ClimaViet Climate change and impacts on rice production in Vietnam: Pilot testing of climate-smart agricultural measures

Field trip report

Nam Dinh province, Vietnam, 18th August, 2014

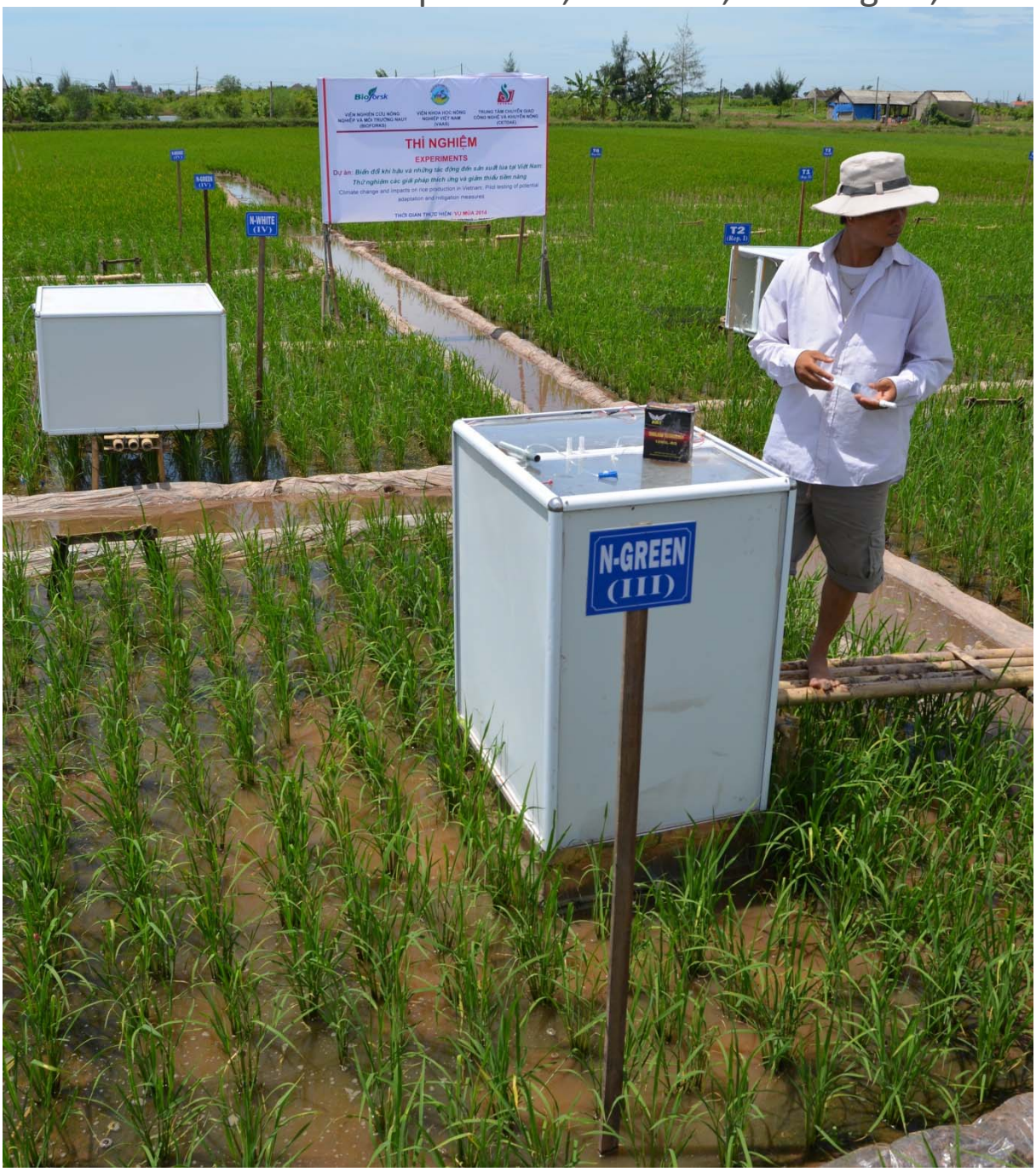

Photo from the experimental site in Rang Dong farm, Nghia Hung District

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VIỆN KHOA HỌC NÔNG NGHIỆP VIỆT NAM
VAAS
VIETNAM ACADEMY OF AGRICULTURAL SCIENCES

