JISNAS-WUR Session

Theme: **Inclusive Value Chain Development**

Title: Promoting added-value production by smallholder farmers through the development of robust market-driven supply chains in an industry-community-academia collaboration

Organized by:

Japan Intellectual Support Network in Agricultural Sciences (JISNAS)

Wageningen University & Research (WUR)

Date: FRIDAY 31 AUGUST 2018

10:30 to 12:00

Location: Room 5015, 5th Floor, Orion Building, Wageningen Campus

Target:

- SDG Goal Target 2.a: agricultural productive capacity
  (Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries)

- SDG Goal 9: industry, innovation, infrastructure
  (Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation)

Japan Intellectual Support Network in Agricultural Sciences (JISNAS) that consists of 49 organization members including university, research institution and JICA and Wageningen University & Research (WUR), the Netherlands signed a Memorandum of Understanding in June 2017 for the establishment of a long-term cooperation aimed at strengthening international cooperation in agricultural research and higher education. JISNAS and WUR held the Joint Seminar on integrated pest management (IPM) and the workshop on improvement of agricultural research and its application in Myanmar last February.

On this occasion, we planed to hold a joint session on the theme of "Inclusive Value Chain Development". The title of this session is "Promoting added-value production by smallholder farmers through the development of robust market-driven supply chains in an industry- community-academia collaboration". There are many trials to develop value chains in Africa, but have the majority of smallholder farmers left behind? How does value chain development make it more beneficial to smallholder farmers? In this seminar, four topics relating to the development of robust market-driven supply chains in an industry-community-academia collaboration and the promotion of added-value production by smallholder farmers will be delivered from Japan and Netherlands. Our former experiences of smallholder farmers' income generation through value chains development in Asia and Latin America as well as the recent examples of innovative agricultural extension approach in Africa will be shared to discuss how to develop inclusive value chains in developing countries and what is the role of agricultural extension service.

Program 1. Oral Session (10:30 – 11:40)

Chairpersons: Keisuke Ito, Director, Rural Development Department, JICA, Japan
Chiharu Nakashima, Professor, Mie University, Japan

10:30-10:35 Introductory remarks: Purpose of the session and JISNAS/WUR collaboration
Kazuo Ogata, President of JISNAS, Professor, Kyushu University, Japan

10:40-10:55 (1) Introduction of SHEP Approach as an innovative extension method in Africa
Jiro Aikawa, Senior advisor, JICA, Japan

10:55-11:10 (2) Empowering farmers to become partners in robust market-driven supply chains: an alternative evaluation method for assessing value chain dynamics
Jos Verstegen, Senior Researcher Entrepreneurship, WUR, The Netherlands and Kazuhisa Goto, Liaison Scientist, WUR, The Netherlands / NARO, Japan

11:10-11:25 (3) Value adding technology and its application system
Tadashi Yoshihashi, Senior researcher, JIRCAS, Japan

11:25-11:40 (4) Agricultural extension activities by Tokyo University of Agriculture; From greening of arid land to nutritional improvement in Africa
Yoichi Sakata, Professor, Tokyo University of Agriculture, Japan

Program 2. Panel discussion (11:40 – 12:00)

Moderators: Shuichi Asanuma, Board Member, IITA / Senior Adviser, JICA, Japan
Arjo Rothuis, Account Manager Asia, Wageningen International, WUR, The Netherlands

Panelists: Jos Verstegen, Senior Researcher Entrepreneurship, WUR, The Netherlands
Kazuhisa Goto, Liaison Scientist, WUR, The Netherlands / NARO, Japan
Hiroshi Ehara, Professor, Nagoya University, Japan

JICA: Japan International Cooperation Agency

JIRCAS: Japan International Research Center for Agricultural Sciences

JISNAS: Japan Intellectual Support Network in Agricultural Sciences

NARO: National Agriculture and Food Research Organization

WUR: Wageningen University & Research

1. **Introduction of SHEP Approach as an Innovative Extension Method in Africa**

Jiro Aikawa
Senior Advisor on Agriculture and Rural Development for JICA, Japan
SHEP Advisor for Department of Agriculture, Forestry and Fishery of South Africa

Better extension service for small scale farmers in developing countries is key for achieving SDGs such as poverty reduction, job creation, and access to higher education for kids, etc. Although institution/organization related to extension service have made effort to provide appropriate skill/technique, farming of small scale farmers has been still faced with challenges such as poor production skill, lack of marketing and need for capacity development.

