



**SUSTAINABLE COMMODITY PINK ONION PRODUCTION**  
ON SAND DUNES IN VINH CHAU, SOC TRANG PROVINCE



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# SUSTAINABLE COMMODITY PINK ONION PRODUCTION

on sand dunes in Vinh Chau, Soc Trang province

**Project duration:**

7/2015 - 9/2017

**Project code:**

VNM/SGP/OP5/Y4/STAR/2014/06

**Location:**

Ward 2, Vinh Chau town, Soc Trang Province

**Implementing agency:**

The Women's Union of Vinh Chau town, Soc Trang province

**Beneficiaries:**

Households in three groups namely Ca Lang A, Vinh Binh and Ca Sang, Ward 2, Vinh Chau town, Soc Trang province

Project budget	VND (million)	USD
GEF SGP fund	1,017.36	48,000
Community fund	1,115.28	52,620
Women's Union fund	120.00	5,662
Vinh Chau People's Committees' fund	223.06	10,524
<b>Total project budget</b>	<b>2,465.70</b>	<b>116,806</b>

## INTRODUCTION

Red onion is the main agricultural product of Vinh Chau, Soc Trang province. At present, the area of red onion cultivation in Vinh Chau town is over 6,000ha. Each year, farmers cultivate 3-4 continuous vegetables and other short-term (V&OST) crops (Vietnamese: hoa màu), in dry seasons, using mainly groundwater for irrigation. In recent years, due to impacts of climate change, the scarcity of irrigation water has become more and more acute, proper water supply measures for crops are being paid attention for the implementation by localities.

The project titled *“Continual improvement and transferring of the cultivating models of effective land and water resource use to maintain efficient sustainable commercial production of unions on sandy land in Vinh Chau district, Soc Trang province”* has been funded by the GEF Small Grants Programme. This was Phase 2 (2015-2017), a follow-up to the Phase 1 (2010-2012) of the CBA Vinh Chau project, with the aim to continue testing integrated cultivation measures in order to perfect, transfer and replicate the irrigation water saving model for red onion cultivation and the model of microorganism application in the production of bio-organic fertilizer. This fertilizer is applied to replenish and improve cultivation soil, help maintaining effective production of rotational crops on Vinh Chau sand dunes taking into consideration impacts of drought, saltwater intrusion and groundwater level decline caused by climate changes.



## THE PROJECT CONTEXT AND OBJECTIVES

Ward 2 is one of the purely agricultural communes located in the east of Vinh Chau town, about seven kilometers from the township center. The total population of the ward is 22,344 people of 5,282 households, of which the Khmer people account for 75.04% of the population, and the poor households account for 34.44% of the ward population. The livelihoods of people in Ward 2 are mainly rotational specialized in V&OST crops, mixed rice – V&OST crops, fruit trees, etc., accounting for about 50% and aquaculture accounts for nearly 50%.



The production land area for the models of rotational specialized V&OST crops, and rice-V&OST crops of Ward 2 is 3,200 ha, of which land for red onion cultivation is 1,200 ha, accounting for nearly 40% of the area. Irrigation water for rotational crops is mainly ground-water in the dry season and rain water for rice in the rainy season.

Climate change directly and indirectly affects water resources. Surface water scarcity in the dry season causes drought, and water excess in the rainy season causes flooding. Ground-water is degraded and soil degradation becomes the severe issues because the drought and saltwater intrusion affect on yield of main crops and income of farmers in Ward 2, Vinh Chau township.



The farming practices of farmers in the region are mainly maximum exploitation of the land and water potential with less attention to the care, restoration, rehabilitation and rational use of natural resources. The majority of farmers use agricultural chemicals such as inorganic fertilizers, chemical plant protection products, less apply organic fertilizers, and hence the soil becomes nutrient depletion in the conditions of drought, saltwater intrusion and soil degradation of coastal areas.



In 2015, the GEF-SGP has supported the project entitled “Continual improvement and transferring of the cultivating models of effective land and water resource use to maintain efficient sustainable commercial production of unions on sandy land in Vinh Chau district, Soc Trang province.” which has been implemented in three hamlets namely Ca Sang, Ca Lang and Vinh Binh with rotational production structure of red onion - V&OST crops - aromatic rice/medium rice/high yield drought and salinity tolerant rice. Other popular V&OST crops are white radish, green bean, and chilli.

