Panel Discussion

(Transcript from simultaneous interpretation)

Masami Yasunaka: Good afternoon, ladies and gentlemen. I would like to start panel discussion session and we'd like to proceed this session using Japanese, because all panel members consist of Japanese. We expect a smooth discussion and please use headset for foreign participants and Japanese participants not good at Japanese also are recommended to use headset.

Regarding the contents of the panel discussion, I would like to go over because we are internationally putting significance on countermeasures against various global issues such as anxiety about world food supply or becoming evident of impact of global warming and so we need to collaborate with each other and then the Ministry of Agriculture, Forestry and Fisheries has established a 3 year program for the international cooperation and this year is the midterm year of the program, so having rice as a theme, we have been implementing this initiative and it is stated here.

For the stable supply of the rice, we are trying to determine the direction for this initiative and we have conducted a questionnaire survey and the questionnaires were sent to the 360 researchers and engineers and in total 126 people have replied.

This is the overall structure. Here is the objective. 'Collect the technical information and determine the direction of the agricultural field internationally' and with that purpose we did this questionnaire and based on that we are holding a workshop here in the form of this panel discussion.
Based on the discussion through panel discussion, we share and dispatch information, and we made a webpage. The webpage is called iris-aff. The service has already started. You'll be able to see both in English and Japanese and we are going to launch the result of the workshop in this website and we will use this as a platform for international research.

Today, we tabulate the result of the questionnaires and we are going to talk about the three sessions, which have already been presented and we'll talk about the necessity of the international cooperation and then we'll talk about the requirements for researchers and the engineers. After the discussion, we would like to summarize the contents of the discussion. I would like to ask for your cooperation. That's all.
This is agenda item number two. Regarding the tabulation of the questionnaire, Dr. Yamaoka will make a report.

Kazumi Yamaoka : Thank you, Dr. Yasunaka. I will talk about the result of the questionnaire which we conducted with 360 rice related researchers. I have in total 30 slides but I would like to explain that in 15 minutes. First of all, I will show you the profile of the respondent. We have many males and most of the respondents are involved in research activities. Regarding the age group, it extends from 30s to up to 60s and also 70s. We have a good generation balance and we also asked about the institution or organization that they belong to. Quite a lot of them belong to the national research institute and university and there are a few from the public organization or institution in the local area. As for the age group, the answers from the university-related people, their age marks higher and the age from the National Research Institute, their age is younger than the university people.

The actual questionnaire which we distributed is shown on the screen. There are four major categories and the first category is regarding the demand and the stable supply of rice in Asia and Africa. The second, we asked about disease for rice which intrudes from outside beyond borders. We asked their ideas on this and then the third category is there are many research areas in terms of rice. The function of the gene, the variety improvement, the cultural systems, the fertilizer, the insects, those are included and also the post harvesting, and we asked how they tackle with this international research.The last question we asked was how to solve the global issues and then how the international corporations are involved in this and this is one of the theme from yesterday regarding GRiSP, we asked the awareness of the GRiSP.

This is the result of the questionnaire, first of all, for the connection of the international research workforces towards solving global issues and an acknowledgement of the GRiSP and the CGIAR. The question is whether you think or not that it is necessary for not only research institutes currently involved in international research but also researchers who have seldom been engaged in international research in the areas concerned work in closer cooperation taking their efforts together to solve the global issues. The blue indicates who firmly think so and the red in some degree think so and this occupies 93% of the answer but the blue area is wider in university. The university professors have higher awareness.

Next, the question is whether you think or not that there would be a high possibility to contribute to solving global issues if we have a progress in the international connection cited in the previous question. The university professors strongly think so.

Next, the CGIAR and the program GRiSP, we asked about the awareness of this program. The 60s has the highest awareness. The purple area indicates the higher awareness and also 50s has a higher awareness but in overall the researchers in the 60s has higher awareness but the people in their 30s and 40s, their awareness is relatively lower.

Next, we checked about the necessity of the international cooperation and then divided by the research category or field. We tried to find out which category or field respondents belong to. Regardless of the field, regarding the necessity of the international cooperation, most people think that it's necessary but particularly for the variety improvement it's a little less.

The next analysis, international cooperation contributes to the problem solving globally, a lot of people answered yes. The awareness of the CGIAR and the GRiSP, the purple indicates the GRiSP awareness and the blue indicates that they don't even know CGIAR. The experts of the agricultural economies, they have a higher awareness of the GRiSP. But as for others, answers are mostly the same.

Next, this is for the stable supply of rice in Asia and Africa and how they tackle with the research in this field. This was the question and this is a very particular field and 36% of the people are involved in this research. "Whether they have read a literature in this field or they have heard any lectures from the expert" indicates 25% and 23% and on the right hand side chart, "how much of these problems will have an impact on the social economy in Africa and Asia" and the blue indicates the great impacts. Those occupy 28% and we have to pay attention to the impact and the countermeasure, 52% answers yes for that.

Next, "where this international research is being held, is it in Japan or overseas or at university or at international institutions" and this is the answer to that question. The purple indicates that the larger parts for 67% think, at overseas university and institutions, the problems and the issues are handled and following that is the national university and the research institution in Japan. The graph on the right hand side, "How much degree of the level of research on the issue in Japan do you think is in the world" and 17% answered top level and relatively higher 46%, in total 63%, so quite a many people think that the level is quite high.

Next. "Do you think that the research on the issue in Japan is related to the trends of the research conducted abroad?" That was the question and on the right hand side of the graph, "do you think that the research on the issue in Japan has a sufficient progress in the international connection with research institutes abroad?" The distributions are mostly the same. A lot of people answered "in some degree think so." The blue part and the yellowish part, if you compare these areas, many people have less active answers compared to very positive answers. The cooperation has been progressing and then they have some impact to the international cooperation.

