Wrap up discussion

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Chairman Doi : I'd like to conduct this part of the session in Japanese. Next to me is the Vice Chair, Dr. Shiratori. Please welcome her. She's here to supplement what I may be missing. As for the wrap up, we've heard from many speakers and the first speaker, Ms. Tutwiler's presentation was very impressive because biodiversity was something that I thought of as being pro-environment, and thus being anti-development. That was my prejudice because I worked as an engineer on dam construction. But it seems that we need to think about how we can address a variety of issues from the consumer's standpoint. So biodiversity is very needs-oriented. And we've always had the idea, I think, that production is of primary importance. But now the focus is shifting more to nutrition and other aspects at the same time, that is not only quantity but also quality, as well as safety and also flavor are important. All of these need to be taken into account in agricultural development.

Also, Mr. Tambo talked about SDG (Sustainable Development Goals). He spoke about the background of SDGs and quality, and, once again this is my prejudice, I thought that quality is always opposed to quantity, so you have to choose one over the other. But that's not the case. Also, we must consider inclusiveness, resilience, and sustainability: I had some idea of resilience and sustainability, but I was not sure what we should be doing under the banner of inclusiveness. But then, Mr. Tambo gave us a variety of examples to make it possible for us to follow these three principles. So those keynote speeches were interesting in many respects.

Also, many different topics were covered in these three sessions and the Chair of each session presented a summary. And in this Overall Session, since each session has been already summarized by the corresponding chair, I would first like to highlight some of the important points made by our two keynote speakers.

First of all, Director General Ms. Tutwiler explained that diversity comes from diversity of approaches. Diversity in quality is one such aspect, but Ms. Tutwiler pointed out that when one has been involved in many projects, one has had many experiences. So I'd like to ask, are there further things we can learn from you or are there any challenges that you are facing right now? Could you please make some comments on that? Oshibe-san, please.

Dr. Oshibe : Regarding diversity in Africa, we have an ongoing project concerned with conservation agriculture. Conservation agriculture is a concept which already includes diversity. As Dr. Niino already pointed out, diversity is included in the concept of conservation agriculture. And also Dr. Hosen presented some cases from Vietnam, where the project was not only concerned with suppressing the methane emissions from rice pady field, but also from livestock industry. So I think this is an approach which already integrates the concept of diversity. There is another project at the planning stage, that connetcs rice production and livestock production, production by using rice processing wastes as animal feed. So using a diversity approach we would like to link multiple areas. Did I answer your question? Thank you.

Chairman Doi : Yes, thank you. Now, on to Dr. Kano.

Dr. Kano : I'm in charge of a stable food production program. JIRCAS' brochures are displayed in the corridor, and you may take them home. Many of the research topics in the program have to do with breeding and agronomy of crops. In breeding, we need to handle a lot of genetic resources and also we need to collect many different varieties. So, we have diverse materials. Why do we need to handle a diversity of materials? There are some JIRCAS researchers here in the venue, but one example of their research is to improve resistance to plant diseases. For example, consider genetic resistance to a single pathogen. It's actually not just one gene; there are many genes that provide resistance to that one pathogen. And in our research laboratory there are many such genes that are being identified. But what I think is important is how we will use these genes moving forward. So for instance, I'm not an expert in breeding to develop resistance, but "pyramiding" is a technical term that we use in this area. It means that when a combination of some different genes can be introduced in one crop, there is a kind of additional benefit. So, it's very important to think about how best we can use the variety of genetic materials we have, and I think for the next mid- to long-term plan that will start from next year, this aspect is very important. If we have time, I'd also like to hear comments from JIRCAS' project leaders as well as researchers.

Chairman Doi : Thank you very much, Dr. Kano-san. So now, Dr. Saito-san.

Dr. Saito : In Session C, we covered the diversity of usage of forest materials and also food processing from the standpoint of diversity. In Laos, diversity of rural area must be retained while the area is being developed.

And then, of course, since diversity is not something outsiders can define, diversity needs to be defined by the local people. And JIRCAS has the characteristic that forestry as well as fisheries are included in our challenges. And in forestry management, in order to conserve diversity of genetic materials and also for fisheries and farming, fisher farming, it's very important to conserve a variety of genes. And industrial input puts a lot of stress on the environment. And how can we alleviate that? Keeping that in mind, we need to develop new technologies.

Chairman Doi : Thank you very much.

