

総合論議  
—今後の進め方—

General Discussion

司会：浅沼 修一

名古屋大学農学国際教育協力研究センター教授

Chair person: Shuichi Asanuma

Professor, ICCAE, Nagoya University

*Asanuma, Chair:*

We have to finish this place by five o'clock and Professor Takeya has another seminar after this forum. I'm sorry but I have to hold this general discussion much shorter than the original schedule. Probably, we can just talk about only one issue. I would like to choose an issue everybody has mentioned and many participants are considering.

This slide shows the consumption of paddy rice in African countries. Nigeria consumes the most because of their high population, 127 million people. Then Madagascar, Cote d'Ivoire, Senegal, Guinea, Tanzania and Mali. People in those countries consume rice a lot when converted to the per-capita consumption. It is something like this. 37.8 kilograms per year in Nigeria, 139 in Madagascar, 90 in Cote d'Ivoire, 107 in Senegal, and so on. Then, look at the production. The production is not compatible to the consumption. This is an example, in Japan. You can see here that the rice consumption is decreasing from 1961. This slide was prepared by Dr. Adachi, a post-doctoral fellow of our center. He used FAOSTAT to make this graph.

This is the rice production in sub-Saharan African countries. The increase of the consumption is much higher than that of the production. These countries are from the list of sub-Saharan Africa listed in FAOSTAT: 7 countries in Central Africa, 16 countries in Western Africa, 10 countries in Eastern Africa, and 12 countries in Southern Africa. In total, people in 45 countries eat rice. This is the gap between the production and consumption in Western Africa, Eastern Africa, Central Africa and Southern Africa. In all the regions, the consumptions are increasing, but the production is not reaching to that consumption level. For instance, in Nigeria, Ghana, Cote d'Ivoire and Kenya, there are these gaps. Of course, if you see these lines, you can see the difference among the countries. Going back to Nigeria, the level in the vertical line is five to four thousand which is about ten times higher than the other

countries. But anyway, the gap between production and consumption is increasing in most of the countries.

Now, I have given you some background information, to know why we have this open forum today, and to discuss how we can, I mean, how Japan can help African people to reduce these gaps.

In the first session, Professor Onyango, Professor Yamauchi, and the other presenters have presented their researches on rice, particularly on its drought tolerance, and the other three presenters have talked about their research and experiments. And now we are going to talk about “roles of Japan”. Mr. Uchijima from JICA has summarized the role of Japan or what Japanese government is doing to help rice promotion in Africa. Today, we have a participant from Ministry of Foreign Affairs of Japan, Mr. Noguchi. And first of all, I would like to ask him for some comments about rice promotion in Africa by Ministry of Foreign Affairs of Japan.

***Noguchi:***

Thank you, Professor Asanuma. I would like to give a brief comment on today’s session. Agriculture is a core strategy for poverty reduction through economic growth in Africa. Japan’s approach to agriculture and their development had four pillars.

The first one is improvement of agriculture for activity. The second is enhancement of linkage between agriculture and its markets. The third is capacity development. The fourth is sustainable development.

Regarding improvement of productivity, NERICA surely has high potential, but the data collection and statistics on NERICA are not efficient. So, I think Japanese scientists or experts can play a role in supporting this area through research cooperation.

The second point, the linkage to market is definitely important. The income generation is important unless the products are not sold and the farmers can not generate income. So, improving infrastructure for post harvest and marketing is important for income generation.

The third point, capacity development, is an urgent problem. We should support training for African scientists, government staff, and extension staff, and we should promote technology cross-works and build up human resources in African countries.

Regarding sustainable development, we should invest in profitability of NERICA and in profitable upland/lowland or other crops in each area in African countries. We should support policy making on promotion of agriculture in each country. Regarding this, I think it is important to promote rice cultivation and agriculture and the other crop, NERICA. Finally, I think it is important to make a success story of NERICA dissemination, so we should consider

developing collaborations with international institutions, African regional stations, NEPAD, and each African country's government. Thank you.

***Asanuma, Chair:***

Thank you very much. Mr. Noguchi has talked about how we should increase the agricultural productivity; researches are required to overcome the problem. Then, the importance of linkage between agriculture and markets needed for increasing the farmers' income. The third point, capacity development, is important, I think. There are several levels of capacity development for: researchers, extension workers, government officials and stakeholders, who are involved in agriculture. The fourth point, sustainable development of agriculture related to the profitability in rice cultivation. Mr. Noguchi also said that we need a success story to show, maybe Japanese contribution, to the world. Considering the TICAD which is scheduled for 2008 in Japan, the success story would be urgently needed.

In today's forum, we could share information about Japan's contribution in many aspects of rice promotion in Africa, not only research aspects but also dissemination activities by JICA until 2008. It is rather difficult for me, because of the diversity, to summarize all the presentations given today. Therefore, I would like to just focus on "what kind of research should be focused or privatized to promote the rice production". Before proceeding the discussion, I think that the concept of Sawah and upland rice given by Dr. Wakatsuki could be the main issue. However, Professor Wakatsuki has mentioned in his presentation that if Sawah could be developed in a place, it is better to develop Sawah system there. However in other places, he is not opposed to work on upland rice. So, please let me exclude the issue of Sawah and upland from today's main issue.

Professor Onyango, who knows best on these issues, has talked about several aspects of research on rice promotion; you can see them in Dr. Onyango's abstract. Professor Onyango has suggested many aspects such as drought tolerance, efficient and effective control of nutrient usage, and many other aspects and problems. I would like to ask Dr. Onyango what we should overcome or study at first and second, because human resources we have in Japan, who can work on rice in Africa, is very limited. So, I think it is better to prioritize the problems to be solved; what is more important, or what should be urgently tackled?

***Onyango:***

Thank you, chair person. That is a very difficult task but anyway at the end of my abstract, I had given some of my ideas on what we should tackle first, so as to make us realize the outcome of this venture. I know the Japanese Government made a very strong promise to the

African governments; this was at the World Summit on sustainable development in Johannesburg, South Africa in the year 2002 that was followed by NEPAD and the involvement in the NERICA production. I understand that the third TICAD is coming in two years time and we would like to learn about the success story on the Japanese government contribution in NERICA production in Africa. From the contributions presented in this Open Forum it is clear that there are several aspects of NERICA production, in Africa and all of them are geared towards sorting out food shortage in Africa. I think it is only the last presentation by Sasakawa 2000 which mentioned that in case of Uganda, NERICA is actually not being produced to sort out the food problem, it is being produced as a cash crop, and if that is a case it is still a contribution because that will be alleviating the foreign currency balance from the Uganda government, therefore, we are still in the right direction.