NORWEGIAN EMBASSY

ClimaViet, field trip report

Partners: Bioforsk, VAAS, Queensland University

Date: 18th August, 2014

Stakeholder meeting – Nam Dinh's Department of Agriculture and Rural Development (DARD)

Photo 1. Photo from meeting with agriculture department in Nam Dinh province and official document issued the same day

A meeting was held in the conference room of Nam Dinh's Department of Agriculture and Rural Development (DARD) with the participation of DARD officers, VAAS and Bioforsk team including: Mr. Nguyen Phung Hoan – Director, DARD; Mr. Do Hai Dien – Deputy Director; Mr. Nguyen Sinh Tien – Head of Division of Crops, Mr. Tran Duy Nang – Officer of Division of Crops, DARD; Dr. Nguyen Van Bo – VAAS; Mr. Nguyen Xuan Dzung – CETDAE/ VAAS; Mr. Dam Qung Minh; Mr. Hoang Gia Minh; Ms. Nguyen Thanh Phuong – CETDAE/ VAAS.

At the meeting, Mr. Hoan emphasized that Nam Dinh province is affected and exposed to the direct impacts of climate change such as sea level rise, extreme weather phenomena, temperature and rainfall pattern change and salinity intrusion.

Nam Dinh province is located in the Southern of Red river delta, with a natural area of 1,652km2, and a population of 1.83 millions. About 80% of the province's population live in rural areas and depend on agricultural sectors including crop production, fisheries and salt production. The province has about 93,345 ha of land cultivation, with 79,000ha for rice cultivation and 16,000ha for fishery development. With a long coastal line of 72km, Nam Dinh province has a lot advantages to develop fisheries; however, impacts of climate change, extreme weather phenomena and saline intrusion on agricultural production has become more serious in recent years.

Impacts of climate change on agricultural production in Nam Dinh:

- In 2003, heavy rains during the paddy stage caused flooding of nearly 50,000 hectares (submerged 2/3 of paddy plant) and overall yieldswere decreased by about 30-45%. The value of damage was estimated to be about 500 billion VND.

- In the 2005 crop, storm no.7 with heavy rains during the harvesting stage of paddy nearly sub-merged 70,000 hectares of paddy crop, causing a yield decrease of nearly 40%. The value of damage was estimated to be about 1,000 billion VND. In addition, stormNo. 7heavily eroded some critical coastal dykes.

- In the 2007, 2009, 2010 and 2011 crop, heavy rains caused serious flooding in thousands of hectares of new paddy.

- In dry season (winter-spring crop season), drought problem and saline intrusion frequently occur and cause many difficulties in managing irrigation systems and affect directly rice cultivation in costal districts including Giao Thuy, Hai Hau and Nghia Hung. In these districts, there were about 12,000ha rice land affected by salinity. In the dry years, salinity rates were about 8‰. In spring crop season, salinity rate was about 0.7-3‰. From 2008 to 2014, there were about 5,724ha rice crop died of salinity intrusion; rice yield was reduced 20-30%. Especially in spring crop season in Rang Dong farm, Nghia Hung district, 25ha of rice field was lost completely.

