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Practitioners' and policy-makers' exchange on climate change adaptation in agriculture

Vietnam

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Presentation contents

- General information of agriculture in Vietnam
- Current and emerging climate- related threats/risks to food security.
- Existing risk management and adaptation efforts
- Questions

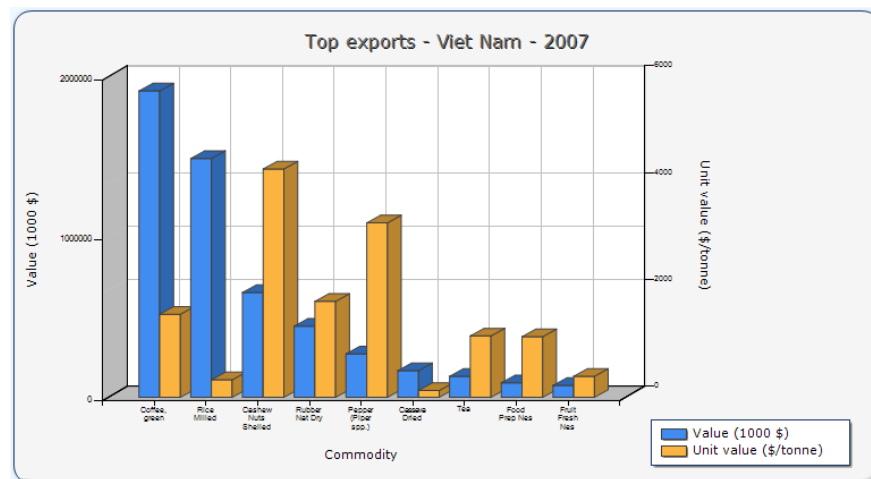
1. Major crop agricultural industries and production systems

- **Main agricultural products:**
 - Rice, sugar cane, vegetables, cassava, maize, fruits, pork, sweet potato
 - Tea, coffee
- **The agriculture sector:**
 - Takes up **40.7%** of Vietnam's land area
 - Employs **54.8%** of Vietnam's labour force
 - Contributes **21%** of Vietnam's economic output
- **Household agriculture in Vietnam**
 - More than 10.4 million farmer households
 - Average production area of small-scale households:
 - less than 0.3 ha in the Red River Delta
 - about 0.7 ha in Mekong River Delta.
 - Land is fragmented: on average 4.6 plots per household since land consolidation

- **Main agricultural exports:**

- Milled paddy rice (major export)
- Coffee
- Natural rubber
- Cashew nuts
- Pepper
- Tea

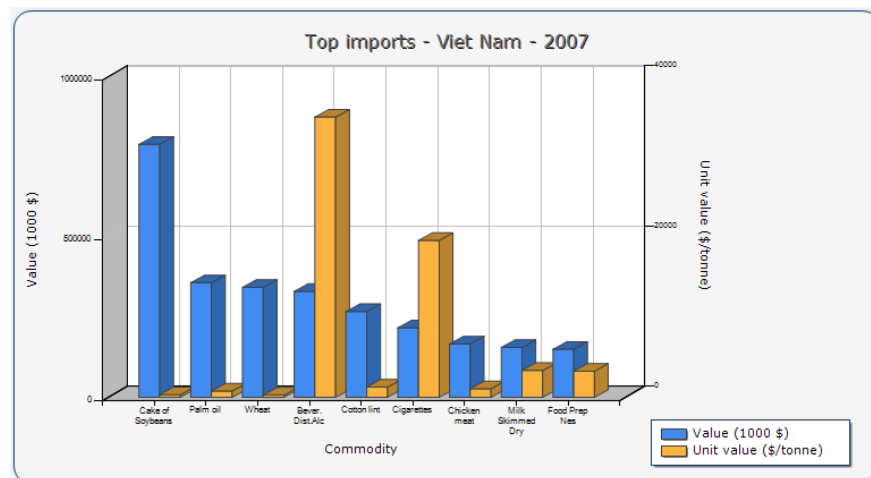
(Grew **18.2 %** per year 1995-2005)



- **Main agricultural imports:**

- Soya bean cake
- Cotton lint
- Cigarettes
- Wheat

(Grew **1.3 %** per year 1995-2005)



(Source: FAO 2007)

RICE:

Vietnam's main agricultural product

- **Total land area:** 7.44 million ha
- **Total production:** 38.9 million tons
- **Productivity:** 5.2 tons/ha/harvest (2-3 harvests per year)
- **Contribution to GDP:** 12-13%
- **Contribution to population's calorie intake:** 59%

Vietnam is the 2nd largest global rice-exporter

- Over 5 million tons per year
- 13-17% market share of the global market

2. Current and emerging climate-related threats/risks to food security

Vietnam is one of **top 10** countries to be most severely affected by natural disasters linked to climate change (*2010 Global Climate Risk Index*).