In my prioritization brief, we are talking of the upland conditions of rice production. If all of us listened to Professor Yamauchi's presentation then one might have realized that, when we talk of upland situation, it is soil moisture which keeps fluctuating and we need to arrest it. Most of us plant scientists are very quick at looking at what is happening above ground which everyone can observe. But what happens below ground which is being expressed by the above ground characters we don't know, this is where precipitation or water requirement under upland conditions comes in handy and we need to look at that. As he suggested, I would not like to go GMO direction, I would like to go through the conventional breeding if at all we can identify the markers which code for less water usage and that will definitely be tied to water use efficiency among the various NERICA. If we can identify this we will have made more or less 50 % contribution towards promotion of NERICA production in Africa, given the fact that agro-ecological situation is very fragile. That is my first line, looking at the water requirement and that will entail looking at below and above ground structures of NERICA varieties. One advantage we have is that there are several NERICA varieties and it seems that the regions in Africa have already identified which lines they want to use and therefore those lines should be investigated for desirable traits. The other aspect which came out very clearly is the question of availability of certified seed. The contribution of double naming of NERICAs' seeds in Uganda is real. There is a variety which is NERICA 4 which one commercial seed firm calls it Suparica 2 while National Agricultural Research Organization (NARO) also in Uganda calls it Naric 3. This creates confusion to farmers. They are growing same variety but depending on where they sourced the seed they think the varieties are different. Therefore we need to look at the seed aspect and harmonize it. This would ensure seed purity which is very fundamental in genotype research. From those two main points, I would like to complement the Sawah strategy. However, there should be some socio-economic activities which prepare farmers at

the farm level to receive some of the NERICA technology which can complement lack of greenhouses. Otherwise all my presentation strategies remain as presented on the main presentation or summarized in the abstract. Thank you so much.

***Asanuma, Chair:***

Thank you very much, Dr. Onyango. Soil moisture problems are very important, and so seed availability is, for preparedness of the people to receive Sawah system. I would like you to ask for some opinions from the floor, but please let me give priority to opinions on research aspect.

***Yamauchi:***

I would like to just give a few comments. I think we need to give priority to the technical aspects rather than to the social-scientific aspects. We need to clearly identify the characteristics of the ecosystem and we should know how we can control the constraints. Most people are talking about problems of drought and water scarcity. But the scarcity of water is, in almost all cases, coupled with nutrient deficiency and problem soil. To be honest, this is my first time to learn that there is a lowland NERICA. I think I've just learned that from Dr. Kumashiro's presentation. We are talking about the different definitions of lowland, upland, paddy and so on; that is from the scientific aspect. So, we really need to identify what the real constraints are to achieve the goals. I think that's from technical aspects and that is the priority of the research. Sometimes I've talked about something like "drought is related to deep root", but it is not always the case. Maybe deep rooted plant is working well but that is possible under only a very specific environment. But in most areas, we need to identify other traits than deep root for the production of the plant. That is my comment.

***Asanuma, Chair:***

Thank you very much Professor Yamauchi; we need to clarify or understand the ecosystem and the constraints on the rice promotion. However to do that, I think Japanese scientists need to go to Africa to work with and help them conducting the experiments, in cooperation with African counterparts, of course, otherwise it's difficult to learn from the literature of them. Maybe rather difficult, but better to go to work and stay on the fields. It is now the time to go to work on the fields.

I can take one more comment from the floor.

***Iijima:***

I also agree with Professor Yamauchi's comment. I am working on NERICA for several years and I think its drought resistance and some other reasons are very important. However, I went to Guinea this year and met Dr. Sakagami. And I visited a farm where NERICA was grown last year. I asked some of the farmers, "Why don't you cultivate NERICA this year?" The farmers told me that NERICA is nice but very difficult to thresh. I was shocked to hear that. The farmers thought NERICA is nice but not so good for its characteristics when threshed. We should look at other characteristics like threshing capability and some like that.

***Asanuma, Chair:***

Thank you very much. Since we are discussing not only promotion of NERICA but also other rice promotion, we should consider your comment. However, we have to close this general discussion now. I apologize we don't have enough time to discuss more about rice promotion in Africa. We hold a mixing party from 5:30, and I hope many participants join it and continue the discussion. Thank you very much for your cooperation. I have to close the general discussion now. Professor Takeya, Director of ICCAE, will give us closing remarks. Professor Takeya, please.

