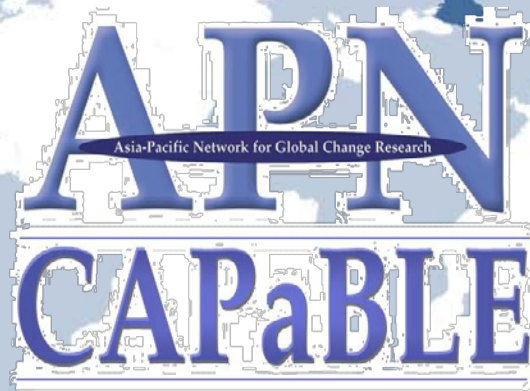


Scoping Workshop to Develop an APN Proposal on “Capacity Building in Climate Change Mitigation through Precision Agriculture”



- Making a Difference -

Scientific Capacity Building & Enhancement for Sustainable Development in Developing Countries

The following collaborators worked on this project:

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Final Report submitted to APN**

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OVERVIEW OF PROJECT WORK AND OUTCOMES

Non-technical summary

Policy makers along with scientists and academicians in developing countries like Bangladesh, India, Thailand and Vietnam, have substantial influence on development of modern agricultural methodologies. Precision Agriculture in the USA has greatly contributed in reducing the use of chemicals and fertilizer with positive economic impact and without affecting the productivity. This has resulted in reduction of greenhouse gas (GHG) emissions and aided in mitigating climate change impacts. Similar technology with adaptive modifications/customization can be used in developing countries and the policy makers and professionals of these countries could be trained to influence the farmers for such adoption. A scoping workshop was conducted with experts and officials from Bangladesh, India, Thailand and Vietnam to prepare a proposal to develop capacity building efforts to use precision agricultural techniques to mitigate climate change in their countries and make it a case study for south and south-east Asia. The workshop outlined about strategy and a proposal is ready to be submitted to Asia Pacific Network for Global Change Research (APN).

Keywords: *Precision Agriculture, Climate Change, Greenhouse Gas, Developing Countries*

Objectives

The main objective of the project was to organize a scoping workshop for enhancing the capacity of developing countries to adapt to precision agriculture in order to mitigate climate change with involvement of beneficiaries. The specific objectives were:

1. Preparing a main proposal to submit to APN considering present precision agricultural situations in from Bangladesh, India, Thailand and Vietnam.
2. Considering reduction of CHG emission by variable rate application of fertilizer, chemicals and water in crop field.
3. Meeting of officials from these countries for the workshop in Bangkok, Thailand to discuss and gather thoughts to prepare the full proposal to be submitted to APN.

Amount received and number years supported

The Grant awarded to this project was: US\$ 15,000 for one Year.

Activity undertaken

A scoping workshop was organized in Asian Institute of Technology, Bangkok, Thailand on 17-19 September, 2012. The workshop was attended by Dr. Ganesh C. Bora from North Dakota State University, Fargo, ND, USA; Dr. Manzul Hazarika, Associate Director of Geoinformatics Center (GIC), Dr. Ganesh P. Shivakoti, Professor of Resource Economics and Dr. Peeyush Soni, Assistant Professor of Precision Agriculture in Asian Institute of Technology, Bangkok, Thailand; Dr. Deben Baruah, Professor of Energy, Tezpur University, Mr. Rajib Kr. Kalita Scientist, Rain Forest Research Institute, Jorhat, India; Dr. Le Thi Chau Ha, Vice director of Centre of Geomatics, Water Resources University, Ms. Le Yen Dung, Deputy

Director General of Department of Social and Natural Sciences, Ministry of Science and Technology, Hanoi, Vietnam; and Dr. Md. Monjurul Alam, Professor of Farm Power and Machinery, Bangladesh Agricultural University, Mymensingh, Bangladesh.

Representative from four countries presented the status of precision agriculture and impact of climatic factors and resource inputs in crop production. Precision agriculture is in nascent stage in all these countries. It was fascinating to note that the technology is there and some of the large farmers have started to use it for economic benefits.

A common crop such as rice may be selected for this project. An economic analysis with importance of Q certificate, carbon balance, livelihood adjustment due to change in climate should be studied. Study can be incorporated with change in methane gas emission by changing crop rotation from rice-rice-rice to rice-X-rice. The results should be documented. Preliminary study can be done before the project starts. Economic analysis should be done in terms of gross marginal analysis, partial budgeting, and incremental benefits of using precision agricultural techniques in available forms. The impact of climate change can be assessed by reducing agricultural inputs and its effect on CHG emission.

Results

The full proposal on “Capacity Building in Climate Change Mitigation through Precision Agriculture” is being developed and submitted to APN-GCR for 2013 CAPaBLE Stage 2.

Relevance to the APN Goals, Science Agenda and to Policy Processes

The proposed project to develop capacity building in South-east and South Asia to mitigate climate change and reduce GHG emission (APN-Goal 1) using precision agricultural (PA) concept. Precision agriculture is a system concept that involves the development and adoption of knowledge-based technical management systems with the goal of optimizing input resources to reduce fertilizer, chemical, seed and water application in order to reduce production cost and have positive environmental impact. To meet the growing demand for food in changing climate that reduces yields; adoption of PA is a practical solution to optimize input and maximize benefits reducing GHG. The project plans to transfer knowledge and technology, adapted in the developed countries to customize for developing countries by the scientists and policy makers of both developed and developing regions (APN-Goal 2 and 3).

Self evaluation

The workshop was effectively organized in Asian Institute of Technology, Bangkok, Thailand on 17-19 September, 2012. The participants put forward excellent ideas to build the main project proposal and activities for further work. This was the beginning of building the network of policy makers, scientists and academicians from developing and developed countries for using precision agriculture to mitigate climate change.

Potential for further work

The workshop has been the gateway for working further in mitigating climate change using

precision agriculture in South and South-east Asia. It mainly focused in capacity building in the project scope. Once the capacity building is successful, this can be extended to other countries of Asia where the agricultural and economic conditions are similar. Moreover, if the full project proposal is reviewed successfully, it will give opportunity to the team to work in these countries individually to study unique situation of each country and find a universal solution.

Publications (please write the complete citation)

The proposal on “Capacity Building in Climate Change Mitigation through Precision Agriculture” is prepared and ready to be submitted before 12 October 2013 to APN-GCR for 2013 CAPaBLE Stage 2.

References

Acknowledgments

The project team expresses gratitude to APN for providing fund to organize the scoping workshop. It acknowledges the help and time provided by the staffs of North Dakota State University for administrative and financial matters. The staffs of Geoinformatics Center of Asian Institute of Technology, Bangkok, Thailand deserve special appreciation for hosting the workshop.