Then, "what will be the bottleneck to proceed this international cooperation" is that because of the language or less budget and left hand side of the chart indicates that there are many answers indicating the bottlenecks and on the right hand side of the graph, "whether we should strengthen the international cooperation in the research arena" and more than half of the people answered "firmly think so."
Whether we should proceed the international cooperation or not in the future? This is the age distribution. The 50s and 60s, particularly people in their 60s, indicate strongly recommend this and as for others by which institution they belong to, university professors strongly think that they need to proceed this international cooperation.

Next, concerning international cooperation, whether you are taking part of the scheme or not. The percentage for yes is much in 60s. Unfortunately in 40s, the researchers are not or have not participated in those schemes yet. By institutions, the professors of universities are participating in the schemes very highly.
In the same research area, in the future do you have any intent to tackle with the international research on the issues? Relatively, thinking of the age distribution, the blue part says that they really think so in 60s and 30s and 40s and 50s partially negative or passive.

Next, changing to cross boundary insects' invasion research area, we gave the similar questions. The professionals who are making such research are only 3%. "In the past, have you ever read about these articles or listened to presentations from the professionals?" They reached to 21% and 31%. As for the 60% people are investigated.

In this area, the necessity of taking measures is strong or not. If you leave this problem alone, do you think them potential threat or not? Those who answered they are strong and they need urgent measures are the majorities.
What kind of institutions this kind of research has been going on? They think that those researches are done by national institutions, one-third of the total respondents. The research on the trans boundary insect level, the people who think that the top level is 32% and relatively high if those people are included, people who really think so is very many. Then earlier, the first category question, the blue and the yellow, were compared and yellow was bigger but blue and yellow are almost even.

The awareness that the international cooperation are going on or not, those who said it's not, the preceding was the majority relatively and whether such collaboration should be promoted or not in the future, who firmly think so was 42%. It's a bit lower than the previous research.

Then the international collaboration, what's the bottleneck? Those who answered there was no specific problem was 24%, one-quarter, and then 60s in that category was the majority. In the future, do you have the intent to tackle the international cooperation? The purple part, 35% is outstanding and people in 60s are totally split in views; for the people in 40s, passive or negative.

The third pillar, other rice research areas are existing and there are four major research areas to make questions and the core of the research should be done domestically, that's the major respondent and then the level of research. In the genetic engineering, the people think that the Japanese level is the top in the world and it takes majority.
Bottom graph, the relation with other international research organization, the yellow part is bigger than blue one, especially in the variety improvement and the relationship is not so well built was the views from the majority.

In each area, the collaboration is proceeding and we see the similar trend. Yellow is bigger than blue one, and the bottom chart, in order to promote the international research and collaboration what's the bottleneck. In the cultivation system, which covers broad areas and there is the language problem and they have difficulty in finding a way for obtaining information on overseas research trend. So those are the majority.

For international cooperation "do you think that we should make further progress of the research area in the international connection with research institutes abroad?" and people who said they strongly think so are in gene engineering and the cultivation system.
One below about the experience of the participation in international cooperation activities, for cultivation system, those with the experience were many.

To tackle with international collaboration, the intent to collaborate internationally, the top graph, blue takes the higher percentage and the last question is for the international collaboration and research. This concerns whether you have read the articles or having professional presentations in other areas and those who said no was none. Among the various areas, people are having presentations or read the articles. The cultivation and cross-disciplinary exchange is somewhat going on.
With that, I would like to conclude the overview of the responses of the questionnaire. Thank you very much.

Kazumi Yamaoka: Now, we would like to start the panel discussion and the Chairperson Dr. Yasunaka explained how to proceed the session and the result of the questionnaire was covered just now. Before that, let us introduce the panelists.

From your right from Nagoya University, Professor Syuichi Asanuma; Professor Hirohiko Hirochika; Dr. Masa Iwanaga from JIRCAS; Mr. Hiroyuki Kubota from JICA; Mr. Akihiko Uchikawa from MAFF; Dr. Kazuyuki Yagi from NIAES; and then from NARO, Dr. Tadakatsu Yoneyama. Thank you very much.
Well, on behalf of Dr. Yasunaka, myself Yamaoka, would like to proceed the session. Concerning the result of the questionnaires and session one through session three since yesterday, we'd like to invite some comments from the panelists on those sessions.

From session one, I would like to invite some comments and what about Professor Hirochika because of your expertise in the similar area..

Hirohiko Hirochika: The result of the questionnaire was just introduced and my expertise is in the gene analysis and gene engineering. From that standpoint, I would like to explain my view. I think that the international cooperation in research is not yet promoted well and the relationship with other international institutions is not well acknowledged or recognized. However, in the future international cooperation, their contribution on the global basis is desired to be promoted, especially among the researchers in gene research.
Why international collaboration is not yet moving well? One reason is that we need to solve the various issues, which we see on the domestic rice.

Of course, we have some limitation in the budget and each institution has its own mission. Rice genome research was done in my institution and then genetic research has been conducted and we do have a good infrastructure for such research in Japan. Therefore, people do not see the need to have the international cooperation. I think that's one of the aspects behind and the research can be done standalone domestically, therefore, the international cooperation was not promoted well.
However, towards the future, in genetic research Japan is showing a good result and good outcome and the Japanese researchers would be responsible to make a global contribution.

Well, that's how I interpret the situation and the results of the questionnaires. According to the responses to the questionnaires, it seems that many people are interested in doing international research collaboration. But I think it's not a long-term issue. It's a very urgent question. As Yano-san said, traditionally we have been researching in the issue areas which are quite unique to Japan. However, international research work has produced very good results that helped Japan cope with our own problems. For example, as Dr. Kumashiro said the blast disease where genetic analysis has been implemented in like pi21 and other important genes have been already successfully analyzed.

