



## Summary

### International workshop

**“Scaling up and out of climate-smart technologies and practices for sustainable agriculture”**



5-7<sup>th</sup> November 2019

An international workshop on “Scaling up and out of climate-smart technologies and practices for sustainable agriculture” including an expert workshop, an international symposium (subtitle in Japanese “Climate change and agri-business”), and a field tour to farms was organized by the Ministry of Agriculture, Forestry and Fisheries (MAFF) in Tokyo, Japan. The overall objective of the workshop was to share the experiences of G20 countries and invited guests, and the latest information and facilitate research collaboration in the development and scaling up and out of climate-smart technologies and practices for sustainable agriculture, as had been proposed at the MACS-G20 2019\*1.

## 1. Summary of the expert workshop

### A. Introduction and presentation of case studies

The expert workshop held at Sanbancho-meeting room of MAFF on November 5<sup>th</sup> and 6<sup>th</sup> welcomed a total of 57 experts from 14 countries, Consultative Group on International Agricultural Research (CGIAR), and private companies. Mr. Kazuhiko Shimada, Deputy Director General of the Agriculture, Forestry and Fisheries Research Council Secretariat of MAFF, and Dr. Masa Iwanaga, Chair of G20 MACS 2019 and Advisor to MAFF on International Research delivered the welcome addresses.

The expert workshop was facilitated by Dr. Mikitaro Shobayashi, Vice-President of Gakushuin Women’s College. Participants exchanged experiences and discussed the following two objectives as presented by the facilitator;

Objective1; to share experiences.

Objective 2; to discuss ways to enhance learning from experiences in other regions or countries, focusing on the role of research institutes.

In his introduction of the objectives, the facilitator emphasized that activities for successful scaling up and out need to be context specific, taking into account regional (cultural, historical, environmental, political etc.) circumstances. However, he noted that it was important to accelerate the process of scaling up and out by learning from others.

The organizers of MAFF Japan reported that prior to the workshop, 31 case studies on introducing climate-smart technologies and practices in combination with tools and/or incentives to facilitate farmers’ adoption were submitted from 12 countries and 3 international organizations. Among these, 27 case studies were presented by 18 experts at the workshop. The case studies were grouped into 4 themes. Each theme highlighted the methods and institutional arrangements used in each case.

- (1) Adaptation and risk management
- (2) Policy driven approaches
- (3) Technology dissemination driven by research organizations/ international organizations
- (4) Economic mechanism

Experts provided their presentations in which they responded to the following guiding questions, with focus on *how* the technologies/practices have been scaled up or out.

- (1) What was the main purpose, in conducting the project/trial with farmers and/or other stakeholders in the society?
  - a. reveal farmers’ willingness to accept the new technology/practice;
  - b. try out new technologies/practices in farmers’ fields;
  - c. try out new institutional frameworks to scale up & out technologies etc.;
  - d. make causal analysis or identify obstacles with the aim of constructing institutional frameworks for scaling up & out of technologies and practices.



Website of the workshop presentation  
([https://www.maff.go.jp/e/policies/env/climate\\_smart\\_ws\\_2019.html](https://www.maff.go.jp/e/policies/env/climate_smart_ws_2019.html))



Website of the symposium  
(<https://www.maff.go.jp/j/kanbo/kankyo/seisaku/ki/kouhendou/symposium/cs.html>)

\*1 paragraph 9 of the communique

- (2) What is the key role of research institutes in identifying and designing suitable institutional arrangements (measures/policies/schemes) to facilitate adoption and dissemination of new technologies/practices?
- (3) What is the key role of research institutes in sharing “lessons learned” among different countries and regions?

## **B. Discussion and key messages**

### **Lessons learned from sharing experiences**

Participants noted the richness of the case studies and were encouraged by the positive impacts occurring in many parts of the world and agreed that sharing the lessons learned with others could stimulate further activities. The following were the main lessons shared among participants along the first objective.

- (1) Integrated approaches involving multiple technologies and practices as well as addressing climate change issues in a system approach that include other agri-environmental issues (e.g. soil health, water quality, water management and biodiversity) have been implemented, such as climate smart villages and the agroecosystem living laboratory (ALL) cases.
- (2) Intensive measures have been taken to scale up and out certain types of technologies/practices such as conservation agriculture.
- (3) Providing information is key to scaling up and out activities, as highlighted in the ZARC (Brazil), IRRISAT (Italy) or Agrisource (France).
- (4) Institutional paths can stimulate innovation so that technologies can be scaled up and out, such as the stepwise approach in financing research, beginning at the incubation phase and eventually leading to tryouts conducted in farmers’ fields, as done by the Conservation Innovation Fund in the USA.
- (5) Business cases/initiatives led by the private sector to help farmers move toward climate-smart practices can be useful.

### **Take home messages from the discussion on ways to improve approaches to enhance learning from experiences in other countries/regions**

With respect to the second objective, recognizing the urgency faced by the increased frequency and intensity of extreme weather as evidenced by recent global events and the IPCC special report on 1.5°C, participants highlighted the need **to accelerate scaling up and out of technologies and practices**. They agreed that in this “unusual” global circumstance, the research community can significantly contribute to this by conducting “business as unusual” through providing infrastructures, including institutional arrangements or co-construction mechanisms for scaling up and out in addition to the traditional role of development and scientific assessment of technologies, with the end goal of enhancing the scale and the adoption rate of climate smart practices and technologies.