Vietnam is in the **top 5** most affected by sea-level rise (*Dasgupta et al. 2007*)

Climate change in Vietnam – last 50 years (1958-2007):

- Annual temperature increased 0.5-0.7 °C,
- Rainfall decreased by only about 2% but localised intensity and unpredictability of the rainfall has increased, causing severe floods.
- Sea level has risen 20 cm
- Fewer cold fronts (esp. end of 20th, beginning of 21st century)
- Fewer typhoons but they last longer, are less predictable and cause more severe damage
- More droughts in all regions, especially the south, and they last longer
- El Niño/La Niña weather events more intense, causing more typhoons, floods and droughts

(MONRE 2008; Oxfam 2008)

Expected future impacts of climate change in Vietnam:

- Average temperature to increase by 1-2 °C (over pre-industrial levels) by 2050, and by 2 to 3 °C by 2100.
- Rainfall and droughts to increase in intensity and area of impact. Rainfall less predictable.
- Typhoons to increase in intensity and be more unpredictable, probably increasingly affecting the south.
- Storm surge heights to increase.
- Sea level may rise 30-35cm by 2050, 40-50cm by 2070 and 60-70cm by 2100.
- By 2070 the flow of the country's two main rivers, the Red River and Mekong River, in the flood season is expected to rise by 7-15%, leading to more severe flooding, and to decline in the dry season by 2-15%.

Expected future impacts of climate change in Vietnam



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(Source: Oxfam 2008)

Sea-level rise

Past sea level rise:

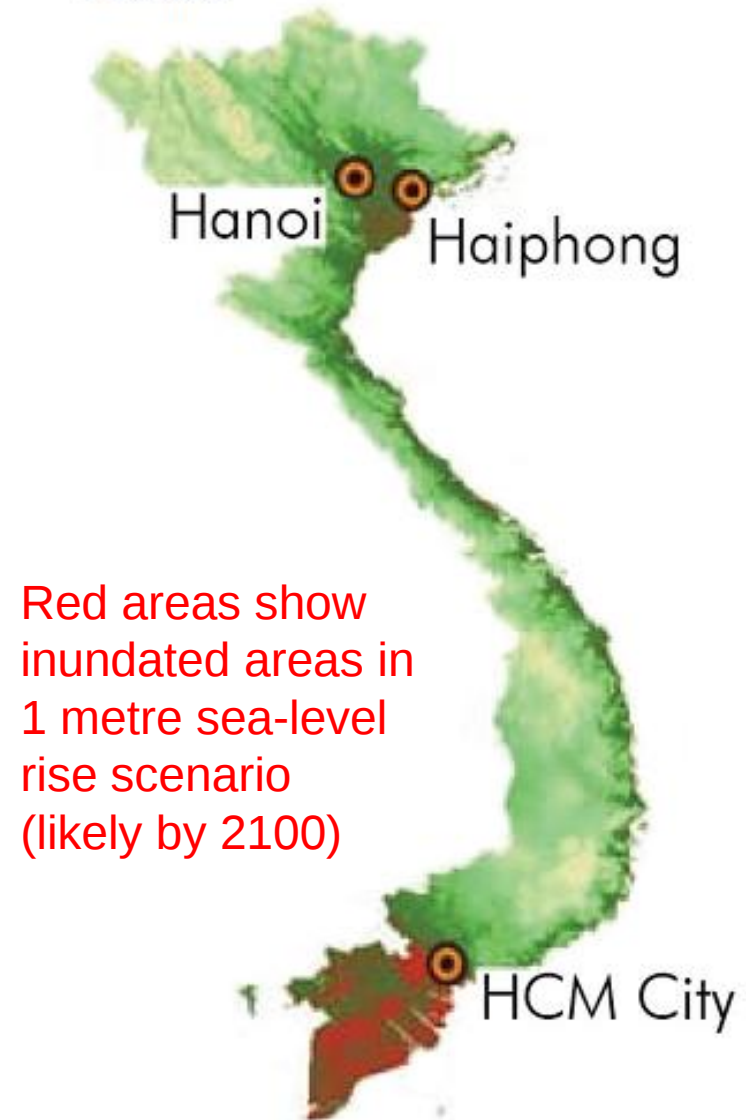
- 5 cm over past 30 years;

Expected sea level rise:

- 9 cm by 2010
- 33 cm by 2050
- 45 cm by 2070
- 1 metre by 2100

(Micheal, 2008)