The project aims to contribute to mitigate the adverse impacts of climate change and to enhance adaptability to drought, saltwater intrusion, soil degradation and ground-water level decline through the adoption of the cultivation models that properly use soil, water, and biodiversity resources; apply integrated and effective techniques to transfer and replicate successfully tested models in the project area, contribute to the sustainable commodity production of the red onion and specialized V&OST crops on the sand dunes of Vinh Chau, Soc Trang

# MAIN ACTIVITIES AND INITIATIVES

## MAIN ACTIVITIES



### 01

Raising awareness and understanding of impacts of climate change, drought, saltwater intrusion, soil degradation and ground-water level decline on the production and livelihood of people in Ward 2, Vinh Chau District.

### 02

Improving the capacity of cultivating and using soil, water and biodiversity resources for farmers and the Khmer community to integrate adaptation to climate change and mitigation of adverse impacts of climate change activities on production and livelihoods of people in Vinh Chau

### 03

Demonstrating cultivation models applying sustainable soil management techniques, economical use of ground-water (10-12%), safe and effective cultivation of commercial red onion (increasing profit by 10-15%). Establishing a model reusing waste and byproducts of the onion plant, and other local organic sources

### 04

Summarizing and evaluating the models' results. Drawing lessons learned. Proposing adaptive farming models. Completing procedures, transferring and replicating the models in the locality

## MAIN SOLUTIONS AND INITIATIVES



### A

The implementation of Model 1A on water-saving red onion cultivation for 2015-2016 and 2016-2017 with 15 participants (5 people/cluster).

### B

The pilot model 2A, watering with Trichoderma fungi, reduction of chemical fertilizer for green bean during the spring and summer crops of 2016, 2017, with 15 participants (5 people/cluster).

### C

The pilot model 2B, decomposition of plants' and animals' residues with Trichoderma fungi to become organic fertilizers for spring-summer crops in 2016, 2017, with 15 participants (5 people /cluster).

### D

The model 1B cultivated red onion seedlings under a tarpaulin, in 2016, 2017, 15 participants (5 people/cluster). Only 10 people in the Ca Sang cluster participated in this model in the 2016 crop.

### E

The replicated red onion models for the period 2015-2016 and 2016-2017, the spring-summer V&OST crops 2016-2017, the summer-autumn rice crop 2016-2017 with 45 members; an area of 30 hectares/crop was implemented. The models were successfully piloted in the phase 1 with the supported capital of VND 180,480,000.

# RESULTS AND IMPACTS

## Summary of the project results

The project has been implemented on **187.42 ha** of land in Ward 2, Vinh Chau township, accounting for 5.85% of the rice-V&OST crops land of Ward 2 (3,200 ha of land); cultivating activities adaptable to climate change through crop rotation and appropriate farming practices in order to limit impacts of drought, saltwater intrusion and soil degradation. The technical process applied by the project has spread to about 15.7% of the 1,200ha of red onion cultivated area in Ward 2 by the time when models are successfully demonstrated.

The project has implemented the pilot models in **eight crops and the replication models in five crops** that are responsive to effective farming practices on degraded soils due to drought and saltwater intrusion; protection and sustainable use of land resources with **71 households involved**, and it is continuing to expand the scale of application and **replication of safe red onion cultivation in accordance with VietGAP standards in Ward 2 and the neighboring communes and wards, such as Vinh Hai, Lac Hoa, Vinh Phuoc**

## ▶▶ IMPACTS

### Environmental impacts

Continuing application of integrated farming practices that has been successfully piloted in the period 2010-2012, bring into play the lessons learned on effective methods of fertilizer application for red onion, and supplement bio-organic fertilizers, reduce the amount of chemical fertilizer that helps prevent soil degradation due to drought, saltwater intrusion, protect and sustainably use soil and water resources. Simultaneously, the implementation of pilot models with technical solution trials for growing red onions under the tarpaulin to save irrigation water, and the model reusing wastes and byproducts of the red onions and other V&OST crops as organic fertilizer contributes to improvement of the soil, environment protection and sustainably cultivate under the conditions of drought, salinity, soil degradation and ground-water level decline in Vinh Chau.



The project models have successfully applied technical solutions to increase the adaptability of crops to adverse impacts of climate change, while harmonizing the application of science and technology with indigenous knowledge of farmers, the economic benefits and the environmental protection, help increase the efficiency of the use of soil, water, and cultivation techniques that are suitable for the locality.

