



Climate Smart Technology Project

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IICA DELEGATION IN SURINAME



Presentation layout

- ❖ Project Summary & Objectives
- ❖ Main activities
- ❖ Deliverables
- ❖ Achievements
- ❖ Summary Farmers Experience
- ❖ Positive agroecological practices/Benefits



Project Summary

Project Title: Reducing Farmer Vulnerability to Climate Change Impacts through the Promotion of Climate Smart Agriculture Technologies in Suriname.

Amount: USD 266,087; Duration 18 months.

GCCA+ Suriname Adaptation Project

Funded by the European Union in collaboration with the UNDP Suriname

OVERALL OBJECTIVE

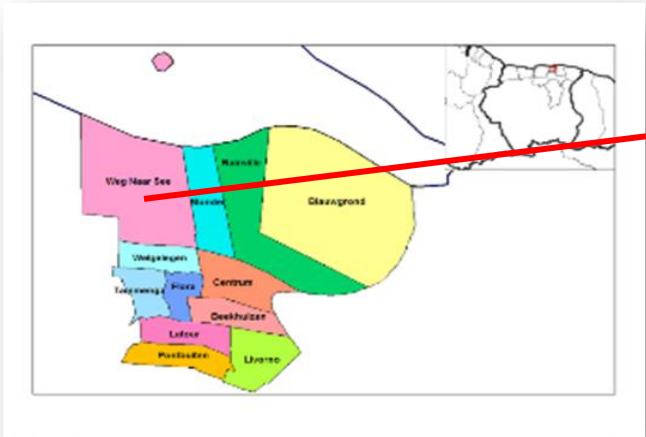
To strengthen the resilience of the agriculture sector to the negative impacts of climate change through the promotion and use of climate smart agriculture technologies.

SPECIFIC OBJECTIVE

Reducing Farmer Vulnerability to Climate Change Impacts through the building of knowledge and skills in the use and management of protected agricultural structures, micro irrigation and rain water harvesting systems for sustainable commercial vegetable production.



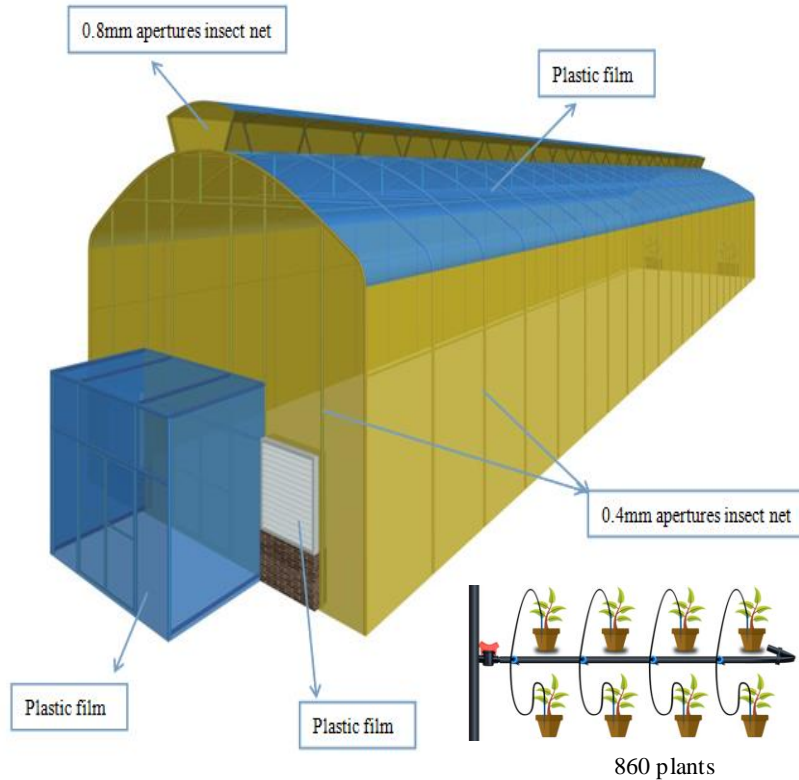
The image consists of two circular photographs. The top circle shows the interior of a large greenhouse with a high, arched glass roof. Rows of black plastic pots containing young green plants are arranged on a light-colored floor. A black irrigation pipe with blue fittings runs along the pots. The bottom circle shows a wide, flat, muddy landscape, likely a tidal flat or salt marsh, under a heavy, overcast sky. The ground is dark and wet, with some sparse vegetation visible in the distance.