It seems that these are being addressed already. Here, I would like to ask a nasty question. Mr. Tambo spoke about inclusiveness, meaning that we always need to keep in mind who are the stakeholders and all of those stakeholders need to be taken into account. And then Ms. Tutwiler spoke about business aspects of making a variety of seeds available to farmers and that IT (Information Technology) can be utilized for that purpose. So inclusiveness of method is very important at the same time. So diversity of approaches is one thing. But diversity of participation of different stakeholders is also very important. And also the quality of such approaches is very important. How can we make such approaches more inclusive? Can each one of you address this question, Dr. Oshibe-san?

Dr. Oshibe : Well, The research that we are pursuing right now is focused on small-scale farmers as the main beneficiary, as in the bio-digester presented by Dr. Hosen in Session A. In Thailand, inventory counting is something that we are working on together with the Thai government and local governments, And other activities in Africa are really centering small farmers and those activities are really not suitable for large farmers. Our activities are not of the nature to promote inequality among people. Talking about the future, water resources conservation is one thing. We are going to plan the river basin for the next. Within the same river basin we would like to eliminate inequalities and gaps across different stakeholders and players. We are including in our projects the concept of inclusiveness, which reduces inequality in that sense.

Chairman Doi : Well, I'm sure that you will have a lot of questions from the floor, so after this part of the session, I will open the floor for questions. So please bear with us. I would like to continue asking questions of the project leaders. So Dr. Kano-san, please.

Dr. Kano : Well, I think I did not fully explain what I wanted to say. We have materials already in hand. But as I said, those materials which are already available should be combined in the best manner so that we improve resistance to diseases in crop varieties. So this is the proposal I am hoping to see in the next round of the mid- to long-term plan from JIRCAS' researchers. So this is not something that's being done already. This is just a clarification.

So, to answer your question, I have very good example of that. And I'd like to invite the researcher in charge of this to make additional comments later. JIRCAS is a research institution, which means that for JIRCAS researchers, it's very important to write scientific papers. Usually writing a paper marks the end of that particular research theme and the researcher usually moves on to the next topic. However, one researcher worked on rice in Africa, for which we created an experimental field to generate data. And this data was put together to write the paper. So that's already wonderful, but as the next step, the researcher started to conduct experiments together with the farmers. And of course, there is much background to that, so I'd like to invite the researcher to explain that background later on. Will that be possible?

Chairman Doi : Yes. So, Dr. Saito, please.

Dr. Saito : Regarding our research output, it is important that we clarify who we are targeting to share these research results in the coming five year mid- to long-term planning. And we have discussed this quite intensively. For instance, in Session C, we introduced the use of NTFP (Non-Timber Forest Products) in Laos. These efforts also involved rice paddy rice and other varieties of rice. We had proposals with our counterpart research organizations for farmers, and we created demonstration fields. Our efforts also included having the local farmers observe what we are actually doing. Since we think it's necessary to explain what we Japanese researchers are doing in our daily activities, we invite village people to the home of the mayor of the village to explain our work. And this was appreciated by the village people. And sometimes we ate too much at the dinner party in these meetings, but these meetings are appreciated. There is also a forestry project. For example, the genetic variety of seeds must be maintained while the forest plantation or the forest building should be explored as a new opportunity. And this could be done at the local government level or the

provincial government level where we need a very effective sharing of information. So who should be your counterparts and how should you share information according to the theme of the research in future projects? This is the area where we have to discuss in depth the best way of sharing information depending on the project.

Chairman Doi : Thank you for the responses from the three Chairman from the sessions. But what do you mean by high-quality research? And what kind of approach you are bringing to high-quality projects? Do you think this has been discussed? And maybe some of you would like to say something about your own project, saying that your project is better than the JIRCAS projects. So if you'd like to share some of your projects, please raise your hand and give your name and affiliation before you introduce your own projects or your own strengths.

Matsubara : May I? I'm Matsubara from the International Institute for the Forestry Activities. Now Mr. Oshino mentioned climate change. But how do we acquire high-quality data? First of all, in AWD, we attempt to reduce emissions from rice paddies. But this would be meaningless without expanding the area where this mechanism applied. Your project would not be recognized by the international community. So you start with farmers capable of using the approach and collect data. But then you either train an enormous number of farmers or have increased uncertainty in the data.