The technical solutions applied in the models have really become adaptive farming solutions to the farmers in Vinh Chau to cope with adverse impacts of climate change, help farmers reduce losses and risks, provide sustainable livelihoods in the community, contribute to solving the problem of irrigation water saving for V&OST crops in the conditions of increasing drought; reducing pests and diseases, so people have limited use of pesticides and made use of wastes from the red onion, and feces of cattle and poultry to compost, which has greatly limited the environmental pollution.



### Economic impacts

#### *Profits of the models:*

- The model of commercial red onion achieved **average VND 120,000,000/ha, VND 20,000,000/ha** higher compared to the non-project model (VND 100,000,000/ha).
- The red onion seedling model achieved **average VND 98,000,000/ha, VND 14,000,000/ha** higher compared to the non-project model.
- The green bean model achieved **average VND 10,400,000/ha, VND 3,900,000/ha** higher compared to the non-project model (VND 6.500.000/ha).

#### *Regarding community development support funds:*

The Steering Committee has worked effectively to maintain effective pilot models in the project's phase 1 and replicate them to other farmers, with the special attention made to support the Women's Union members. During 30 months of the project implementation, with the total capital of VND 160,630,000, **the project has carried out three rounds of loans to support 100 turns/households**, in which the first round of loan was **repaid 89%**, the second round of loans was **repaid 100%** and the third round of loans was **repaid 53%**. The repay in round 3 was delayed due to consequence of the extreme weather in 2017, causing damage to the farmers' onion areas that have not been overcome yet. Currently, the Women's Union has been working closely with the Ward 2 authorities to carry out the capital recovery work.

“ Well understood about impacts of climate change on agricultural production, the local people have taken positive actions to protect natural resources; the local people have improved their knowledge and been guided with new production techniques adaptable to climate change to apply to production on their cultivation field; they know how to save irrigation water, increase the safety in production, contribute to the diversification of production models to effectively implement the local agricultural restructure plan. ”

### Social impacts

The project has raised the awareness, organizational capacity and technical capacity of the community, departments and local authorities in the conservation and development of local natural resources. **The project has trained 545 turns/people, in which 33.78% were women.**

The Women Union has been capacitated in organizational development and attracted more and more women. Through the project activities, the Women Union has improved its management capacity such as planning, implementation arrangement, reporting and technical capacity such as red onion and green bean farming techniques. The project also helps women better access to information technology.

The loan support and policies on seeds, prices of agricultural materials, ... help farmers produce with higher efficiency.

Farmers were provided with the direct funds as well as revolving funds to implement the replication models, which contributed to the reduction of production costs, at the same time the efficiency of the models help people overcome difficulties.



The project demonstration helps identify the most suitable crop in response to climate change, improves the soil fertility, crop yields, community income and livelihoods and reduces pest outbreaks and production costs.

“ The model results have helped farmers become better aware of water saving for crops as well as the commodity red onion production according to VietGAP standards, contributed to environmental protection and improved the efficiency of sustainable land and water resources use.

”

### Policy impacts

The project contributes to restructuring the agricultural sector, increasing the value of agricultural products. The project has also made strong impact to onion farming areas and hence it helps the local government to promoting organic and micro-biological fertilizers to limit chemical fertilizers in onion cultivation.



The project also supports the pilot and replication of organic compost from the onion wastes to improve soil quality and reduce environmental pollution.

The project has positive impacts on the poverty reduction through maintaining livelihoods stability, especially maintaining the stable red onion cultivation - a long-standing traditional cultivation of Khmer ethnic minority in the context of drought, saltwater intrusion, ground-water level decline due to impacts of climate change. The participants in the models have so much benefited, from receiving project supports in terms of seeds/seedlings, fertilizers, agricultural covering films, etc.. Especially, the project regularly provided technical training courses, organized community meetings, evaluation workshops, field workshops and shared experiences, thus helped local people become more aware of the cultivation of appropriate, efficient and effective crops, reduce production costs and increase profits, helped their families improve the life.

“ The project has contributed to inform policies to Khmer ethnic minority in cultivation techniques, sustainable livelihood, capacity development in adaption to climate change.

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## PROJECT SUSTAINABILITY AND UPSCALE

01 The people are more aware of the cultivation of suitable crops, limited use of water in the wasteful way, especially when the current ground-water source in Vinh Chau township in general, and in Ward 2 in particular is much affected by climate change. Currently, the ground-water level falls from 20 to 40 cm per year, so the local people have been actively involved in the project, exercised their responsibilities and rights when participating in the project, fully implemented the assigned works after being trained and involve in the model building.