Weg naar Zee

- Located on the Northwest of the Capital Paramaribo. As the name suggests, it is on the Atlantic coast.
- Is one the main Vegetable producing areas of Suriname
- Population 16.037 (2012)





Design:

Two (2) Double Ridge Protected agriculture structure installed.
Dimension: (45mx9mx7.5m)

Design functions:

- ✓ To increase Air circulation,
- ✓ To keep out pest and disease
- ✓ To better manage of the temperature and Humidity (misting system)
- ✓ Hydroponic production system (soil-less culture)
- ✓ Substrate Mixture (local) of river sand (20%) & Rice chaff (80%)
- ✓ 16 Kw Solar Power System
- ✓ Water Reservoir (12x20x2m-HDPE pond liner)

Deliverables





MICRO-IRRIGATION SYSTEMS



- Leafy vegetables
- Area 4000m²
- Required less water pressure

**Micro Overhead
sprinklers
irrigation system**



- Fruit vegetable
(tomato; Sweet
pepper)
- Area 2000m²

**Drip tube
irrigation
system**



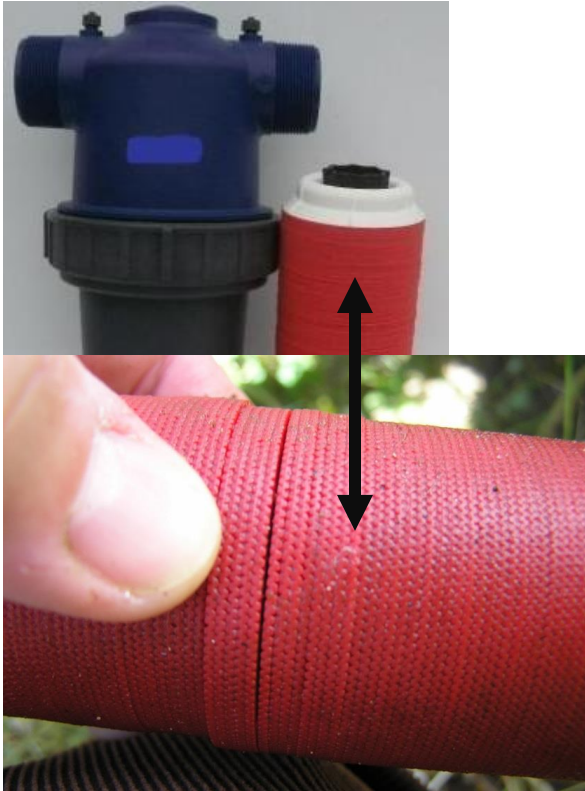
- Precision doses
calculation of
fertilizers
- Minimize nutrition
loss by run-offs