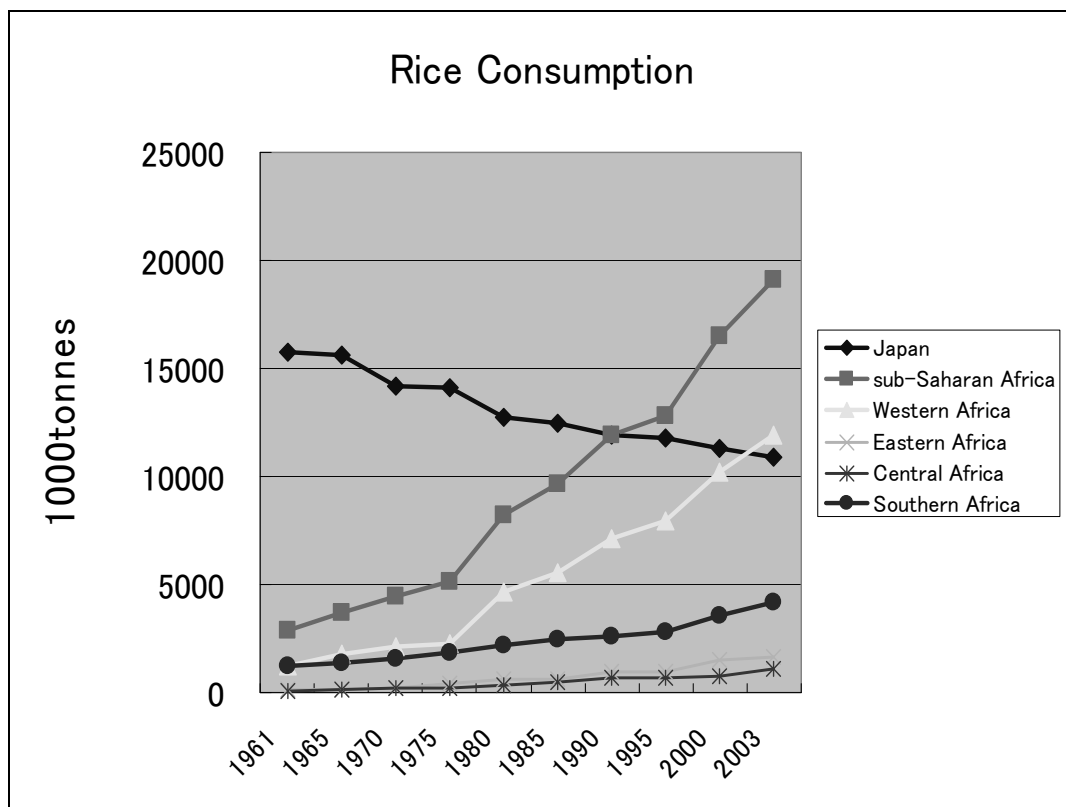
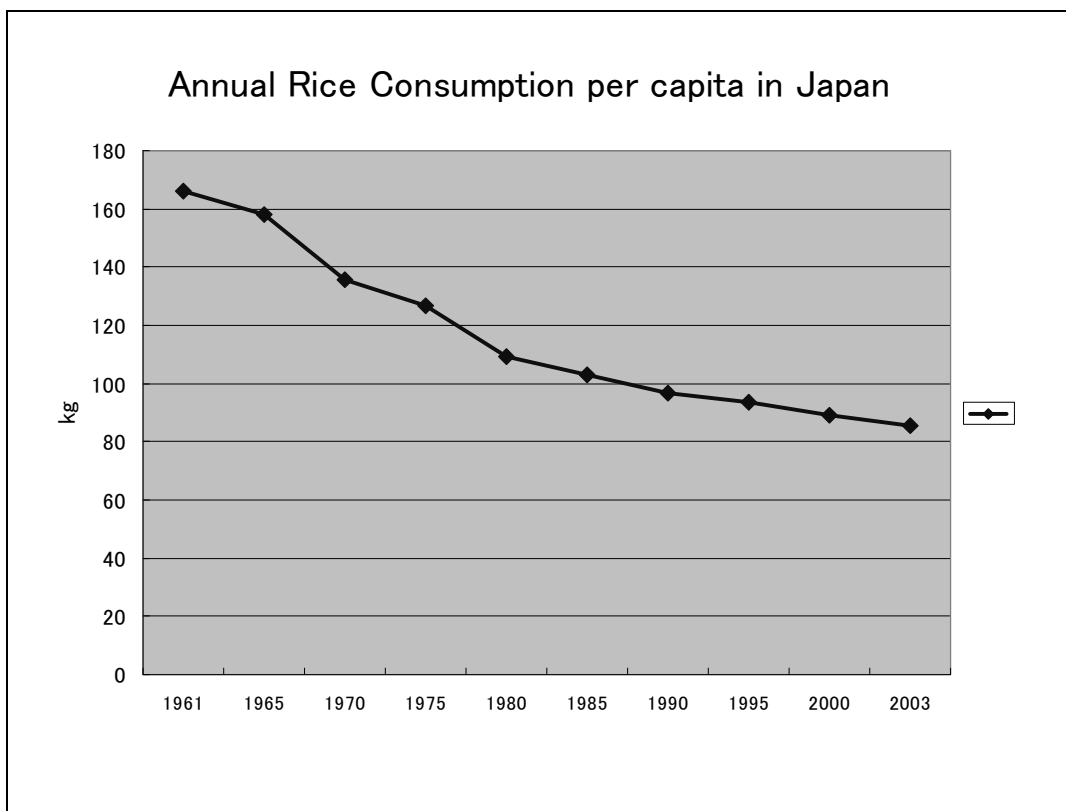
## General Discussion

### Recent Progress in Rice Promotion in Africa and Role of Japan

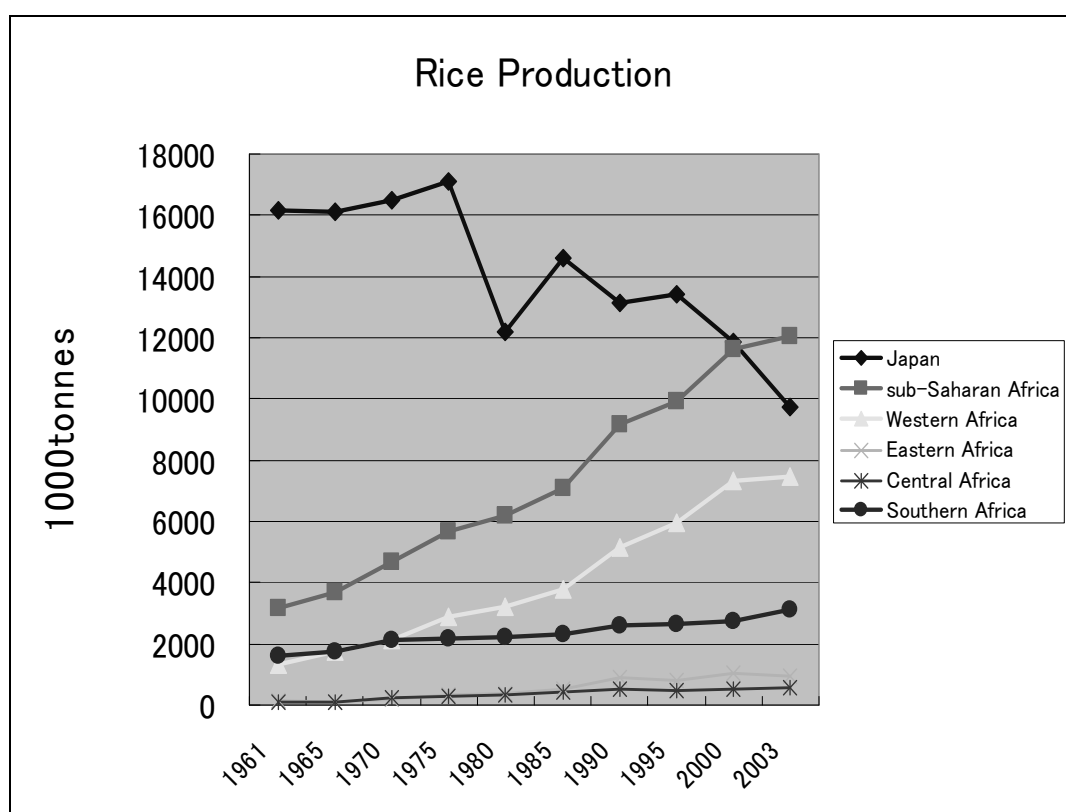
1. Trends of rice production and consumption
2. Research
3. Dissemination
4. Role of Japan