Provincial government initiatives and priorities for climate change adaptation and mitigation measures:

The Central Committee for Storm and Flood Control, under the Ministry of Agriculture and Rural Development, coordinates disaster management activities like the Department of Dyke Management and Flood and Storm Control, the Disaster Management Centre, the Hydro-meteorological Service, and the Vietnam Red Cross. It main activities are monitoring the effects of storms and floods, gathering damage data, providing official warnings, then co-ordinating and implementing disaster response and mitigation measures. CCSFC relies on the administrative structure of the Dyke Department to carry out its disaster assessment, disaster reporting, and emergency co-ordination duties. To act efficiently at a provincial level, a disaster communications system (emergency mail alert) is used. In each province there a Provincial Committee for Storm and Flood Control has been established. Members are Province's Department of Agriculture and Rural Development. Nam Dinh focuses on the following options:

- Complete plans: Agricultural, fishery and salt production plans, forest plan, flooding and storm prevention plans, irrigation development plan to 2020 and a vision of 2030

- Improve irrigation systems and dykes and other agricultural constructions

- Cropping systems and seasons: growing new crops (e.g. peanut, maize) on rice lands, especially in the spring season, which could give high income to farmers; Using salt tolerance rice: province has tested some salt tolerance rice and identified three Chinese hybrid rice varieties suitable for salinized areas

- Soil management: application of no-tillage and no chemicals; or application chemicals to decompose rice root after harvesting quickly but they are friendly to environment

- Advanced technology in nutrient/fertilizers that reduce greenhouse emissions

- Crop management measures

Inspection of ClimaAdapt field trials ongoing in Rang Dong and Thinh Long communes, and three more field experiment sites where VAAS are testing various new climate smart technologies

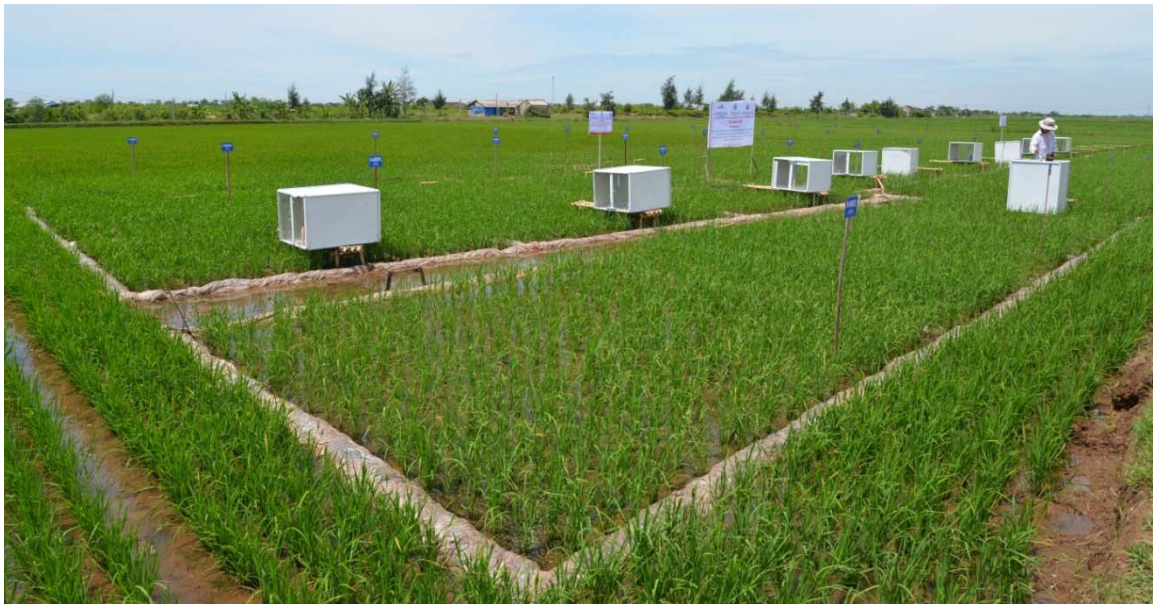

Photo 2. Experimental site at Rang Dong farm, Nghia Hung District, Nam Dinh province, Red River Delta, Vietnam: sub-experiment with treatments of alternate wetting and drying (AWD) and different fertilizer regimes. Measurement of gas emissions is undertaken in the AWD trials.

Photo 3. Sub-experiment with field testing of salt tolerant rice varieties at Rang Dong farm.