SHEP (Smallholder Horticulture Empowerment and Promotion) Approach as one of the agriculture extension approaches gives concrete solutions for these basic issues on extension as well as realizing market oriented agriculture. SHEP Approach was developed by JICA's technical cooperation project in Kenya. The project started from 2006 for three years as a first phase could achieve to increase farmers' income from selling horticulture crops drastically. Approach composed of series of activities with essential steps. The most important activities are market survey and making crop calendar done by farmers themselves with support of extension staff. Farmers can be aware of market needs and make decision which crops they are going to grow based on the results of the survey. Through SHEP Approach, farmers have changed their mind set on farming from "grow crops and search for market (Grow and Sell)" to "know market needs first and then grow crops (Grow to Sell)".

The concept of SHEP is an Economic and Psychology Hybrid. Information exchange between farmers and market stakeholders is the first step of "Grow to Sell". This can mitigate information asymmetry and then create "win-win" situation. In order for farmers to develop their capacity, SHEP introduce a theory called "Self Determination Theory". People possess three basic needs; autonomy, competence and relatedness. Activities based on SHEP Approach as extension services are well designed to satisfy both Economic and Psychology aspects.

Government of Japan committed to expand SHEP Approach in African countries during TICAD5 in 2013 and more than 20 countries have introduced SHEP as of now.

Many positive impacts such as income generation, improvement of livelihood, re-investment for better farming, etc. can be seen in various countries. SHEP is recognized as the approach which can improve extension services by respective institution/organization.

Dr. Jiro Asakawa
Senior Advisor on Agriculture and Rural Development for JICA
SHEP Advisor for Department of Agriculture, Forestry and Fishery of South Africa

Dr. Aikawa is a Senior Advisor on Agriculture and Rural Development for JICA HQ (2010 -) and has been leading a program called "Expansion of SHEP (Smallholder Horticulture Empowerment and Promotion) Approach" which is one of the main pillar programs of Government of Japan to Africa mentioned officially in TICAD 5 (Tokyo International Conference on African Development) which held in 2013. Dr. Aikawa has been dispatched to Department of Agriculture, Forestry and Fisheries in South Africa as a SHEP Advisor. Although his office is located in SA, he has covered whole SHEP program in Africa following TICAD process,

His career has covered not only in Africa, but also in Middle East (Palestine), Asia (Afghanistan, Tajikistan, Bhutan, Myanmar) and Central America (Honduras and El Salvador).

Dr. Aikawa presented at 6th International Conference on Self-Determination Theory in 2016 on utilization of motivation theory to development program which mentioned the experience of SHEP program.

2. **Empowering Farmers to Become Partners in Robust Market-driven Supply Chains: an alternative evaluation method for assessing value chain dynamics**

Jos Verstegen
Senior Researcher Entrepreneurship, WUR, The Netherlands
Kazuhisa Goto
Guest Researcher and Liaison Scientist, WUR, The Netherlands / NARO, Japan

The evaluation research presented at the SDG conference is conducted in the context of the 2SCALE (TOwards Sustainable Clusters in Agribusiness through Learning in Entrepreneurship) program which is developed in sub-Sahara Africa and coordinated by IFDC. The goal of 2SCALE is to improve rural livelihoods and food and nutrition security in nine African countries. To this end 2SCALE forges public-private partnerships, with private partners varying from local producer organisations and SMEs to large-scale companies such as seed companies, processors, and trading companies. The approach is based on (1) formation of agribusiness clusters - local networks between smallholder farmers themselves, and with service providers - to improve competitive intelligence and bargaining power, (2) integrating the agribusiness clusters in value chains, with backward linkages to input supply chains and forward linkages to food supply chains, and (3) enabling fair business environments with better access to information and finance, in particular for the weaker actors.