Annual Rice Consumption and Production in African Countries(2004)

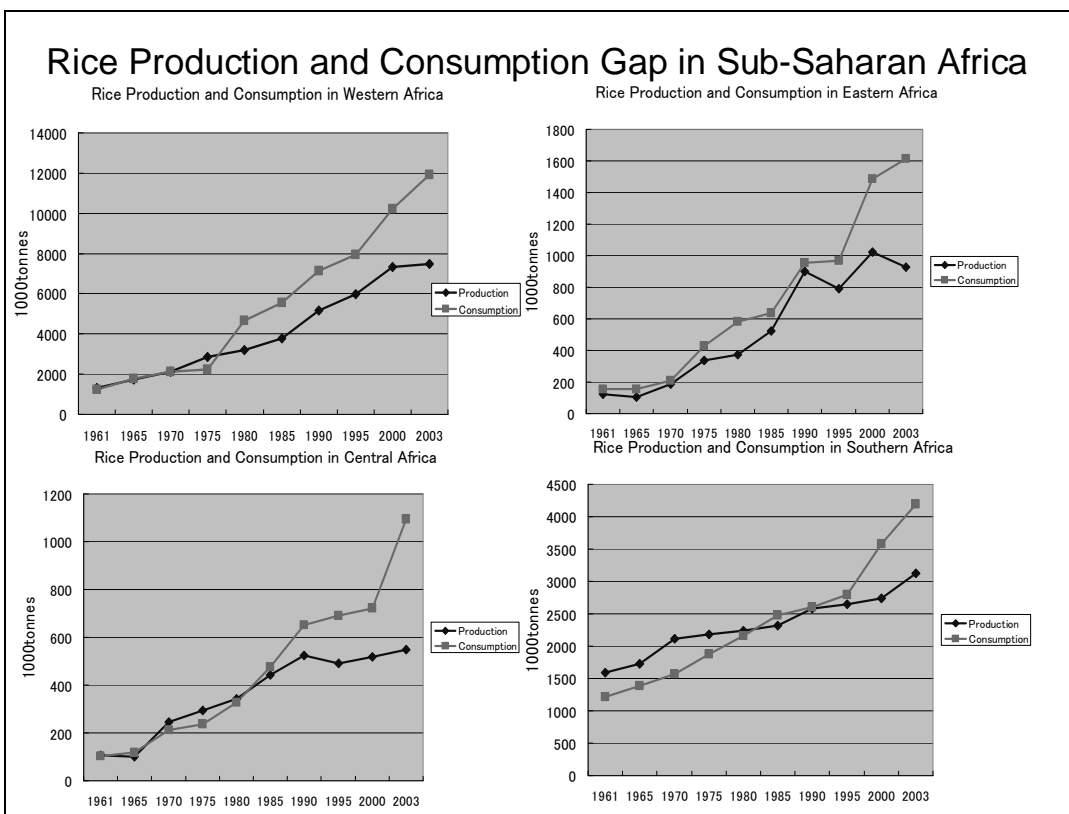
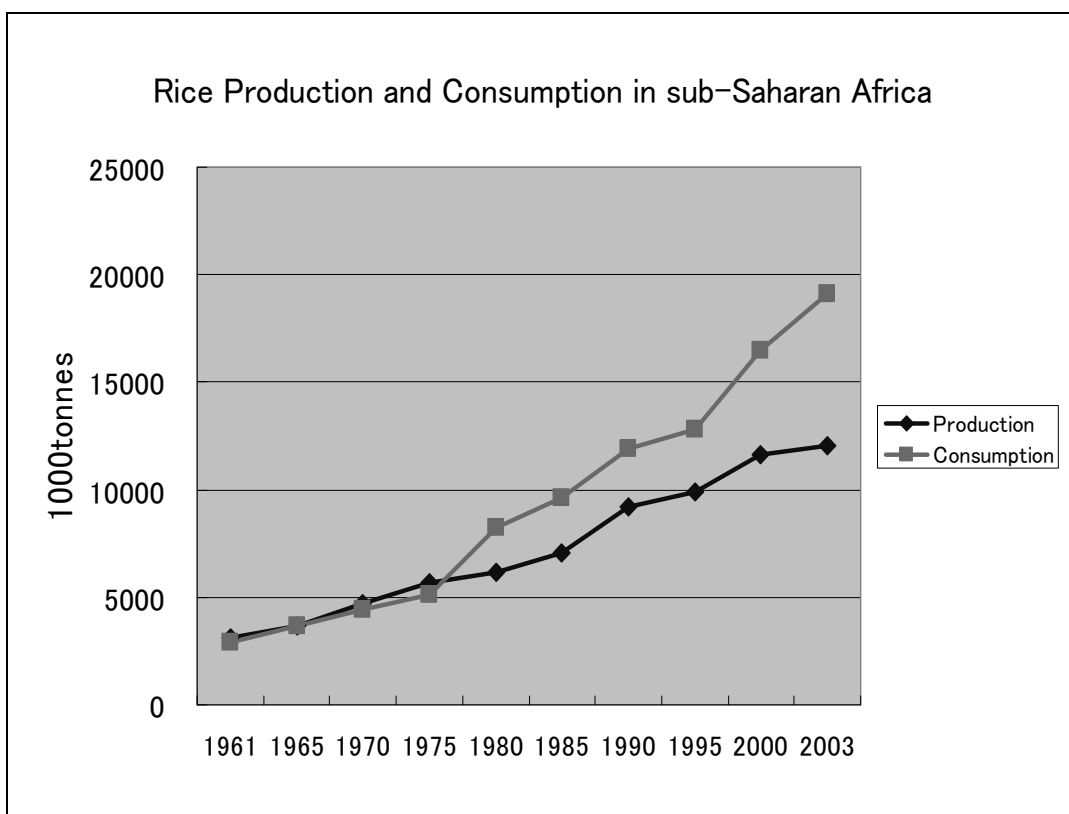
	Production (tons/year)	Consumption		Population (millions)
		(tons/year)	per capita (kg/year)	
Nigeria	3,542,000	4,803,660	37.8	127.1
Madagascar	3,030,000	2,488,970	139.0	17.9
Cote d'Ivoire	1,150,000	1,522,620	90.1	16.9
Senegal	201,740	1,106,050	107.0	10.3
Guinea	900,000	868,510	100.8	8.6
Tanzania	680,000	772,640	20.5	37.7
Mali	718,090	762,120	56.8	13.4
Ghana	241,810	716,300	33.5	21.4
Cameroon	49,960	480,800	29.5	16.3
Kenya	49,300	322,510	9.9	32.4
Burkina Faso	74,500	298,380	22.3	13.4
Uganda	140,000	167,840	6.3	26.7
Malawi	49,720	53,240	4.3	12.3
Zambia	11,700	42,930	3.9	10.9