**Fertigation
system**

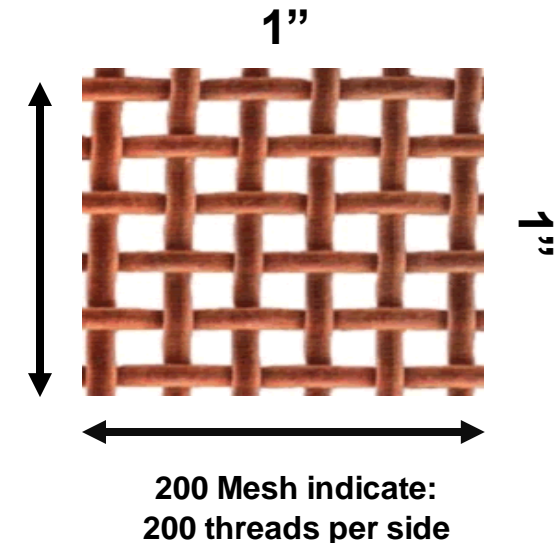


IRRIGATION WATERING FILTERING SYSTEMS

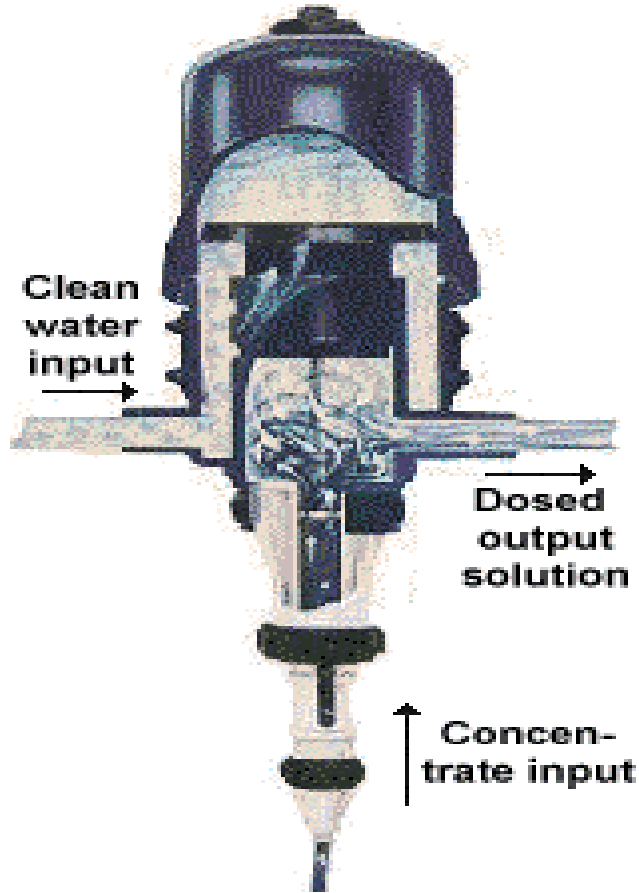
Disc & Mesh Filters



The filters are washed when the pressure difference between the inlet and outlet of the water is 6 to 8 psi



FERTILIZER INJECTOR SYSTEMS



They work through a piston driven by the same water flow. They do not require electricity. They are precise in the volumes of injection of chemical products.



Rain Water Harvesting Reservoir



(20X12X2m)



Pond liner Installation



One piece HDPE pond liner canvas



On Site Welding of HDPE pond liner



Water reservoir 20x12x2m lined with pond liner

Drip irrigation Systems



Micro Overhead Sprinklers Irrigation & Misting system Systems



Clean Irrigation Water + Filters Guarantees the Good Functioning of Emitters, Micro sprinklers and Injectors