The DNA marker information on these genes will be very useful in improving varieties for Asian and African conditions and AfricaRice, I understand, is already working on improving rice plants for African conditions. Drought-tolerant gene has been under analysis at NIAS, as Yano reported yesterday. This requires collaboration with IRRI and CIAT because NIAS alone cannot implement these experiments and it is fortunate that JICA and GRiSP have programs that are available to the researchers at our institute to do experiments on this topic.

We want to expand international research collaboration. Having said that, international collaboration in genetic research on rice breeding is very difficult. We have to invest considerable energy in order to be engaged in international collaboration.

AfricaRice and CIAT are already participating in international research work and that has been possible because we've established personal network among researchers. Therefore to further expand the international network among researchers I think there is a need to have some useful mechanism in place. In other words, research coordination function, I think, is very necessary and I expect JIRCAS to play the role of the coordinator to facilitate collaboration among researchers on the international scale.

Kazumi Yamaoka: Thank you very much, Professor Hirochika. That is the first recommendation to JIRCAS. This morning, we had a session focusing on Africa. Dr. Kubota, would you like to make a comment on this aspect.

Hiroyuki Kubota: The first point is about the expectation we, development organizations, have for research organizations. We need good tools. Not only just myself but also many experts and people working in the field expect that good tools will be made available. GRiSP is a big framework and we have high expectation.
However, I have one concern that human resources engaging in agricultural development in overseas are aging. What was pointed out yesterday and also evident from the responses to these questionnaires, young and mid-aged researchers seem to be a little bit inward looking.

There would be many ways of interpreting these results and it is clear that we Japanese should first of all spend our energy to improve the situation of our own land. But if we look forward to coming 20 to 30 years to come, we have to worry about the global supply of food. This question comes back to us about the role of the researchers who are young right now. I hope they will change their mindset in the near future and it is necessary to expand your scope of vision.

When we work in Africa, for example, we find our counterparts in agricultural research are also ageing.
There are many skillful researchers but I wonder how many more years we can work with them. Unfortunately, practical training is very costly, and education system have been in trouble for years, that's why we have a shortage of trained young new intake in these countries. In many cases, one of components of our projects in these countries is to develop human resources particularly focusing on younger generations but it is not enough. It's not a problem for agricultural research systems. We work with consultants. We engage a lot of experts. They are all aging. I think this is a very serious problem.

In Japan, there are many agricultural research centers and young researchers are attracted to these institutions. I hope that those young researches at the Japanese research institutes will look to the outside of Japan. It's not just a problem in Africa. This research area, agricultural science, is relevant to every part of the world.

Secondly, communication is important. Research community and the development organizations should communicate very closely. The research activities should produce results that are going to directly impact the field. Our responsibility is to provide correct information to research systems so that researchers know exactly what is required in the field. With that way I am sure that researchers will be able to design their programs that would satisfy the requirements of the developing nations. Thank you very much.

Kazumi Yamaoka: Thank you very much, Kubota-san. Development of young researchers is important and that should be done in many places and at many institutions.
Dr. Yoneyama, in the third session today, we were talking about environment-friendly rice farming in the context of Asia. Would you like to make some comments?

Tadakatsu Yoneyama: Thank you very much. Well, I am sorry I was not able to participate in the morning session because I had other business to attend. I arrived here in the afternoon. When I came here, speaker from China was speaking about high-yield varieties and Dr. Ladha, I haven't seen him for the last 30 years and, yeah, it was 37 years ago that I first visited IRRI.

Those days, today's administration building used to be a house of Drs. T.T. Chang, G.S. Khush and other researchers. That used to be the place where those researchers were working 37 years ago. In July this year, I had the opportunity to revisit IRRI. After 37 years, it was my personal trip to IRRI. I was very impressed because it grew so much bigger with so many new offices.

Coming back to the theme of today's symposium, the discussions have been centered around rice breeding in Japan, in Asia, and in Africa. In 1974, the Green Revolution was launched, people were all excited and scientists got very excited about that new concept. When I went back to IRRI after 37 years it's true that IRRI has a lot more budget, money, and a lot more office space. But I wondered whether these scientists really excited about what they are doing.

To establish interesting collaboration, I think it is important to select topics that excite researchers, particularly young researchers. Well, senior researchers have longer experiences. They know which problems or questions are still open. They can tell their young colleagues and junior researchers that there were such and such questions. Nitrate hypothesis, as was discussed by Dr. Toriyama, has been a longstanding question.

I am also interested in soil fertility in tropical areas. In tropical areas like Asia and Africa is the soil fertile enough to farm rice? Nutrient sources determine plant productivity and we have to look broader at the ecology as a whole. We may need a paradigm shift. I was thinking about these things based on my long experience.
In the afternoon, we had a very wonderful discussion and then how we can convey the interest level to the younger researchers, which is very crucial.

Kazumi Yamaoka : Dr. Yoneyama, thank you very much. In the second session from the floor, there was an opinion that we have to think about the physiological aspect of rice. However, we have to also deeply think about the whole ecological system in Asia which supports rice. There was such opinion and as Dr. Yoneyama mentioned, the rice is supporting the ecosystem and that is a new paradigm. That was the comment from Dr. Toriyama.

Now, I would like to move on to the necessity of the international cooperation and then what will be the challenges to develop international cooperation and I would like to deepen the discussion on this. So far, we had many opinions and based on the discussion so far each researcher is to accelerate the international cooperation in their own field but the administrative side needs to support this. Mr. Uchikawa, from the administrative point of view, what would you be the necessity and the challenge for this international cooperation?

Akihiko Uchikawa : Thank you very much. I would like to make a few comments on this issue.
First of all, I'd like to talk about the trend in international fora. In September, at Montpellier, G20 conference on agricultural research for development was held. All the stakeholders in G20 were gathered for the first time. I and Dr. Iwanaga participated in this conference. I would like to report three issues which were mentioned during the conference.