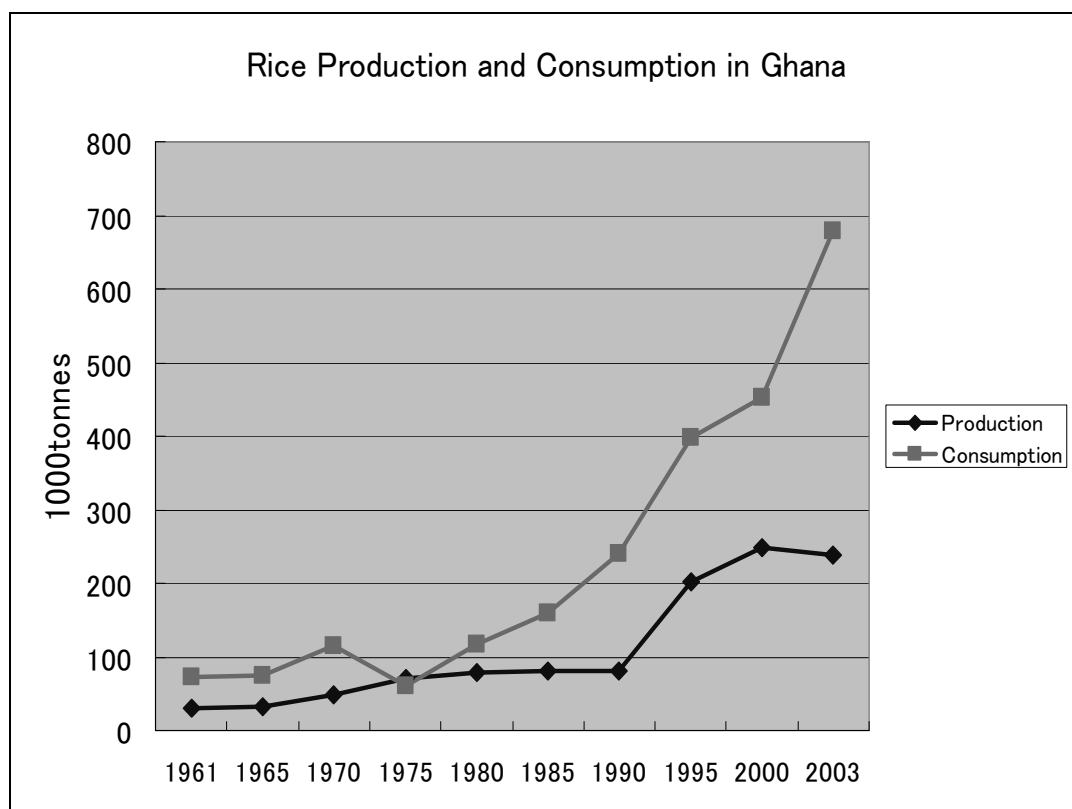
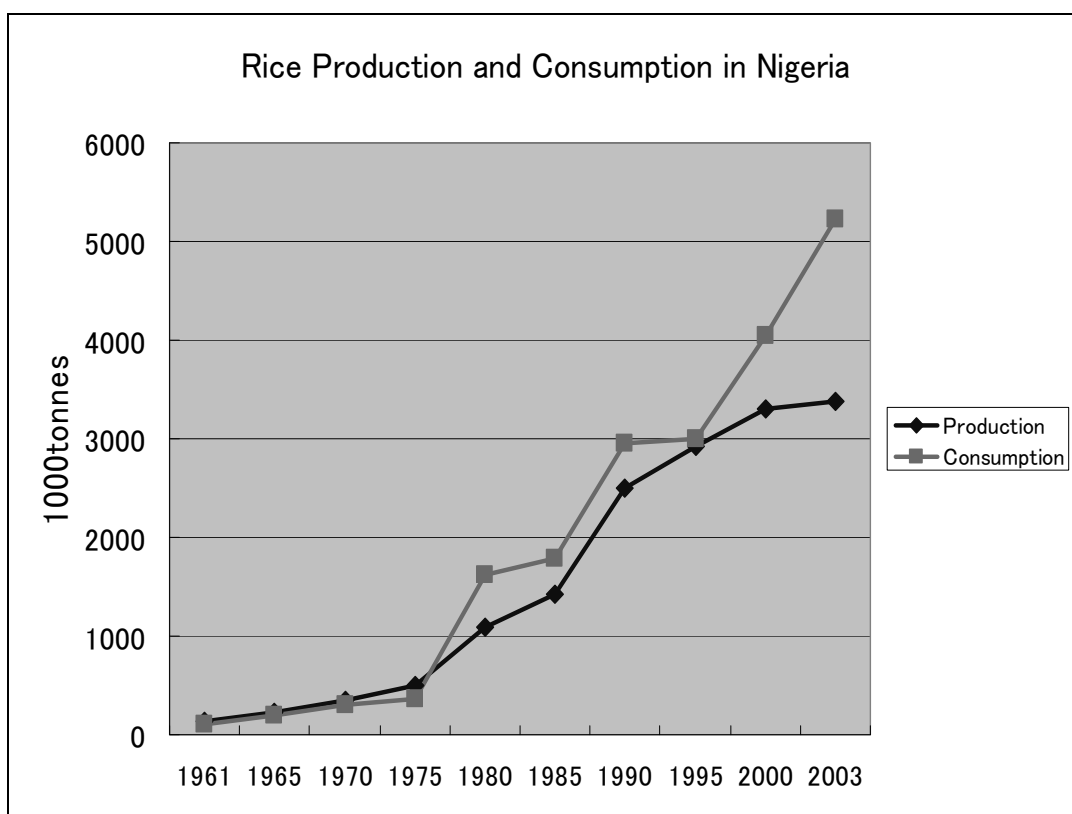


