



CEDRIG
Light

Cambodian Horticulture Project Advancing Income and Nutrition (CHAIN) phase 3

—
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CEDRIG is a tool developed and offered by



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Overview

General Information

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Overall goal	Promotion of horticulture value chains in Preah Vihear, Stung Treng, Kratie and Oddar Meanchey provinces, with a strong focus on women and delivering sustainable income growth and improved household food security and resilience
Country	Cambodia
Budget	CHF 1.900.000
Duration	01.01.2021 - 31.12.2022

Summary

Description In Cambodia, more than 20 % of the rural poor suffer from food insecurity. The increasing market demand for safe vegetable and fruits provides a huge opportunity for small holder farmers and processors, in particular women to increase income and food security. The Cambodia Horticulture Advancing Income and Nutrition (CHAIN) project supports farmers in increasing sustainable production, income and resilience in four of the poorest provinces of Cambodia - Kratie, Stung Treng, Preah Vihear and Oddar Mancheay. With the particular focus on the fruits and vegetables sector, CHAIN tackles market system constraints to improve the service delivery to poor farmers households, women headed households and ethnic minorities. CHAIN will support smallholder farmers to diversify into growing fruit and vegetables through the introduction of smart horticultural techniques ,water saving , and market linkages required to generate much-needed additional income, and it will also address poor household nutrition by introducing diversification of diets.

Keywords agriculture and food security

Sectors of Intervention

Agriculture	Food security
Rural development	Water management
Vegetables Production	Marketing

Documents

Climate Change Impact Lower Mekong Basin (pdf, 3.65 MB)

Images



Open home garden in Kratie province

Open home garden in Kratie province



Farmers group planning

Farmers group planning



Round Year vegetables production in Plastic Net

Round Year vegetables production in Plastic Net

● Risk perspective

Hazards arising from environmental degradation

Hazard name **Deforestation**

Exposure Yes

Comments Massive deforestation in Cambodia is highly likely to be the root cause of the devastating change in the observed rainfall pattern. It is caused by legal (attribution of land concession to foreign companies, building of roads in forested area, etc...) and illegal logging.

Consequence **Alteration of hydrological cycle and micro-climate, reduced water availability**

The changed hydrological cycle has increased the frequency of both floods and droughts.

Likelihood
Very likely

Extent
Extremely harmful

Risk Level
High risk

Hazard name **Pests and epidemics**

Exposure Yes

Comments locust, rats, flea beetle larvae

Consequence **loss of income and crop production**

Invasion of flea beetle larvae (Chrysomelidae: Alticini), which leads to a severe destruction of vegetables, especially root and leaf vegetables. Occurrence increased in the past 3-4 years.

Likelihood
Likely

Extent
Harmful

Risk Level
Medium risk

Hazard name **Water pollution (surface and subterranean)**

Exposure Yes

Comments In 2018, warm army destroyed over than 10,000 ha of corn plantation. Water pollution is concern recently in Cambodia

Consequence **loss of fishery resources and income**

Seasonal, severe invasion of Mekong river by a fist-thick layer of algae/aquatic plants which completely disrupt the normal fishing activities. This phenomenon started recently (around 2010-2012) and is observed in its maximum extension since a couple of years only.

Likelihood
Likely

Extent
Harmful

Risk Level
Medium risk

Natural hazards (hydro-meteorological and geological)

Hazard name Heat waves

Exposure Yes

Comments Heat wave in 2016 destroyed many plots of vegetables farms . In 2016, People have to buy drinking water, the prices of water has almost three times increased

Consequence **higher freshwater demand for people and livestock. The level of water in many rivers are very low**

People and animal get sick . Farmers earned less income

Likelihood
Likely

Extent
Slightly harmful

Risk Level
Low risk

Consequence **slower and reduced labour work**

Likelihood
Likely

Extent
Slightly harmful

Risk Level
Low risk

Consequence **Heatstroke in particular for elderly and children**

Likelihood
Likely

Extent
Harmful

Risk Level
Medium risk

Hazard name Droughts

Exposure Yes

Comments In 2019 and 2020, most of water ponds were dried up, water level in many river are very low in historical and ground water level are dept. Deforestation reduce groundwater recharge, and increase evaporation and water demand during dry/hot season.