NGOs, like IFDC, and firms dealing with value chain development in agribusiness clusters have to solve many issues such as such as the high transaction costs for firms sourcing from large numbers of small-scale suppliers, the cost of logistics, the firms' trust in the suppliers' capacity and commitment to the relationship, the suppliers' trust that firms will accept their produce and will pay as promised, and the availability of knowledge, capital, and inputs to the suppliers.

This complexity makes it difficult to evaluate value chain development in public-private partnerships and requests for new impact assessment approaches. In the project Wageningen Economic Research developed and tested a so-called Value Chain Laboratory (VC-Lab) for the assessment of two 2Scale initiatives: (i) sorghum value chain in Meru County, Kenya and (ii) soybean value chain in Tamale, Ghana. The VC-Lab consists of three steps: (i) Desk research and Value Chain Mapping, (ii) Value

Chain Games involving 2Scale farmers and nonparticipating farmers, and (iii) Agent Based Modelling. The study provides insights into the trust levels of farmers, their risk perception and collective action strategies, and provides scenarios for maximal impact. Data gathering and analyses took place in 2015 and 2016.

In the presentation we will briefly explain the gaming approach and reveal some of its results.

You can download the full report of the project at: https://doi.org/10.18174/420482
More information on the 2Scale program: https://www.2scale.org/

Dr. Jos Verstegen
Senior Researcher Entrepreneurship, WUR, The Netherlands

Dr. Verstegen is a senior researcher entrepreneurship and business innovation at Wageningen Economic Research and visiting professor at the Miyazaki Sangyo-keiei University in Miyazaki-City, Japan. He holds a PhD in Business Economics and has supervised multiple PhDs on topics related to entrepreneurship (open innovation, competence development, environmental awareness, opportunity identification). In 2015 and 2016 he was leading the Agricultural Value Chain Laboratory project to assess the impact of the 2Scale (Toward Sustainable Clusters in Agribusiness through Learning in Entrepreneurship) support programs in Ghana, Kenya and Ethiopia (https://ifdc.org/2scale/). Dr. Verstegen is is currently involved in research projects on innovation in agricultural supply chains, rural development, business models and governance for big data platforms, and new product development in personalized nutrition and health.

Dr. Kazuhisa Goto
Guest Researcher and Liaison Scientist, WUR, The Netherlands / NARO, Japan

Dr. Kazuhisa Goto is a Marketing Scientist, and his position as Administrator for research management of headquarter of NARO, Japan. His current research interesting is Open Innovation. So that he belongs to the Wageningen Economic Research as a visiting researcher. And he has contributing the headquarter of Wageningen University and Research as a Liaison Scientist to create future collaborative research. Dr. Kazuhisa Goto is currently involved in research projects on Medicinal Plants project to contribute the human well-being. He had an experience to research at Myanmar, Thai Land, France and Netherlands.

April 2003 – March 2018: Researcher NARO

October2017-present: Visiting researcher Wageningen Economic research
NARO Liaison Scientist Headquarter Department of Planning and Coordination (NARO)/Corporate strategy and accounts Wageningen International

3. **Transferring Asian Experiences to Africa: toward Upgrading Rice and Yam Food Value Chains**

Tadashi Yoshihashi
Senior researcher, Biological Resources & Post-harvest Division, Japan International Research Center for Agricultural Sciences (based on collaborative research works with Kasetsart University, International Institute of Tropical Agriculture (IITA) and Africa Rice)

JIRCAS has nearly 50 years activities to provide solutions to global food and environmental problems through international collaborative research. Ministry of Agriculture, Forestry and Fisheries, Government of Japan, had set "Global Food Value Chain (GFVC) policy", which aim to support activities delivering higher values and increase profits for each stakeholder from production to consumption in food value chain. In this presentation, activities on food value chain improvement under JIRCAS research project in line with GFVC policy, and CGIAR research program are presented to show the efforts to transfer Asian experiences to Africa toward upgrading food value chains.