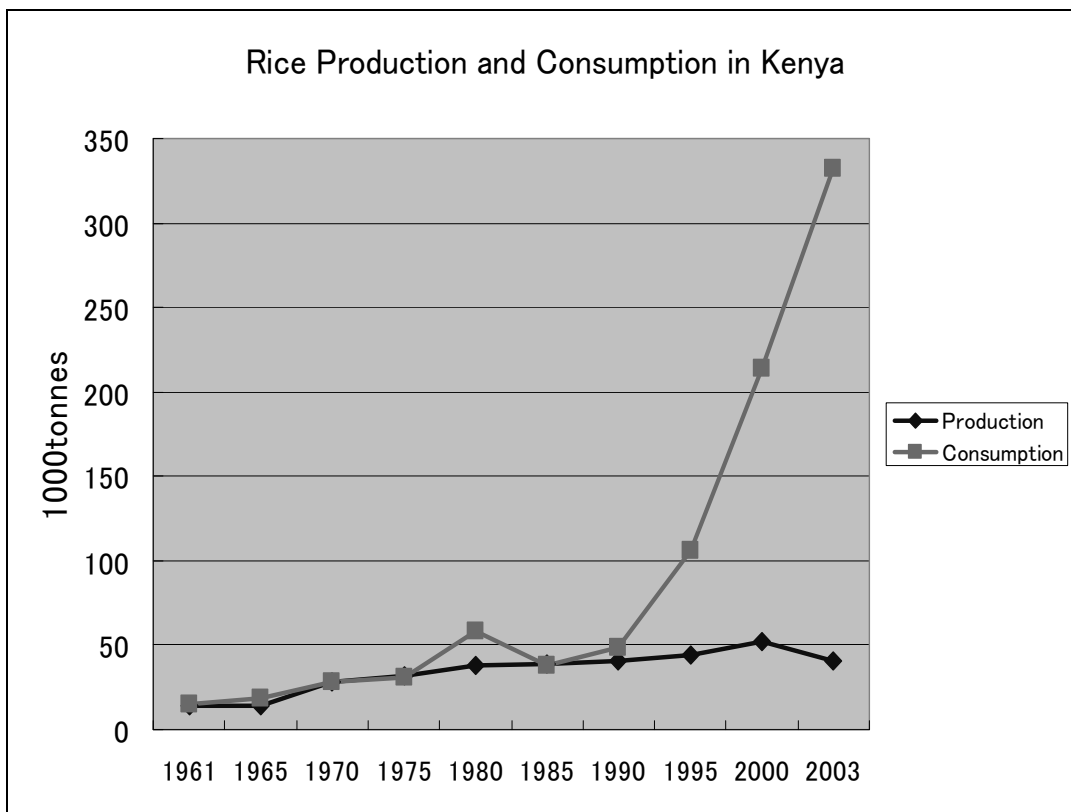
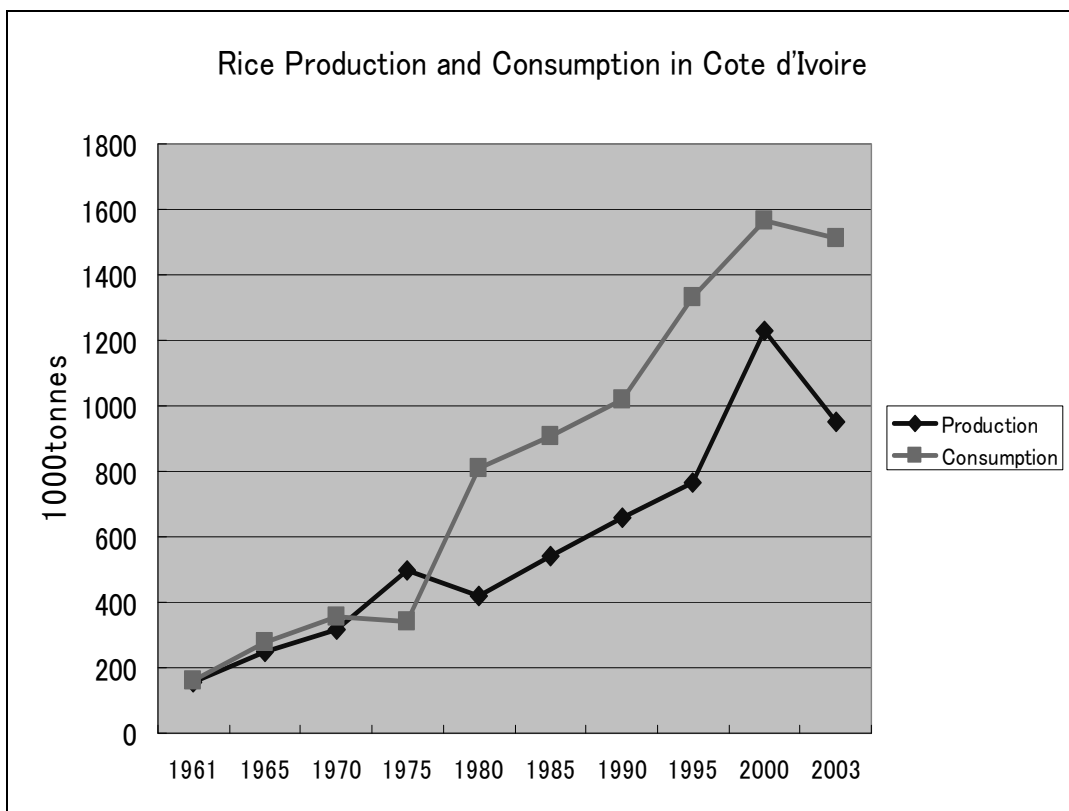