The first is big attention paid to the agricultural research for development as the countermeasure of food crisis. The second is, in order to cope with poverty, agricultural research which could achieve sustainable agriculture and environment in higher levels required. Third, the coordination mechanism such as CGIAR Program is considered to be very useful. These issues were mentioned in French Chair's summary too.

The G20 Agricultural Ministers Meeting was held in Paris and the final communiqué mentioned the GRiSP and CARD. Through GRiSP and CARD, rice productivity needs to be accelerated and the research on rice is emphasized. International agricultural research received attention more than ever in G20 Agricultural Ministers Meeting.

The second point is the result of the questionnaire. The result was very interesting. I appreciate this hard work. From the result, the share of those who think the international cooperation necessary is more than 90%. However, 22% of the people do not know about CGIAR and those who know CGIAR but not GRiSP are 30%, and 78% of the people do not know about GRiSP or CGIAR. In summary, nearly 80% of the people do not know either the organization or the program. They do not even know about CGIAR. That was a very impressive result.

The respondents to this questionnaire are top ranking researchers or university professors. If those people are answering like this, then I just wonder what would be recognition of the GRiSP and the CGIAR among students who now studies agriculture. We have to react on this issue. I think the PR activity is very important, and it should be done by not only administrative side, but also research side.

Therefore, I would like to recommend CGIAR and related institutes to promote the PR activity. To researcher in national research institute or the university professors and the Japanese who were ever involved in CGIAR, I would like to ask for all of your cooperation in order to enhance the recognition of the CGIAR. We have to make an effort immediately.

Dr. Yasunaka mentioned IRIS-AFF. This website targets to promote networking of international agricultural research network and we have started this platform. Some flyers placed outside showed the details of this platform. We can exchange information, form the network, and accelerate all of these activities through this platform. I hope you to have an opportunity to access this website.

As the last point, by looking at the questionnaire, one of the bottle neck of the international cooperation is the difficulty to find right overseas partners with which conduct international collaboration. In my understanding, this might be a cause of the current research activity with the overseas tend to be weak. In order to make breakthrough with this situation, I think the GRiSP is a good framework. Such programs may provide some of benefit for the international collaboration.

Then, how we can participate to such program as GRiSP should be the next question. As you know, in CGIAR, there are various research programs other than GRiSP but we do not have enough information on how to participate. At JIRCAS, recently they had an opportunity to share information of the GRiSP. They established GRiSP coordination meeting. I think this is very encouraging.

Kazumi Yamaoka: Thank you very much, Mr. Uchikawa. As Mr. Uchikawa mentioned "iris-aff", this is our operating website. If you enter the site, you'll be able to see the website and it introduces the activities of the younger researchers. Hope you'll have an opportunity to check that website. Particularly for the younger researchers or the students, Professor Asanuma, you mentioned that probably awareness of the GRiSP is very low but we can connect the university network and I think you are involved in this. Would you please make a comment?

Shuichi Asanuma : For those who are in his/her 50s and 60s, they have to be involved in the international cooperation but I realize that younger people are not so much keen on this initiative and as Dr. Yoneyama mentioned how we can provide a dream to younger people is an important issue.

We have to let students experience that while they are at university. This is very important. At Nagoya University, we are doing overseas training. We go to Cambodia, we take students there with their own expenses and after they come back from Cambodia, their attitude has changed quite a lot and we have been doing this program for the last 3 years and I know that other universities are also running this kind of program. A few years ago at this JIRCAS International Symposium, we discussed about the internationalization of the university to strengthen the international research.

The internationalization of the university is very behind. The professors at Japanese university don't know what is going on in overseas. They tend to do more of their experiment, own research domestically or in Japan, and that is something to think about by the administrative side. In November 2009, we formed a network, JISNAS (Japan Intellectual Support Network in Agricultural Sciences), among agricultural universities in Japan and this is the inter-cooperation among such universities to promote them to participate in the international cooperation. If multiple universities form cooperation or connection, then they will be able to do something different from what a single university can do. We may be able to cope with some other problems by working together.

We, JISNAS, are supported by JIRCAS, JICA, MAFF, and the Ministry of Education and we have been involved in this program for last 3 years and the major topics are how we can nurture younger researchers or students. According to the National Rice Development Strategy in CARD countries, there are a certain number of personnel involved in rice promotion in each countries. But we may need to think about how we can train them, how we can nurture them.

There is no training program for the researchers. Dr. Kubota mentioned that NRDS is reviewed each time, but as a person working at university, I understand that universities should take an initiative for nurturing researchers. Japanese universities have to make an involvement not only in CARD but also in agricultural research targeting at developing countries.

JISNAS has made up a strategy or initiative to implement that. Japan Africa Agricultural Cooperation Foothold Consortium if I name it, and together with JICA, we have started to exchange opinions and ideas. If I talk only on CARD, somewhere in Africa we want to establish a foothold or a base. It's not necessary to be a big university or facility, just a foothold for the research facility and send young Japanese students there and the young African students also gather there and send the Japanese teachers or professors as trainers and then they will study agriculture and conduct the experiment for research.

There are many foreign students who come to Japan for study. But after they finish studying, not all of them go back to their home countries. Instead they may stay in Japan or may go other places to work., However, if they do study in their home countries, then I think we can return the benefit of their study to their countries. With that idea, we are trying to establish a foothold and we will keep working on this initiative.

Kazumi Yamaoka : Dr. Asanuma, thank you very much. To give the impact to the younger students and to *let them see what's going on in overseas, that is necessary. I think that was the point of the talk and by looking at the* answer of the questionnaires, the younger people, younger students and the respondents were people from the national institutes and then from that point of view Dr. Yagi and NIAES are also working on the research. Then what do you think about how much impact we can offer to the younger researchers?