02 Have been more aware of the dangers and adverse impacts of climate change, the project participants in particular and the community in general have implemented adaptive activities such as the use of environmentally-friendly products, reduced unnecessary pesticides, resulting in higher crop yields and increased profitability. The community gather by itself the producers, supports each other to expand the project models, applies techniques to increase production efficiency, develops business, expands the consumption market. The safe, biology-oriented red onion production has been expanding.

03 The project continues to be implemented and The project continues to be implemented, which is in line with legitimate aspirations of the community and with the target program of economic development of Vinh Chau Township People's Committee in promoting the application of science and technology combined with traditional experiences, applying integrated measures to adapt to the degraded soil conditions due to drought and saltwater intrusion in the locality. The project has provided support to the community and has had great effects on reducing impacts of drought and saltwater intrusion on people's livelihoods; helped people understand and improve their ability to adapt to drought and salinization of fields; contributed to environmental protection, sustainable use of natural resources, economic development and poverty reduction in the locality.

04 The project implementation in harmony with local needs is a favorable condition to maintain and replicate the successful pilot models; and currently, the models have been applied in the communes of Vinh Hai, Lac Hoa and Vinh Phuoc, and Vinh Chau township, where have the similar production conditions as of Ward 2.

05 The project results are also the basis for the township, the province and the provincial Department of Agriculture and Rural Development to orientate in the planning of responses to climate change and the overall planning of cultivation production for the entire province in general, and the areas most suffering from impacts of climate change.

## LESSONS LEARNT

The project combined traditional experiences with modern science and technology which are very suitable to people's aspirations and socio-economic development plan of Vinh Chau Township People's Committee; promoted application of science and technology in combination with traditional experience, applied integrated cultivation methods in the direction that effectively used soil and water resources, and biodiversity to maintain the production of commodity red onions and rotational sustainable cultivation of V&OST crops on the typical sand dunes of the Soc Trang coastal.

Survey and planning activities as well as policy recommendations were fully consulted with local community. The traditional knowledge and production practices of Khmer and Hoa ethnic minority communities, especially women, are fully respected in the design and implementation of the models.

In addition to contributing to poverty reduction, sustainable livelihood provision, environmental and natural resources protection, community development, disaster management in the context of climate change, the community-based adaptation to climate change project also addressed negative impacts of development and climate change, in both short terms and long terms - promoted traditional knowledge and transferred new technical advances - combined the efficient use of various funding sources to effectively adapt (to climate change), and at the same time enhanced the role of civic organizations and local people in adaptation projects.



Financial support from the project's community development fund is a factor that triggers and draws attention from the community in building sustainable development adaptive cultivation models.

The project involved local officials to participate in the Steering Committee and the Expert Group with the appropriate professional and management qualifications. Organization and management capacity of the Expert Group members, the group of supporting cadres at the provincial, district and ward levels have been much improved through training activities, field training, study tours and workshops... Understanding of and awareness on climate change by the participating farmers have been strengthened, which enhanced their capacity in sustainable farming.

Smooth implementation and close management of the project has contributed to promote gender equality in localities with the majority Khmer ethnic community. Prestigious consultancy organizations in the region and the country, with high professional qualifications, acutely and timely solved problems in production and adaptation to climate change.



The project has created trust and support in many aspects of the local authority, especially the commitment at grassroots level, such as the Women's Union, the Farmers' Association, the People's Committee of Ward 2, the People's Committee of Vinh Chau township, creating the effective linkage and participation among the stakeholders. The community actively, proactively, and enthusiastically participated in the project and complied with the project regulations.

### **The shortcomings needed to be overcome**

- Given the fact that participating community is Khmer ethnic, it is required regular technical hand-on training and field support.
- The sustainability of the model of red onion seedlings under a tarpaulin depends much on the weather conditions and terrain, so it is important to consider the development of this model in the high land area as well as necessary to have a good drainage system on the field.

- The project success in recent years is thanks to the identification of issues to be resolved, meeting actual requirements of the locality, especially the urgent requirements of the local people. The project techniques are inherited from the successful pilots of Phase 1 and the models in Phase 2 are designed on the basis of improved indigenous knowledge, which is not complicated and easy to transfer and replicate.
  - The project has been successful in combining indigenous knowledge and scientific techniques in onion cultivation.
  - The project highly appreciated by the local government and communities. It has enhanced awareness raising and capacity building for local community in climate change adaptation.
  - To maintain, replicate and upscale the successful demonstration, it is necessary to further promote technology transfer and technical training for local community.



DESIGN BY VMCOMMS

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