After intensive discussion, they shared the following messages:

- (1) The research community can directly contribute by providing precise scientific data and indicators as well as monitoring mechanisms which would increase the robustness, reliability and sustainability of the activities
- (2) Involving farmers and other users of the technologies and practices in the initial stage of the research and throughout the innovation process is key for early adoption of technologies. Such an approach is important to avoid or reduce possible future value conflicts among different stakeholders.
- (3) The research community can play a central role in developing multidisciplinary and interdisciplinary involvement, namely to bridge the gap between policy makers and scientists, as well as farmers and the private sector. Noting that not only farmers but also consumers should be considered as end-users, the research community can also bridge the gap between corporate investment and consumers to close the research feedback loop.
- (4) In agricultural research, sometimes, being scientifically precise appears as a trade-off to accelerating scaling up and out of technologies/practices. For instance, new or different evidence of an already proven technology or practice discovered under different conditions may appear to discourage further dissemination. Similarly, difficulty

in developing precise and efficient monitoring system can in some cases be an obstacle. However, upgrading science and accelerating adoption should not be viewed as a trade-off, but rather as complementary.

- (5) The research community may significantly contribute to accelerating scaling up and out of technology/practices by evaluating the effectiveness of institutional arrangements, including their social feasibility, in addition to the traditional scientific and economic evaluations.
- (6) Multiple roles were identified including (1) - (5) in which the research community may directly contribute to improve ways of learning from other's experiences to accelerate scaling up and out of climate-smart technologies. However, it was also highlighted that in order to allow researchers to operate "business as unusual", they should be evaluated accordingly, in addition to the customary academic performance evaluation, e.g. by number of published papers.

In addition, the following are some of the comments raised during discussion;

- (1) National and international research organizations may have different roles; where the latter can contribute to linking different countries. South-south cooperation may be effective in some cases, to which international organizations could contribute.
- (2) Quantification is important to encourage adoption of climate-smart technologies and practices, especially to facilitate business cases. Difficulty in measurement and monitoring may be overcome by use of models such as the COMET in the USA which was presented at the symposium. Yet, continuous data collection and sharing is also necessary.
- (3) Experiences in the EU already demonstrate that mutual learning from other member states with diverse institutional arrangements can help enhance efficiency in designing activities.
- (4) Collaborating with funding organizations may be helpful in addressing new challenges which could potentially drive research via design of funding opportunities for scaling up and out of climate-smart technologies and practices.
- (5) Research organizations can contribute to providing enabling conditions by developing capacities of actors outside of the government, such as farming groups and industry bodies, noting that policies can sometimes change as a result of election.
- (6) The challenge in addressing sustainable agriculture and food security under climate change also relates to other societal concerns such as food waste and sustainable diets. The transformation to new food systems are also ideas that should be considered, though they were outside of the objectives of the workshop.

### **C. The G20 MACS 2020 and the way forward**

The representative of Saudi Arabia, the incoming chair of the G20 MACS in 2020 provided information on their plans for the meeting to be organized in Riyadh, Saudi Arabia and outlined the agriculture situation in their country. He highlighted that water scarcity and improving efficient water use was a high priority issue in the country.

Mr. Kazuhiko Shimada, on behalf of the organizers thanked all the participants for the significant contribution to the case studies and expert workshop, and expressed his expectations for the upcoming meeting in Riyadh and explained that they plan to draft a workshop report and deliver it to the G20 MACS 2020.

### **2. Summary of the discussion after the field trip on facilitating research collaboration**

On November 7<sup>th</sup>, 25 participants of the workshop visited the farming sites of Cool-Vege and Wago and communicated with farmers. At the end of the field trip, participants exchanged views on future work to facilitate international research collaboration reflecting on their 3-day experience in Japan, including the symposium. Participants of the field trip felt that both farming sites visited had linkages to the workshop discussions, i.e., can be considered business cases with links to science, as well as to the private sector. The Wago case displayed a

diversified farming enterprise, involving agricultural production, processing, marketing, collecting and using otherwise wasted food and transforming it into bioenergy and fertilizer.

Some of the ideas proposed on ways to facilitate research collaboration were;

- (1) The Cool-Vege and Wago cases both demonstrate opportunities for G20 MACS to enable farmer-led business models in different contexts.
- (2) Develop an international research platform to connect sites (i.e., commercial farms) in each country in the long term, and share data, in similar ways as introduced in several case studies (e.g., France's Agrisource), but at a global scale. By working closely with such sites, the global platform can help build collaboration between research organizations.
- (3) Linking with the existing learning platform and taskforce for scaling in CCAFS/CGIAR may be helpful to facilitate research collaboration around scaling up and out climate-smart technologies and practices. The potential role of Agrisource platform could also be envisaged.
- (4) In order to facilitate the transition discussed throughout the workshop and symposium, a set of succinct talking points may be developed from the discussion during the workshop for further consideration at future workshops.
- (5) To develop a guidance for policy makers globally (i.e., policy brief) based on the diverse case studies highlighting commonalities and approaches to achieve scale, which can be replicated in different contexts.
- (6) Farmers need simple guidance to answer scientific questions they may have, i.e., how much biochar to apply in their field, methodologies for quantification, and an organization dedicated to the role may be useful.
- (7) There was also discussion of funding needed to continue sharing information/experiences between G20 countries, noting that having a themed workshop like this was very useful to learn about what other countries are doing.