Kazuyuki Yagi : I don't know whether we are doing activity in the international arena like JIRCAS. But by listening to all of your comments I would like to mention a few comments on our activities. The first thing is younger people, middle age, and over 60, those people were mentioned regarding the answers of the questionnaires. I thought I should pay attention to this. Particularly those over 60s think the necessity of the international cooperation. A lot of them show a strong will compared to the 40s and 50s.

In session three in the afternoon we talked about the high yield, the climate change, using nitrogen and the environment of rice production from China and South Asia. And remaining two problems, from Dr. Dobermann, there was a comment from IRRI, the possibility of the partnership with IRRI. So all of those issues other than the climate change has a long history and has been researched by many researchers from long time ago.
The researchers, over 60, when they are doing research in Asia there was no problem but after that they may encounter some problems. Younger people are getting too affluent, becoming inward looking. That could be one reason but on the top of that there would be a system making younger people inward looking.

There is one good news. The question number 13 that people with the high-motivational intent and people in 30s have the strong intent to do so. It's good to hear. The motivation of 30s should be well utilized in some kind of system. We need to review the current system to come up with a better system.

In NIAES, we are making fundamental researches. The international cooperation in Asian field, we do not have many issues and challenges unlike JIRCAS. There are some we are tackling with. They are the issues on the global basis not only in Asia but also in some nations in Asia, to make the global network with the governments. Some of those have been already established. We have the IPCC.

This is a good success example of the Intergovernmental Climate Change Panel. I don't know if this success is imitated but "international" or "global" or "intergovernmental" or "partnership", but the institutions with these initials like I, P or G are so many. The biodiversity is IPBES is there and for nutrition management and control, International Panel on the Nutrient Management exists and FAO is leading global soil partnership which is now being established. Also, GHS research alliance is another example.

We would like to provide on-the-job training in those areas to young researchers. Then, international cooperation or joint research can be realized. Of course, it cannot be done by a single institution and together with JIRCAS who are making activities and researches in the field we should make a new system. Thank you very much.

Kazumi Yamaoka : In order to come up with the new system like that, the JIRCAS needs to have the responsibility. I'd like to invite Dr. Iwanaga. Would you like to make any comment?

Masa Iwanaga : Thank you. Well, I am one of the panelists here, while I am President of JIRCAS, the organizer of this symposium. Rather than giving my own views, I prefer to have the opinions from the others as suggestions for JIRCAS. We have had already some useful suggestions from various panelists, including Dr. Hirochika, and all those views are very appropriate. I've been joining this symposium since yesterday and this symposium has addressed how the Japanese research institutions and counterparts in overseas should be linked. That was the very reason why this kind of symposium was held.

However, by listening to the presentations, what has to be linked is that not only between Japan and overseas institutions, but also the researchers themselves, since the individual researcher is bound by their own theme.

Even though the researchers are working in the same institutions, the researcher A does not know about what researcher B is doing. The researchers are not interested in what the other researchers are researching. So there is no wonder why the young researchers or the students do not have the outward looking. I think there is some common cause behind.

In the last 30 years, the researchers were bound by a very narrow own research area. I don't know how it's translated into English, like a silo, the research in silo, kind of very limited and narrowed research without interest in other areas. Even though the area of research is "agriculture", sometimes "biology" becomes the main and only interest and then the research environment the researcher wants to have is very closed in the lab and then tries to avoid uncertainties and the researchers want to establish their hypothesis as much rational.

The researcher is isolating himself or herself in their own lab while Japanese society tries to avoid the risks and uncertainties, that's the social background of Japan. Japanese people nowadays would like to be in a controllable environment. They want to have the controllable environment where they can do their research. Then, they can feel secured, but when it comes to the international research environment that's very much different from that in Japan. The research itself is concerning agriculture, so they have to be relevant to the reality that is complex by nature.

The approach they have to take in international agriculture should not be so bounded to a certain specific area; it should close to a complex situation. The research has to be useful in the real production field. But the researchers tend to be hesitant to go outside the area that they got familiarized with. International research has a

value in its implementation. To work with people, interdisciplinary should be promoted, that's what should be done in Japan.

If you want to do some research which is relevant to the reality of agriculture and if you were expert in gene engineering, for example, and trying to work with the breeders or the breeding experts, they have to talk about, for example, nitrogen cycle which is not so much related to your own specialty. They do not want to step into a different environment that is outside of own specialty. That's the tendency seen among the current researchers in Japan.

The actual complex or even chaotic world, in order to step into such world you have to be brave or courageous. Just like you jump into the cold water, but once you would be in the cold water you start to like it. If you need to do that you should do it when you are young. Going through such experience, I think you can grow further as a human being and also as a researcher.

I have been living abroad for long and I think my working outside Japan could stimulate young researchers in Japan, but the number of young researcher has not increased. Looking at the number of people who are working at international institutions, there were many at my age. Now the next generation people are lucky because if they want to go abroad it's easier. But the number of the young people who do that is still limited. It's unfortunate.

In order for Japan to make a big change, you have to change the way of thinking and mindset. But young people should look outside and doing that is very interesting. At the same time, I think we shouldn't undervalue the young people. I should admit that there are many young people who want to work in a broader environment and one issue is that there is a barrier between the people inside Japan and outside Japan, those who made a good performance or generated a good result overseas and tried to find a job in Japan. It is difficult for them to find a job, especially in the research area. That's one of the Japanese characteristics in the current society.

Kazumi Yamaoka : Thank you, President Iwanaga. I think we listened to the views from each panelist and then some who were stimulated by other panelists. If you have any comments or suggestions, please raise your hand.