So carbon credits could be one way to use this data. COP21 is planned for December which will discuss about the country-to-country reduction target of this year's emission. So as evidence, can the results of the projects at the time of the discussion at COP21 be used? The CO2 reduction area expansion of the mechanism to reduce the CO2 reduction is a really important issue and University of Hokkaido now has a project in the Central Kalimantan in Indonesia and JICA is involved in this project, which should have good results in terms of data availability. And it's a wetland area of the of course, and how you collect the data from that particular area is important. Now, in Hokkaido, we have a small company involved in the measurement. And they have used a mobile phones transmission system which is connected to the Internet through the cloud and then anybody who has the password can have access to the cloud to access the data. Data will be collected once every 10 minutes and it will be in real time. It is power consuming, so it could be connected to the Internet maybe just for one hour per day and it would last 2 or 3 years. Then you just need a small AAA battery.

I had the people who made it show it to me, and I was amazed. That was in Sapporo, where the Kalimantan real-time water level and soil information could be seen on a screen, e.g. how many millimeters the soil is moving multiplied by the area, which is now shown to the people with an accuracy of 0.1 millimeter level. And using this system means that... SATREPS is the name of the system which has produced more than 50 articles and theses for the international scientific jouranls. So I think this system, SATREP, is very cheap to operate. And we wanted to sell this to the Ministry of Land, Infrastructure, Transport and Tourism, but the ministry people didn't trust us because it is too cheap for them to believe.

And now, this SATREP system is very cheap and easily maintained. In Indonesia, it can be maintained with materials that are available in Indonesia. And so we used this system for Indonesia. Maybe the cost for the system, for data acquisition is 3000 yen per month. And then, many researchers are able to have access to the collected data. Data analysis has been done by those researchers according to their own expertise and they have written articles based on this data, so this is one kind of expansion of carbon reduction projects. So I think this is a kind of tool that can reduce costs and support CO2 reduction activities. Now you have to think about the possibility of theft. So an infrared sensor is attached to this system and anybody touches it, it will be detected by the sensor which will be detected by the Internet to be able to see the face of the person stealing the device. So this is what we are already doing, mobile phones, GPS, and the Internet are all combined as a system. I hope that you can look for similar systems that combine these, and if you find a good combination for another system, you can use it for data acquisition and data analysis, which will then produce good articles in the future.

Chairman Doi : Thank you for your very practical comments. Now, you said that it has already produced over 50 articles which is very good news.

Dr. Oshibe : Thank you for your comments. As you said, the sensor itself is already very cheap. For instance, SIP is the project which I was involved in The Industrial Research Institute is doing the device development making it cheaper and smaller. And it's cheap and small in size already. Networks those process the data form the sensors already exist in some of developing nations. At the next mid-term and long-term planning,

we'd like to utilize the ITC technologies and the knowhow from the private sector, So thank you for your comments. Thank you very much. Any other comments?

Chairman Doi : Dr. Kano mentioned that he would like his colleague to speak. He knows... He said that this gentleman knows how the theory or the research results was translated into the practice at the farmers.

Kano : So Dr. Tsujimoto will describe that project with farmers.

Tsujimoto : We talked about the importance of 'Inclusiveness'. In this context, my research approach can be categorized as 'Inclusiveness' as an experimental methodology. We have not delivered any achievements to the stakeholders yet, but we will in the future. When looking at agricultural systems or field conditions in Africa, they are highly diversified from one farmer to another, compared to relatively homogenous rice cultivation systems in Asia. In other words, it is very difficult for researchers to define one representative field condition in testing the effect of any of target technologies. In this case, the 'Inclusive' experiments can be one solution in which a number of local farmers participate and test the target technologies in their own field management and conditions. With this approach, we can cover the diversity of regional field conditions and roughly identify the average effect or interactions with the individual fields when adopting these technologies. So I think inclusiveness is also important for research on the mosaic type of agricultural system common in Africa.

Chairman Doi : Thank you Dr. Tsujimoto, I think you showed and shared a good example. So, the research output is not the end of the story. We have to translate it into practice and transfer the knowledge from theory to practice. What other challenges should be questioned, I wonder.

Now, then, I'd like to invite the comments and the questions from the audience, regarding the value chain,

Muranaka: I am Muranaka from JIRCAS. This is not a comment, but I'd like to confess to a recent failure. Now, we talked about biodiversity and resilience. So being diverse may increase resilience, which is really easy to understand. However, when it comes to simple diversity, as I said in my presentation, genetic diversity in a single crop and the diversity of the crops used, or we can say biodiversity, should be separated from each other. And then we also have the diversity in terms of the system. Looking at the different diversities mentioned, how we can use the different types of diversity with the different pathways to improve the resilience of the system? So, without the deep understanding of these differences of characteristics of diversities, it will be very difficult to make use of them.