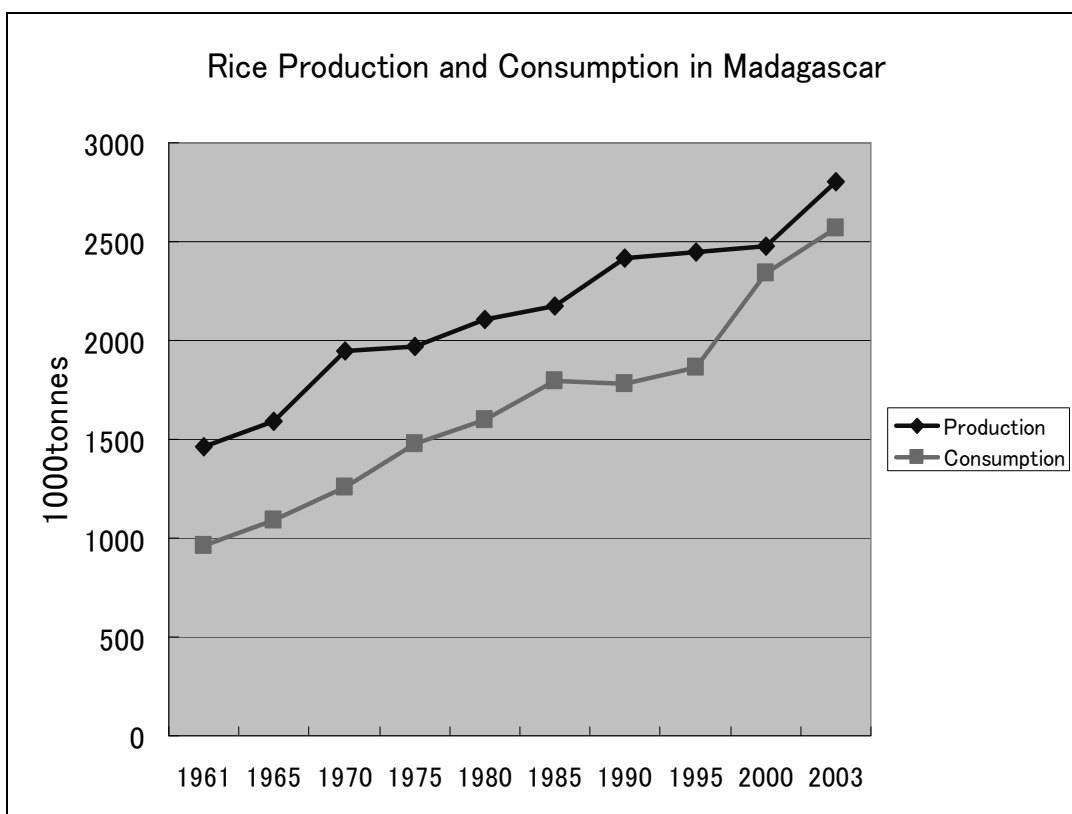
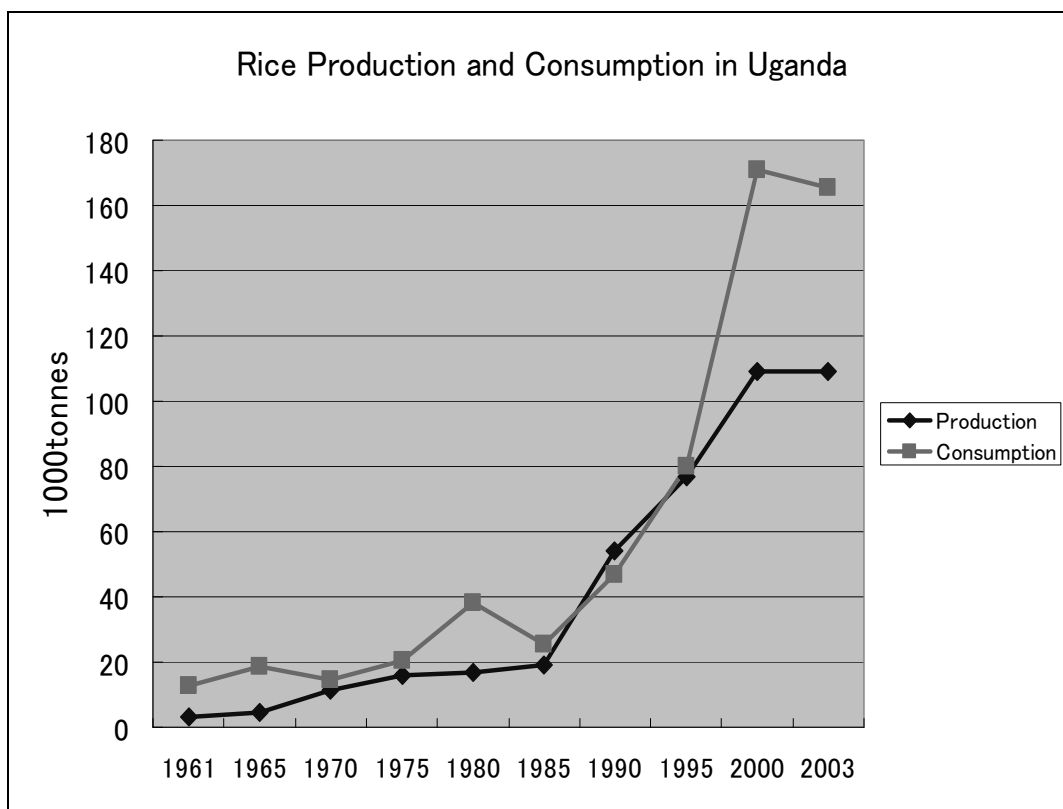