As for interesting and stimulated work for research, President Iwanaga said the Japanese culture or Japanese people's mindset exists in which we need to change the mindset or way of thinking.
By feeling that stimulus, the researchers need to do research not for themselves. The agricultural research should be for farmers in Asia or Africa. Yesterday, Dr. Matthias used the pipeline as an example to show that. Researchers put various things in the pipe and then the final exit is in the field. There are risks there but it's worth doing. In today's session, various presentations were made touching up on that, especially Dr. Toriyama. It was very impressive.

Having said that, now I would like to open the floor to questions from the audience. If you have questions for panelists, that's fine or if you have any comments you would like to make that's also okay and non-Japanese participants can speak in English. If you have any comment or question, please let me know by a show of hand.
Yes, Mr. Uchikawa.

Akihiko Uchikawa : Well, thank you for allowing me to say some additional words.
Agriculture should be a practical science. This means interaction between science and society. From this perspective, there is a need to link research work to extension. According to the results of questionnaire, it is acknowledged that Japan has a high standard of agriculture research. Therefore, the achievements or outputs of research should be used for oversea topics and that is the point of Dr. Kubota from JICA. Our outputs can help to achieve millennium goals and alleviate hunger and poverty. There is a lot of room for us to contribute to the world poverty and environmental questions through our research activities. That is the first point.

The second point is human resources. If we want to cooperate with international communities, we need right human resources, not only in the research area but also in the management side which supports research activities.
It is not just about rice research. Researchers should be given a chance to work abroad when they are young, as Dr. Yagi suggested. Their experiences abroad will certainly help their career later in their stage.

I would also like to mention one global network. An international research network on GHG from agriculture, Global Research Alliance, was officially launched in June, 2011. But even before the official launch, there had been activities for the last 2-3 years, and G20 mentioned the activities of this alliance. GRA consists of the three research groups and one focused on paddy research is chaired by Dr. Yagi, and this week GRA's paddy research group is going to have a meeting here in Tsukuba.

Dr. Yagi has always been coordinating the research activities in this group. He has been the central player and thanks to Dr. Yagi, Japan has high visibility, and thanks to his very high skills of coordination, I understand that this group is contributing in many research areas. And I also understand that Dr. Yagi experienced working abroad when he was young. That is clear evidence that starting to work at an early career stage in the international arena is very helpful.

However, one of the barriers pointed out by respondents was language problem. I imagine that the problem was not about English, rather when researchers work with foreign counterparts they need to exchange letters, correspondence, and e-mails. These management matters always happen when you work with researchers outside of the country. That is an extra burden. I can imagine that it is not easy for researchers to take care of these things carefully. In addition to research itself, they also have to worry about administrative matters, financial resource management, and intellectual property right. For these reasons, I would recommend that we need to develop supporting or administrative organization or team that facilitates international researchers in working with foreign research counterparts.

Kazumi Yamaoka : Yes, Professor Asanuma.

Shuichi Asanuma : Well, this may not be directly related to international research. At the beginning of November, I visited Kenya because of JSPS work. There was an alumni meeting in East Africa. These students all studied in Japan. Ethiopia, Uganda, Kenya, and Tanzania sent students to a post-doctorate school's course in Japan for 2 years or longer. That was the first very big general alumni meeting and I was happy to be a part of that gathering and I heard that they wanted to get more information from Japan because once they returned to their home countries their connection to Japan was disconnected.

They also wanted to keep in touch with other international students. Two kinds of information are being sought by them, that are information about current research activities in Japan and what their fellow students or fellow workers are doing right now in their own countries after coming back to there.
As a faculty of university, I would recommend that trainees of JICA should be kept in the network by giving them a good follow up because that is one of the way to deepen international research collaboration. Thank you very much.

Kazumi Yamaoka : Thank you very much Professor Asanuma. As we are running out of time, I would like to take questions from the floor, maybe one or two questions from the audience. Yes, please. Well, lady first.

Naoko Oka : Thank you very much for saying lady first. It's not a question but this is a comment based on my personal experiences. I think everybody here is speaking of the assumption that international cooperation is good. I heard yesterday from someone who had been working for a long time for a prefectural research institute. Then, this person applied for JICA's Expert Program and he was selected. But he was criticized very terribly because his former employer didn't like him bringing out his experiences out of Japan. He had to resign before he started working abroad. It seems that there are still many people who don't understand the importance, significance of working outside Japan and that makes me believe that it is necessary to educate and to publicize this idea.

Kazumi Yamaoka : Thank you. I am afraid that the former employer will not allow its employees to just visit the neighbor prefectures on business. That's a very old exclusive convention.

Yamauchi: I am Yamauchi from Nagoya University. Now, my question is about female researchers. Professor Asanuma explained the situation at Nagoya University. There will be a trip to Thai and Cambodia with about 50 students for overseas training as a part of our curriculum, and female students are a lot more interested in joining that class. I do not intend to mean that boys are weaker but female students seem to be very interested in going abroad.

In the Masters course, about 50% of the students are women. In the Doctoral course, about 30% of the students are female. However, when it comes to faculty members, we have only very few female professors. Where are those female students? Where did they go? Only just a few percentages of professors and researchers are women. It clearly means that the problem of development of young researchers is another side of the same coin.
Now, the panelists on the stage are all men. There is no woman while there must be a number of women who are working very actively internationally. Such situation in gender balance is even worse in universities. I think there are more active women doing a research work at the independent administrative organizations of Japan. How can such highly-motivated resourceful women take an active part in those research and international activities. That is my question or comment or mixture of a question and a comment.

Kazumi Yamaoka : Who would like to answer this question? Mr. Kubota, please.

Hiroyuki Kubota: From my experiences in my department, I think the situation will be completely reversed in 10 years of time. Number of young capable female staff is increasing and I think men should work hard to survive in future.

Kazumi Yamaoka : The gender balance of the panel and generational balance and nationality balance of the panel, I'm sorry, is very bad. It's not a fault of the panelists. It's a responsibility of the organizer. We'd like to apologize for that. Dr. Ladha.