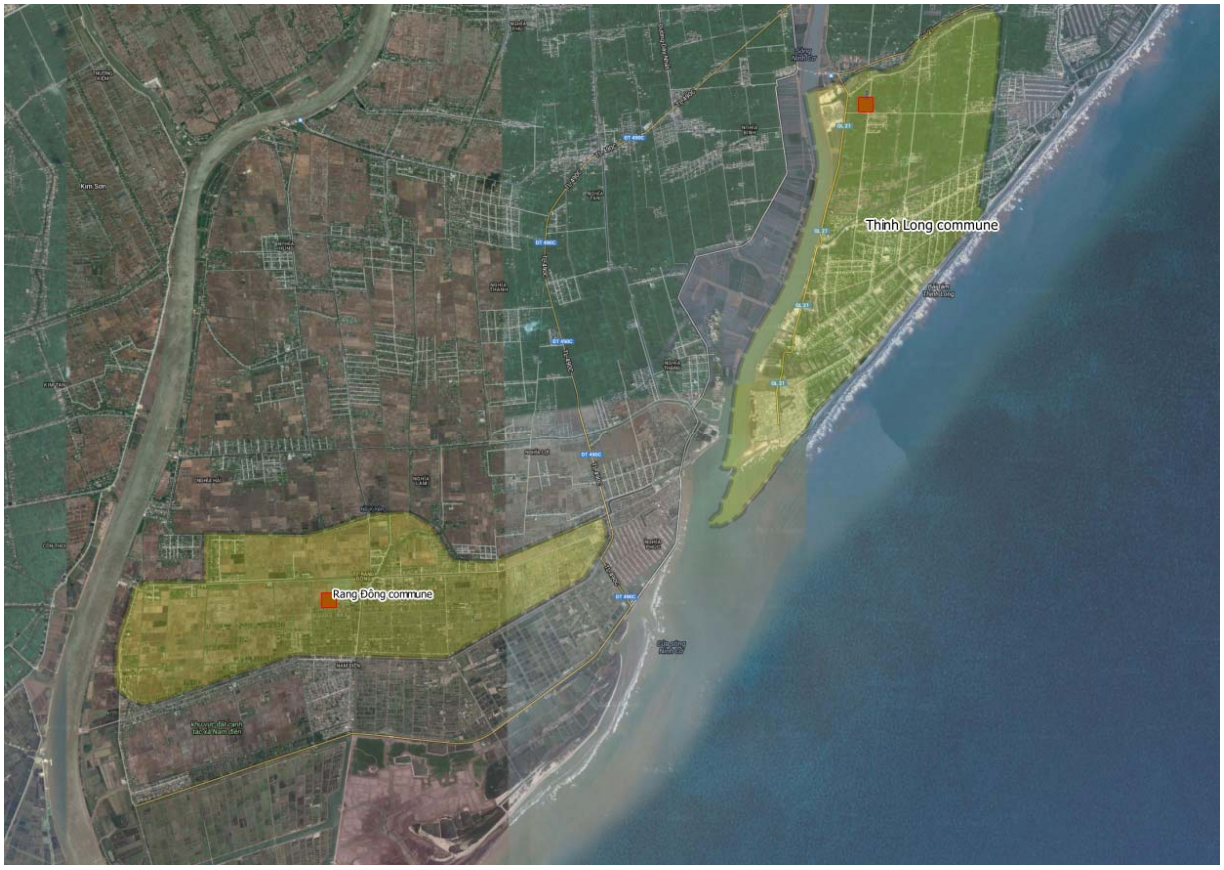

Photo 4. Map of the two field experiment locations in the communes Rang Dong and Thinh Long

Photo 5. Project team together with technical personnel operating the field trials.

Photo 6.Overview of field experiment site in Thinh Long

Photo 7. Changes in cropping practices: vegetable cropping with raised beds

Photo 8. Second field demonstration site in Hai Ty commune, Hai Hau district, Nam Dinh

Photo 9. Demonstration trial of SRI technology with increased row spacing and east-west sowing direction in Hai Trung commune, Hai Hau district, Nam Dinh