutions and investments beyond project scope.

Потенциальная мера

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

Баллы (необязательно) 8.00

Комментарии 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.

Угрозы, возникающие в результате изменения климата (и изменчивости климата)

Название угрозы **Смещения времен года**

Последствие **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.**

> Выбранный фактор риска

Тяжесть	Степень вероятности	Значительность
Средний ущерб	Весьма вероятно	Высокий уровень риска

Выбранная уязвимость

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

Потенциальная мера

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

Баллы (необязательно) 10.00

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

> Выбранная мера

Потенциальная мера

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

Баллы (необязательно) 6.00

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

> Выбранная мера

Потенциальная мера

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

Баллы (необязательно) 8.00

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

> Выбранная мера

Потенциальная мера

Protected cultivation (tunnels and mini-tunnels)

Баллы (необязательно) 7.00

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

> Выбранная мера

Потенциальная мера

Hydroponic production

Баллы (необязательно) 7.00

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

> Выбранная мера

Потенциальная мера

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

Баллы (необязательно) 8.00

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

> Выбранная мера

Потенциальная мера

Production calendars for scaling of production

Баллы (необязательно) 8.00

Комментарии Effective, but depends on farmers behaviour change.

> Выбранная мера

Потенциальная мера

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

Баллы (необязательно) 6.00

Комментарии Expensive investment out of scope of the project.

Адаптируйте свой проект

Impact Logic (pdf, 651.13 КБ)

Logframe_HS_Phase2 (pdf, 201.84 КБ)

CEDRIG_Score (xlsx, 12.69 КБ)

Воздействие

Воздействие на окружающую среду

Компонент проекта	Underground dams
Потенциальное отрицательное воздействие	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
Значительность	Low. Underground dams are small-scale infrastructure with catchment areas of only approximately 0.8ha and neglectable amount of plastic used in construction.

Компонент проекта	Inputs (fertilizer & pesticides)
Потенциальное отрицательное воздействие	Use of fertilizer and pesticides by horticulture smallholders is common, and sometimes not correctly applied with negative impact on the soil (over-fertilizing)
Значительность	Medium. Amount of fertilizers and pesticides used is very limited due to low capacity of investment, thus limited impact on soil. **> Выбранное воздействие**
Потенциальная мера	**Dissemination of information on correct use of fertilizers and pesticides (amount and frequency)** Баллы (необязательно) 8.00 Комментарии 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. **> Выбранная мера**

Компонент проекта	Introduction of tropicalized varieties from Brazil
Потенциальное отрицательное воздействие	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.
Значительность	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. **> Выбранное**

воздействие

Потенциальная мера

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

Баллы (необязательно) 8.00

Комментарии 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.

> Выбранная мера

Воздействие на изменение климата

Компонент проекта

Increasing volumes and de-seasonalization of horticulture production

Потенциальное отрицательное воздействие

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

Значительность

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.