Jagdish Ladha: Thank you. Back in 1980s, when I joined IRRI as a post-doctoral fellow, I remember there used to be as many as a dozen Japanese students and quite a few senior staff as well and we used to have a softball

team, which was mostly Japanese in the team. I saw that kind of thing, now I don't know, a declining trend, I don't know why and I think Dr. Masa made a very good point. My boss was Japanese, Iwao Watanabe and he was there for a long time and he used to tell me when he leaves IRRI nobody will give me job in Japan, exactly what Dr. Masa-san said.

Now, this situation of course is not only Japan to look into it but also the other side of the fence, let's say if CGIAR centers or IRRI, we should also look into it. How can we promote exchange of Japanese scientists? I worked with many Japanese scientists in 1980s and 1990s and I traveled many times in Japan and I worked and collaborated. I think the question which I'd like to ask the honorary members of the panel is that what should be done or what can be done to promote that.

Even when I saw the questionnaire, it was interesting to see that there were more elderly people responding rather than younger people. There was no participation of so many younger people and I think I can't believe that younger people would not want to travel abroad. I think they probably will be more interested in going out. I think some effort should be made on both sides to kind of develop effective program. Thank you.

Kazumi Yamaoka: Dr. Marco Wopereis, please.

Marco Wopereis: Thank you very much Mr. Chairman. Maybe all these Japanese scientists have come to Africa, I don't know. Because if you look at AfricaRice, by far the nationality that is best represented more on internationally recruited staff is Japanese, although it's a little bit of a declining trend but I am quite confident now with Dr. Iwanaga-san on the board that things will turn around. I've always had JIRCAS scientists and JICA staff among us. If I have the mike, I just a few comments.

I am very impressed by this seminar, this last 1-1/2 day. I am really very happy that I came. Lots of possibilities I think for strength and collaboration. I just want to say we are a bilingual institute. I have worked with a lot of interpreters but these interpreters you have here are top class. It's unbelievable how they were able, people talk like a machine gun but they are completely able, stay completely calm to translate. I am very impressed.

Just Japan. I think if I think of rice in Africa, Japan is extremely special. You have actually all the ingredients I think to have an impact with research in Africa. You have JIRCAS. Which country in the world has an institute specifically dedicated to promote internationally-oriented research? I can only think of another one that's in France and it's not a surprise that these are co-architects of GRiSP.

Then, you have JICA. I can't think of any other agency like JICA and they are in the field. They are perfectly able to think of what is needed in the field and link up with research in Japan. Then, you are a very important donor at least for us and I know for many organizations as well. You have a tremendous credibility.
Japan really has all the ingredients and you're already doing, perhaps you can do better, I don't know, but I am not exactly pessimistic what Japan at the moment is achieving worldwide. When I think of the results of this survey about young people and then perhaps middle aged and then perhaps less young people in the end in the 60s and you seem to say that young people are perhaps a little bit more motivated and then comes a group less motivated and then again more motivated.

That's probably normal because people who are in the mid ages are raising a family often and they are just not so keen anymore to think of abroad. They have their family, their kids. I don't think that is a surprising finding. About exciting challenges for young people, there are so many and I am sure Achim will take the mike after me to talk about many things. I am not going to talk about that.

But we should not forget the less young. The people in their 60s, if they are keen, we have somebody in the 60s with us at the moment and he is extremely dynamic, I will not cite his name. We have a need for experienced rice breeders, experienced agronomists to help rebuild research systems that have completely collapsed in Liberia, Sierra Leone, Guinea, so many places screaming for experienced people that know about rice. There will be a lot of possibilities, I think, for this type of people in Africa.
Just to say again that I really enjoyed this meeting and thanks a lot for the organizers. I will give the mike now, with the permission of the Chairman, to Achim.

Kazumi Yamaoka: Thank you. Dr. Dobermann, please.

Achim Dobermann: I would like to make a few comments, including a few specific suggestions on possible mechanisms that could be used to stimulate a greater collaboration and also opportunities for young people.
But first of all I enjoyed this panel discussion very much because you've all made very thoughtful and very good comments and I think we could actually hold such a symposium, and a survey and panel discussion like this in quite a few other countries and we would get similar results even in the United States, for example, where I spent 7 years of my own research trying to explain to my faculty colleagues at Lincoln why it is important to do international research, which nobody was interested in there or very few.

Now, you could go to many other countries. But I think the first comment I make is one that is definitely out of my control and probably even outside of the control of many of you because it's a political one. I personally feel that a country that has such a strong expertise and base of an investment in rice research and in development, also internationally like Japan, is not yet visible enough sometimes. Given what you're contributing already to the global community, I think you have not exploited all areas of really making that visible enough to the rest of the world and I think that is partly because of the administrative systems and I can only speak for IRRI.

If I am right, then we receive contributions or have financial sites, contributions to our work from Japan from three different ministries. I believe MAFF, MOF, and MoFA. That tells me that I think there could be gains if one could somehow consolidate the activities of different ministries or organizations, institutions in Japan into a larger strategic direction that could then also mobilize a bigger pool of resources to the interest of the priorities that you have for your agricultural development work.

I have made exactly the same comment in the similar meeting we had 7 months ago in Germany, where we had four ministers in the room, each of them with their own programs and supporting research for agriculture internationally. They are struggling to talk with each other.

It is a common problem but I think there is an opportunity also that could by itself remobilize a lot of new mechanisms that could be utilized and at the same time I think give Japan the necessary power and status to demonstrate what it actually contributes already.

The second comment is I'd like to say something about mechanisms that we are already using with other countries for similar reasons where we wanted to enhance the interaction with the national research systems because of the strengths that they have, but at the same time also develop mechanisms for influencing young people when they make that choices in terms of what career they would go to.