Today I talked about the cowpea, important crop in the region. Though I think this is the really unique crop with wide genetic diversity, if you compare this with the millet, maybe the farmers will prefer to have produced the millet, which is major staple food.

This is a very important point. The diversity in the crops used has to be taken into consideration when you try to think how to put the genetic materials in the system into your theory. And also, genetic diversity and diversity of the cropping system have to be clearly defined for further use, though I have not achieved that yet.

Recently, I have been thinking about these different types of diversities, and today as I was listening to the Bioversity Director General's presentation, I came to this dilemma of not having a really clear definition for the different types of the diversities, including the biodiversity.

Chairman Doi : Thank you very much., Dr. Muranaka. Please. Saito-san.

Saito : Somebody raised the question of value chains and we are explaining many things by using this term. The value chain concept given by the Ministry of Agriculture and given by other organizations in the world—they are different from one another. And when we talk about value chains we don't really know what we are meaning to say and we are trying to pinpoint what we should mean by that. In the future work of ours, so maybe somebody will be able to explain to us what their thoughts are on this issue.

Chairman Doi : Uchida-san.

Uchida : My name is Uchida. I'm from JIRCAS. I work in the social science field. In the next mid-term plan

we will be talking about or studying food value chains. That's what we are thinking about right now. And today, we had many presentations, many comments and we found that food value chains are being adopted in Africa and also in Thailand, too, through food projects. People are trying to build food value chains. So how are we going to study food value chains in that context?

First of all, we need to have a consensus on the definition of the term. We don't have it yet. And just recently just a few weeks ago, there was a meeting of a scientific society and one private person made a presentation, who was receiving public financial assistance. What's the objective of the food value chains? It was to increase the economic value added. Yes, maximize the economic value is very important, but is it something we at JIRCAS are thinking about? I think there is a question or it's questionable if that's okay. But when you say value chain, food value chain, it has to be a value chain from the planting of seeds and cropping, harvesting to selling on the markets. And at each part of each component of the chains, the value added will create new values.

And in thinking like this, when we try to evaluate the food value chain, what kind of measures are we going to use? One important part of it is that each component of the chain will have a return on investment, so to speak, for the producers and processors and consumers alike. And also by doing so, we need to be able to minimize environmental stress. So we need to create a sustainable food value change in some way. So how... what are we going to evaluate? What kind of measures are we going to use to evaluate the food value chain we are thinking about? That's the theme of the research in the next term.

And also, we need to use what we have accumulated as our resources the best way we can, as the person from Thailand said earlier. We will, of course, look at the food value chain from the producers to processors, and then the distributors and to the consumers. Again, members of the JIRCAS need to undertake further research to contribute to this end. So by doing so, we should be able to promote food value chain research by collecting all the resources and capabilities we have within JIRCAS. I hope you will continue to give us your support to this end as well. Thank you.

Chairman Doi : It's almost time for us to wrap the session up. And the Chairperson must summarize in two minutes. So let me just try to do so. Today we talked about quality research and we had keynote speakers and session presenters and, for instance, talked about local variety advantage and Dr. Niino talked about noninvasive agriculture—if that would be effective. Then Dr. Hosen talked about reduction of GHG and improvements in production as well as cost reduction. Dr. Nakamura, Dr. Rose, Dr. Muranaka, and Dr. Patcharee, talked about different matters. However, it seems to me that they all talked about quality research. As Ms. Tutwiler said, at the end, we have to know who is going to be the final beneficiary. I think when we have a scientific, a really proper scientific, research question we'll be able to find a good solution for the end users. And as Dr. Niino said, there's no absolute answer to any question. We have to keep this in mind in doing our research. So we must keep in mind that the quality of research should be multifaceted and diverse and we all need to keep the end users of our research results in mind. I think everybody has been doing so, each researcher and research institution. And we need to be inclusive in our approaches. We need to reduce the redundancies. This is something that has been said by Tambo-san. So all the researchers who are here with us, I put this all together as: I think everybody needs to start work with the importance of high quality in mind. I would like to conclude my remarks by thanking all the speakers and also the participants. Thank you.

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