

Technology Needs Assessment Report
Climate Change Technology Needs Assessments for Thailand:
Adaptation in the Agricultural Sector

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Under the Technology Needs Assessment (TNA) project, Thailand has identified and formulated the technology action plans (TAPS) to cope with the climate change. The agricultural sector including field crops and aquaculture are selected as priority due to its importance for Thailand's economy and potential impact on the world's food security. To make the success, Thailand needs an international support in two schemes. One is a capacity building starting with the joint Master's level course through a consortium of leading international universities, local universities and private companies. Another is to support Thailand as an ASEAN training hub for adaptation technologies in agriculture. Linking an international organizations and experts is also desirable to ensure the portable application with the cross cutting technologies.

Several criteria such as the impact of technologies, technology capability, policy and regulation, and public perception as well as farmer acceptance are used to create a guideline for agricultural adaptation. Under the guideline, three groups are selected as priority: 1) forecasting and early warning systems, 2) crop improvement, and 3) precision farming. These preferences have different stages of development and require dissimilar support. For example, the forecasting and early warning systems to monitor and predict weather as well as the disease outbreaks is in the preliminary stage. The software supporting these systems is also imported. This requires technology and knowledge transfer from other countries. The crop improvement via marker Assisted Selection (MAS) and genetic engineering has been developed in the country for quite some time. Even though MAS is currently limited to jasmine rice KDML105 and glutinous rice RD6, it is ready to transfer to other countries. To create climate-resilient in other crops, experts such as molecular breeders, physiologists, plant pathologists and entomologists are required. Today plant transformation has been limited to few plant species. The strong government and public support is required for the success. Another key barrier is that genetic engineering is heavily covered by patents. The technology transfer under the win-win agreement may be a good option. Precision farming in Thailand is at a nascent stage of development to reduce inputs while maintaining maximum productivity and

minimizing the effects on the environment. Even though some technologies such as drip irrigation system, customized fertilizer and closed system for aquaculture have already been transferred to pioneer farmers, the number of technology recipients is quite small. Most projects and initiatives are still at a pilot/ prototype-building stage.

The three selected assessments are good examples for climate change adaptation. Experience to select priority and to formulate technology action plan is knowledge management. Implementation technique will be further presented in details.

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