Consequence **reduced water availability**

Reduced water availability for household consumption and agriculture, particularly of paddy rice, cassava, rubber, and maize.

Likelihood
Very likely

Extent
Harmful

Risk Level
High risk

Consequence

loss of crop production & income

Partially severe economic losses (also due to the lack of business continuity planning) for rice and vegetable farmers. Households with limited to no savings are left to buy seeds for next season or drinking water. Impacts from strong droughts may be felt for up to 2 years. As a result of low coping mechanisms, some communities may not recover from such loss.

Likelihood
Very likely

Extent
Harmful

Risk Level
High risk

Consequence

long-term immigration

migration occurs in various forms, both part-time and permanently, to urban areas, neighbouring countries or provinces

Likelihood
Likely

Extent
Extremely harmful

Risk Level
High risk

Hazard name **Flash floods, floods**

Exposure Yes

Comments Flash flood in 2019, have destroyed some houses and many vegetables farms were washed away. Dam broken in Laos in 2018 destroyed hundreds of houses in two provinces. Many people were evacuated.

Consequence

loss of crop production & income

Long-lasting episodes with too much rain cause rotting of rice plants & vegetables during rainy season. The existing drainage and irrigation practices used by communities are largely insufficient to ensure the survival of crops and seeds during and after intense rain episodes followed by severe droughts.

Likelihood
Very likely

Extent
Harmful

Risk Level
High risk

Consequence

destruction of houses & infrastructure, disruption of market access

Likelihood
Very likely

Extent
Harmful

Risk Level
High risk

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

Exposure Yes

Comments Seasonal storms and strong winds destroyed over than 1000 houses and thousands of trees. Lightening killed animals and people

Consequence **Damage to houses and buildings.**

Destruction of light agricultural infrastructure (bamboo scaffolding, nets etc.), damage to houses and critical roads/bridges. Storms and strong winds are observed more frequently in past years. Impacts are rather local.

Likelihood

Likely

Extent

Slightly harmful

Risk Level

Low risk

Hazards arising from climate change (and climate variability)

Hazard name **General trends towards higher or lower mean annual temperatures**

Exposure Not sure

Comments higher mean annual temperature +5-10% (rel. term)

Consequence **higher water demand for people, livestock and agriculture**

Likelihood

Likely

Extent

Harmful

Risk Level

Medium risk

Consequence **decrease of crop productivity**

Decrease in suitability in the production of paddy rice, (++) cassava (++) , soya (+), maize (+), rubber (+), and in livestock rearing (+).

Likelihood

Likely

Extent

Harmful

Risk Level

Medium risk

Consequence **diminishing of groundwater resources**

Likelihood

Very likely

Extent

Harmful

Risk Level

High risk

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 Yes

Comments higher frequency and unpredictability of high rainfall events

Consequence **loss of crop production due to non-timely sowing and planting (traditional knowledge is no longer applicable)**

Likelihood

Likely

Extent

Extremely harmful

Risk Level

High risk

Consequence **Higher irregularity of the rainy season**

Earlier onset of the hot season and prolonged duration. Shortened rainy season. A new sequence of flood-drought-flood episodes is observed during the rainy season: flood episode in June-July (too much rain) followed by drought in August (no rain at all), immediately followed by flood situation Aug-Sept (too much rain). This lead to higher demand for adequate early warning systems. Rain was delayed in 2019 and 2020, started only in mid of June.

Likelihood

Likely

Extent

Extremely harmful

Risk Level

High risk

Detailed risk assessment needed?

Yes - A detailed risk assessment is needed

● Impact perspective

Estimate impact on the environment

Environmental Area **Water**

Component of the activity Capacity building of farmers and processors for increased sustainable production, including year-round production and performance

Impact on environment Higher agricultural performance and year-round production will increase the demand for water resources.

Estimate impact on disaster risks

Component of the activity Improved income and productivity of smallholder horticulture

Exacerbated or newly created risk More cycles of horticulture production may put pressure on the already stressed water resources in some places even more in some places. An integrated water resources management, based on surface & groundwater is needed, not to exacerbate the risk of future droughts.

Estimate impact on climate change

Component of the activity None

Detailed impact assessment needed?

Yes - A detailed impact assessment is needed