Achievements



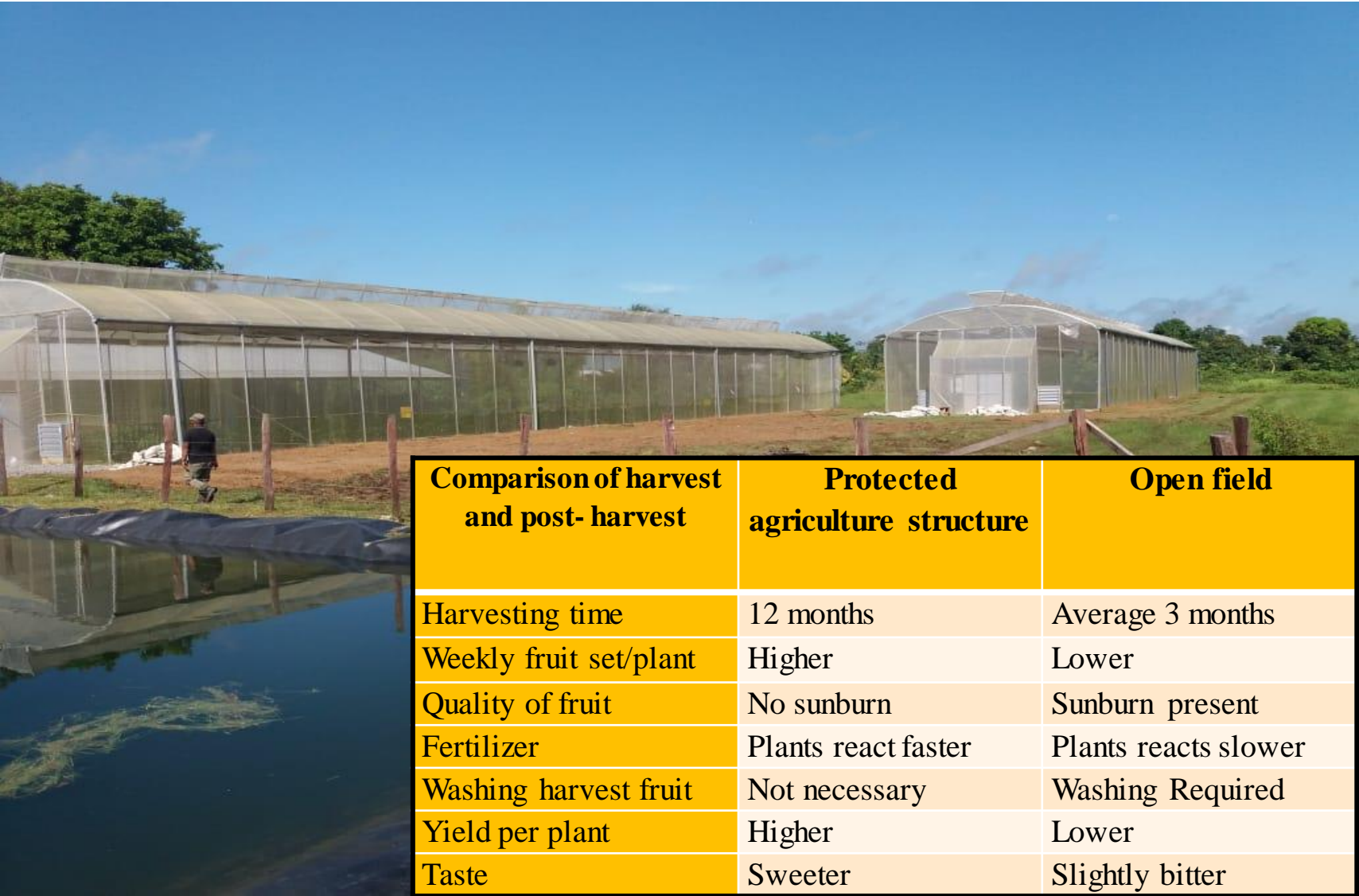
Open field Micro-irrigation and Crop management under Protected Agriculture Structures

- ❖ Hundred and twenty two (121) Farmers trained
- ❖ Twenty Two (22) Agriculture extension officers trained
- ❖ Twenty one (21) students of the Anton de Kom University
- ❖ One (1) Knowledge exchange visit to Center for Research and Integral Services in Protected Agriculture (CRESIAP), Santa Anita, Jalisco, Mexico
- ❖ One (1) video produced on climate change and climate smart technologies. Link: <https://www.youtube.com/watch?v=Bj2MfnXMavg&t=50s>



SUMMARY FARMER’S EXPERIENCE:

Protected Agriculture Structure/Open field



Comparison of harvest and post- harvest	Protected agriculture structure	Open field
Harvesting time	12 months	Average 3 months
Weekly fruit set/plant	Higher	Lower
Quality of fruit	No sunburn	Sunburn present
Fertilizer	Plants react faster	Plants reacts slower
Washing harvest fruit	Not necessary	Washing Required
Yield per plant	Higher	Lower
Taste	Sweeter	Slightly bitter

Lessons Learnt



Positive agroecological practices/Benefits



- ❖ Growth substrate of rice chaff and river sand (substitutes traditional practice of burning of rice chaff which cause CO₂ emissions)
- ❖ Growth substrate can be reused for open field soil amendment for amelioration upon replacement
- ❖ Rain water harvesting for irrigation
- ❖ Reduced water consumption through micro-irrigation to 85 to 100 % efficiency versus average 60 % other methods and reduced postharvest cleaning
- ❖ Reduced use of pesticides/weedicides due to soilless culture and protected cultivation environment
- ❖ More efficient use of fertilizers through hydroponics system which reduces leaching of agrochemicals into soil and groundwater sources
- ❖ Reservoirs with protective lining protects stored irrigation water from contamination by salt water intrusion.
- ❖ Reduces crops losses due to reduced incidence of weed (ground cover); reduced incidence of pests and disease (fully enclosed structure); reduced impact of environmental factors due to controlled environment (sunburn), nutrient and moisture deficiency disorders and chemical injury.



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Thank You

Paramaribo, November 9, 2022