With China, for example, we have two mechanisms that are in place for now for about 3, 4 years. One is with the Natural Science Foundation of China, the highest scientific funding body in China. Every 2 years, we conduct a workshop. In this workshop, we determine a few priorities for research collaboration and rice between China and IRRI and then based on that they issue competitive calls for proposals in China.

These are highly competitive and they are basically providing support for Chinese researchers to conduct research in collaboration with IRRI. Almost, I think all of the money actually stays in China. But it's a mechanism that has opened up some areas for collaboration but the priorities for that are basically set by China in consultation with us.

Every year, they fund two projects and so we have at the moment I think six or seven running at any given point of time. They are actually now expanding this mechanism to other CGIAR centers as well.
The second mechanism we have with China is a scholarship program with the Chinese Scholarship Council and that has had a mixed success mainly because we have not promoted it enough in China and many young people, when I go to Chinese universities, have never heard about it.

But, it is actually quite attractive in a sense because the Chinese Scholarship Council, under this program, selects each year up to 10 Ph.D. students and up to 10 postdocs, we never got that many, to come to IRRI and basically conduct part or all of their research at IRRI and then go back to China. We basically support that on our end by allocating a few resources from the Chinese contribution to IRRI which is very small but also basically embedding these students into our research programs and, therefore, making some resources available.

But it has been a significant mechanism to increase the number of Chinese scholars at IRRI and we had, I think, last year at some point close to 20 or 30 Chinese students and other young scientists. Then, I want to address this question of how one can further influence young people who according to Dr. Iwanaga sometimes think too narrow in their own little box. I think it is essentially by opening their minds and exposing them to exciting ideas that are of broader nature. Dr. Yoneyama, you've stressed this very much and I completely agree with you.

You cannot force scientists to do something or scientists to collaborate unless there is an exciting idea. If there is an exciting idea or something that excites people, you don't need a lot of administrative mechanism. That is my experience and often there is also not much money. Well, some people like Toshi; they need money, because they build FACE systems and other expensive things. But many things can be done in small steps.

We have one interesting course that we hold each year. I think it's 3- or 4-week course and it was originally designed in collaboration with the NSF, National Science Foundation in the US and it's called Rice Research to Practice. Is that right, Hei? Yeah, Hei Leung is actually the coordinator of that together with Susan McCouch of Cornell University and we've had this now in place for how many years, Hei?

Hei Leung: Six.

Achim Dobermann: Six years. What the purpose of that is, we have funding from the National Science Foundation, from the Gatsby Foundation in the UK, and then individual others, support participants. We bring in each year about 25 young people and they are usually students and half of them would be students from Cornell and other universities. Many of them are geneticists or molecular biologists who have never looked out of the box or even out of their lab.

But then we mix them up with students from other countries and also some developing countries and then basically for 3 weeks they have to work together and they learn the entire range of anything that has to do with rice and international rice science. But even field activities like plowing a rice field and they also have to work on projects and what we have noticed is that for many of them this is an eye opening and in many cases even career-changing experience which they would have never had before.

I think we need to think whether one could also design such a course, particularly to attract Japanese young students. It is possible and we have the models already and as was told there are enough young students out there who are interested. They may not know about these opportunities but I am pretty sure that they exist.

If we can find some mechanisms for this, then I am quite convinced that 15 or 20 years from now the composition of that panel will look different. Maybe younger and more diverse. But, I think I am optimistic actually and we would be very willing to work with you on any kind of concrete steps that can be taken. That's the last thing I would like to say. Thank you for having this discussion.

Kazumi Yamaoka : Thank you for your good comment. Ms. Concepcion Calpe, some comment from you? No? Thank you very much.
Well, as we already are behind the schedule We would like to conclude the panel discussion. Dr. Yasunaka, please.

Masami Yasunaka: Thank you very much for your very active participation in the discussions. When we started this panel discussion I was planning to develop the discussion into some kind of international research collaboration. As a chairperson, I tried to facilitate the flow of discussion among the panelists but my intent was not achieved.

I was really impressed by the comments of the panelists and without knowing our focus has shifted to a capacity building. That is important and I am sure that we were all stimulated by the findings from the questionnaires. Young researchers are not very interested in international collaboration and that is a problem. But we can say that there are a lot of the sleeping resources, sleeping human resources.

We need to give them a chance and opportunities for these dormant resources to be activated. That's our responsibility. In Japan, we have another resource. People over 60 years old, we have the biggest pool in this age bracket. They have a lot of free time. They have still a lot of energy. They want to do something. There are a lot of people like this over 60 years of age.

These people are kind of expendable. In Japan, people over 60 years and young people, we have two forces we can take advantage of. But we have to find a way to better use those resources so that we can make contribution to the international society. What we need is strategy to tap these resources and when we find a strategy I am sure that Japan is ready to make a contribution to the international society.

I am afraid I don't have time to further pursue this topic. As you know, Japan is now suffering from the impacts of earthquake, tsunami, and a nuclear disaster. People in this room are discussing and are working to give hope to the human beings. We should be proud of that and we should feel happy about that in doing our own work and we need to give that feeling to younger generations. That's our challenge.

Further, if we can do that we will feel even more satisfied and that is going to be our motivation. We can't do it alone. We need to work together. We need some places where we can work together and I think that is the role JIRCAS should play. That's my conclusion. I am very hopeful that JIRCAS can act as a facilitator for that purpose.

Well, I am afraid this panel didn't pursue the discussion that was kind of given as a mandate by the Ministry of Agriculture but I am sure that we can further go into a desirable direction starting today.
Thank you very much for your participation. I am not very good at wrapping up the discussions but I would like to officially close the discussion today. Thank you very much.

Kazumi Yamaoka : Thank you very much again to the panelists. Please return to your seats. Please give them a big hand. Thank you everyone.