Impact of 1 m Sea Level Rise in Vietnam



Source: Dasgupta et al 2007

Impacts of sea-level rise

Compared to 83 other coastal developing countries, Vietnam ranks:

- **1st** for impact on population, GDP, urban extent, and wetland areas,
- **2nd** in terms of impact on land area (behind the Bahamas)
- **2nd** in terms of impact on agriculture (behind Egypt)

Vietnam has:

- over **3400km** of exposed coastline
- **50%** of population living in coastal areas

Impacts of 1 metre sea-level rise on food security:

- Land loss due to inundation and salt water intrusion: 40,000 km² (mainly Mekong River Delta (90%) and Red River Delta)
- Loss of 5 million tons of rice (decrease of 12%)
- Number of people impacted directly by sea level rise and land loss: 17.1 million people (23.1 %)
- All 58 million people whose lives are based on agriculture to be affected

(Dasgupta et al 2007)

Other impacts of climate change on food security

Temperature increase:

- Rice productivity decreased 10% for each 10°C increased
- Maize productivity declined 5-20% if temperature increased 10°C; 60% if temperature increased 40°C
- Spread of pests and diseases in crops will stunt their development
- Increasing risk of forest fires
- Reduction in biodiversity

Droughts:

- Loss and damage of crops
- Soil erosion
- Increasing risk of forest fires
- Loss of biodiversity

Floods, flashfloods, storms:

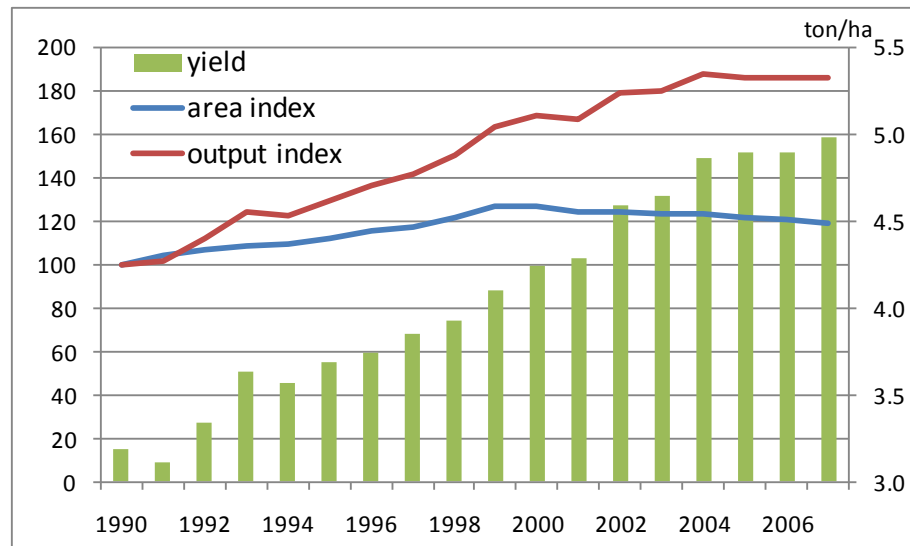
- Soil erosion
- Loss and damage of crops
- Damage to property and lives
- Damage to infrastructure

A focus on rice: impacts of climate change

A study by on the impacts of climate change on the rice sector concludes:

*If there is no substantial improvement in production technology, Vietnam will be go from being the 2nd largest rice-exporter in the world in 2009, to being ‘**export neutral**’ in rice by the mid 2040s, i.e. Vietnam could become a net rice importer.*

(Nguyen Manh Hai, Central Institute for Economic Management, Vietnam, 2010)



This graph shows that already:

- Rice production in Vietnam is stagnating
- Land available for cultivation is reducing

Additional impacts of climate change:

- Reduced land due to salt water intrusion
- Droughts, flash flooding and storms
- Rising temperatures reducing productivity

Poverty, climate change and food security

Climate change threatens food security because it has the potential to exacerbate poverty:

- 72% of the population live in poor rural areas
- Over 58 million people rely on agriculture for their livelihoods
- 102,000 ha of rice land is being converted annually (for infrastructure, industry, urbanisation etc)
- The population is growing
 - The amount of arable land per capita is decreasing

The rural poor are often the most vulnerable to climate change because:

- They are heavily dependent on natural resources and the environment for their food, shelter, income, water supplies
- They have limited livelihood alternatives
- They lack spare cash or assets to help them recover from shocks e.g. if their harvest fails, their animals die, or they need to rebuild their house

3. Existing risk management and adaptation efforts

What local people are already doing:

- Changing to more resilient varieties e.g.
 - From rice to maize (requires less water, but rice is local staple)
 - Hybrid rice varieties (but problems with dependency)
- Shifting from food crops to cash crops
 - e.g. cinnamon, acacia (but requires initial capital, forest land, market)
- Changing livelihoods completely
 - e.g. work in factories, in services, as casual labourers (risks creating many social problems and affecting gender relations)
- Moving homes and livelihoods
 - Rebuilding homes in safer areas or migrating to find work (usually a last resort, and comes with many costs)

Many of these options are **not accessible** to all without further support, or they are **not sustainable**

What the Government of Vietnam is doing

- Vietnam ratified the UNFCCC in 1994 and the Kyoto Protocol in 2002.
- The Ministry of Natural Resources and Environment (MONRE) is the lead government agency on climate change.
- Since 2008 **National Target Program on Climate Change (NTP)** is officially main framework for the management and coordination of CC activities to achieve Vietnam's sustainable development objectives.
- In early 2008 the Ministry of Agriculture and Rural Development (MARD) circulated its own draft Action Plan for Climate Change Adaptation.
- Vietnam's key institution for responding to natural disasters and storms is the Central Committee for Flood and Storm Control (CCFSC) which has been operating since 1955.
- Several ministries and other organisations such as the Viet Nam Red Cross, which works from national down to commune level, are key members of the CCFSC.

(Oxfam 2008)

What local NGOs can do

The value of local NGOs:

- **Participation:** in assessing needs and designing solutions
- **Capacity development:** sharing knowledge and skills
- **Linking:** grassroots to government, local to international
- **Advocacy:** ensuring local voices are heard
- **Local ownership:** supporting community-based approaches and solutions e.g. on environmental management and DRR

Working together to pool knowledge and resources:

- *NGO Climate Change Working Group (CCWG)*
 - Over 300 members from INGOs and VNGOs
 - Coordination, advocacy, capacity building
 - Developing CCA mainstreaming guidelines for NGOs
- *Vietnamese NGOs and Climate Change Network (VNGO-CC)*
 - A partnership of Vietnamese NGOs

Experiences from SRD

- **Developing projects to support farmers to develop sustainable livelihoods that can respond to climate change**
 - Consultation with farmers themselves to find out their needs and develop solutions based on their knowledge
 - A holistic analysis of climate change that links land and water management, value chains analysis and CC adaptation
- **Integrating CC adaptation and mitigation into all SRD's sustainable livelihoods activities**
 - SRD is helping communities adapt to their changing environment by promoting sustainable and resilient agricultural techniques
 - Community rice seed production program (Bac Kan) helps farmers identify and conserve existing biodiversity
 - Agricultural diversification and land and water management projects help communities reduce their vulnerability and manage resources sustainably.
 - Through our work on SRI (the System of Rice Intensification), SRD is working with rice farmers to reduce their methane emissions by nearly 100%, while at the same time boosting incomes and pest resilience
- **Leading the Capacity Building Project on Climate Change (CBCC) for Civil Society Organisations**
 - Including running training courses for VNGOs, study tours, a shared information database, communications including newsletters, videos and online forums

Experiences from Thai Nguyen University

- Training
 - Develop programs relate to environment and CC
- Research and transfer technology
 - Priority is given projects relates to CC: SRI, cultivation on sloping land, soil and water conservation
- International cooperation
 - Visiting lecturers on CC for staffs and students
 - Collaboration in projects on reduce CO2 emission, economic development and resource conservation for sloping land in remove areas

What still needs doing

How to ensure food security and sustainable livelihoods for Vietnam in the face of climate change:

- Invest in research & development for sustainable agriculture and aquaculture, that builds on indigenous knowledge
- Strengthen consultation with the people who are most affected, to ensure their needs are properly assessed and addressed
- Implement pilot projects testing new sustainable livelihoods approaches on the ground to find out what works
- Build the capacity of local government at commune and district level to understand the importance of the issues and what can be done
- Educate, share information and encourage public debates about major investment plans
- Protect and invest in forestry including mangroves
- Ensure land management, access and ownership laws facilitate sustainable environmental and forest management
- Mainstream climate change into national and local plans (e.g. Vietnam's Socio-Economic Development Plan 2011-2015)
- Encourage long-term planning, not just short-term disaster response

4. Questions

- What do you hope to learn at this event?
 - List any knowledge gaps you have that you would like filled in relation to climate change adaptation in agriculture
- a) We hope we will share our experience of this aspect with other country through country's presentation, group discussion, individual talks
- b) We would like to set up network among these country's participants to share information, to learn lessons as well as to get expertise supports from each other on this area.