Traditional rice processing technology, "pop-rice", roasting rough rice to puff rice kernel was used for ornament in Japan and Thailand, and sweets in Vietnam and India, and almost disappeared in the region. However, the technology requires less equipment, and rough rice with rather higher moisture content can directly use as material. Also, simple heat source can be used for the process. Since less equipment and process are required for the technology, it might be suitable for on-farm process in African countries, especially avoiding quality losses during rice milling and postharvest procedure and obtaining value-added pregelatinized rice kernel. We are collaborating with our Thai counterparts and Africa Rice to transfer technology to small scale farmers in Africa.

White guinea yam, Dioscorea rotundata, which is one of the important regional staples in West Africa, can be categorized as "orphan crop", therefore there is remaining potential in productivity and quality improvements. Utilization of local genetic diversities was required, however lacks tools to evaluate their properties hinders effective elite lines selection. Since East Asia has experience to utilize yam species

(Dioscorea spp.), we had transferred various quality evaluation methodologies as white guinea yam selection tools under recent research project led by JIRCAS and IITA.
Both cases show possible knowledge transfers by accelerating partnerships among African and Asian stakeholders.

Dr. Tadashi Yoshihashi
Senior Researcher
Japan International Research Center for Agricultural Sciences, Japan

Dr. Yoshihashi is a Senior Researcher, Biological Resources and Post-Harvest Division, Japan International Research Center for Agricultural Sciences (JIRCAS; 2013 -), and was Deputy Director, International Research Division, Agriculture, Forestry and Fisheries Research Council Secretariat, Ministry of Agriculture, Forestry and Fisheries of Japan (2010 - 2012). He has been a guest professor at Kasetsart University and Chulalongkorn University in Thailand.
Dr. Yoshihashi has dealt and currently is dealing with various issues in rice-based food value chain including potent flavor component of aromatic rice and wet-milling based rice products and have more than 20 years' experiences. He has numerous publications on rice and rice products related research. Recently, he is involving research projects relating to West Africa, for upgrading rice-based value chain under CGIAR research program, RICE and yam quality led by JIRCAS and IITA.

4. **Agricultural Extension Activities by Tokyo University of Agriculture: From Greening of Arid Land to Nutritional Improvement in Africa**

Yoichi Sakata
Professor of Department of Bioscience, Faculty of Life Sciences, Director of Center for International Programs, Tokyo University of Agriculture (Tokyo NODAI), Japan

Since its foundation in 1891, Tokyo NODAI has recognized that the issues of food production and safety should be discussed and solved on a global scale; therefore, "return man to the farm of the world" is our ultimate educational and research goal. To achieve this, we are currently conducting various types of extension activities related to SDGs (Goal 2; End hunger, achieve food security and improved nutrition and promote sustainable agriculture) in the world. In this symposium, I will introduce some of them as listed below:

1) Cacao production for smart consumer by agroforestry system from Amazon, Brazil.
2) Improvement of livelihood and health conditions of Tongan people by the effective utilization and new processed products of breadfruit.
3) Project on Promoting Sustainable Agricultural Conditions for Poverty Reduction in Kampong Cham Province, Cambodia.
4) Research Project on Advanced and Sustainable Water Utilization Associated with Greening Potential Evaluation in Djibouti, Africa.
5) Stimulating use of local food resources in Africa to improve nutrition and livelihoods: A new integrated food consumption assessment tool for better decision making in nutrition interventions.

Taken together with the experiences we obtained from these extensions, I will discuss what universities could promote to develop inclusive value chains in developing countries.

Dr. Yoichi Sakata
Professor,
Tokyo University of Agriculture, Japan

Dr. Sakata is Professor of Department of Bioscience, Faculty of Life Sciences (2015 –) and principal investigator of Plant Genetics Laboratory, Tokyo University of Agriculture.

He is an expert in plant molecular biology and evolution, especially in a plant hormone abscisic acid (ABA) signal transduction. His major research outcomes have been published in internationally authoritative journals such as Science, PNAS, and Nature Communications.

He has studied as a visiting scientist at Washington University in St. Louis, USA, under the program of the Japan Society for the Promotion of Science (2001-2003). He was Vice Director (2012-2015) and is Director (2016-) of Center for International Programs, Tokyo University of Agriculture. He is an organizer of International Student Summit.