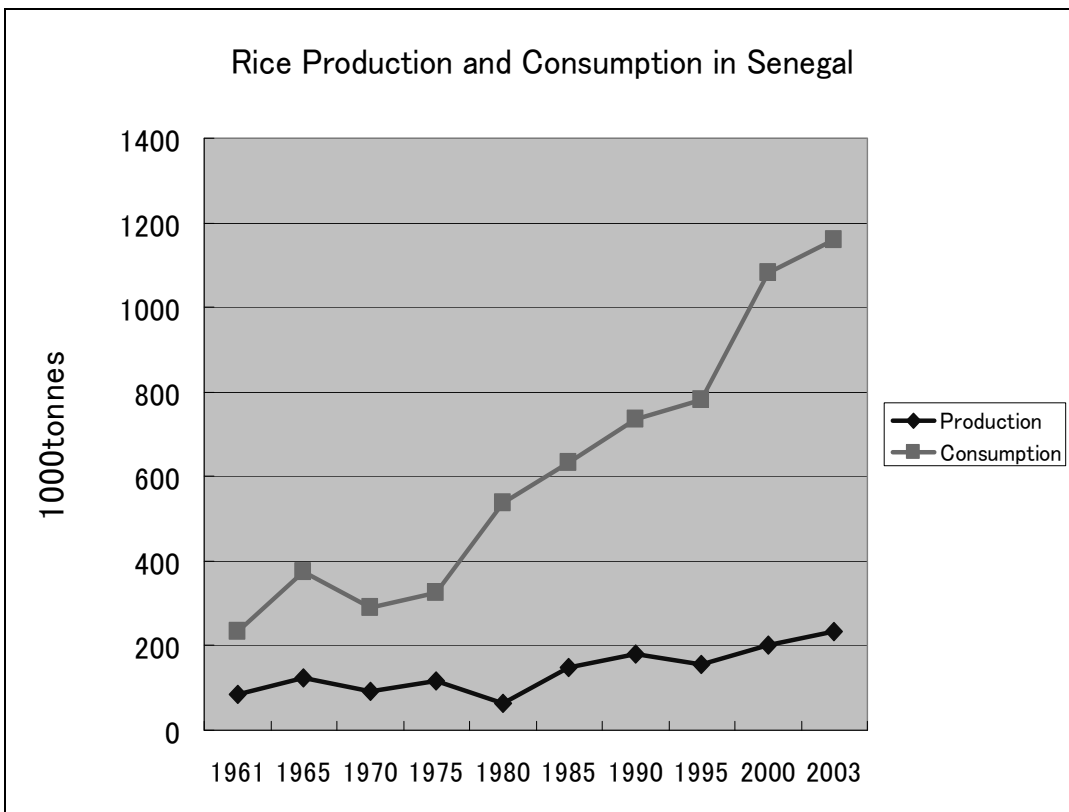
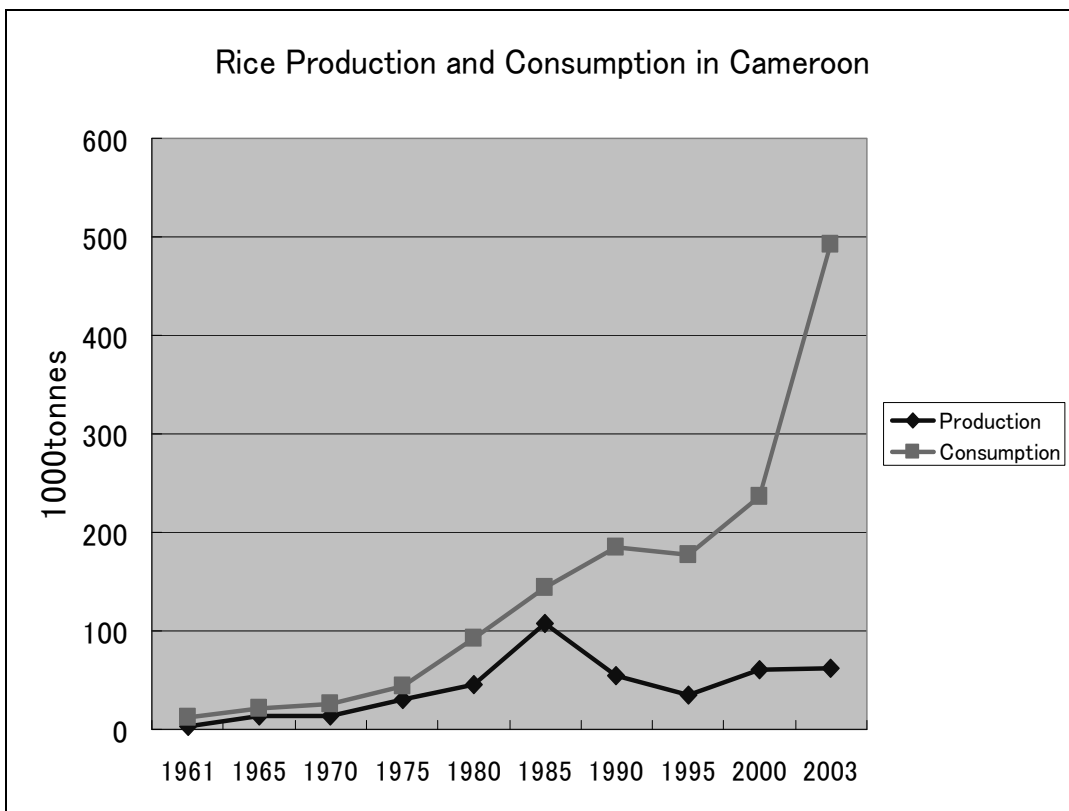
Rice Producing Countries in Africa listed in the FAOSTAT			
Central Africa (7)	Cameroon	Eastern Africa (10)	Burundi
	Central African Republic		Comoros
	Chad		Djibouti
	Democratic Republic of the Congo		Eritrea
	Gabon		Ethiopia
	Republic of the Congo		Kenya
	Sao Tome and Principe		Rwanda
Western Africa (16)	Benin		Seychelles
	Burkina Faso		Tanzania
	Cape Verde		Uganda
	Cote d'Ivoire	Southern Africa (12)	Angola
	Gambia		Botswana
	Ghana		Lesotho
	Guinea		Madagascar
	Guinea-Bissau		Malawi
	Liberia		Mauritius
	Mali		Mozambique
	Mauritania		Namibia
	Niger		South Africa
	Nigeria		Swaziland
	Senegal		Zambia
	Sierra Leone		Zimbabwe
	Togo		

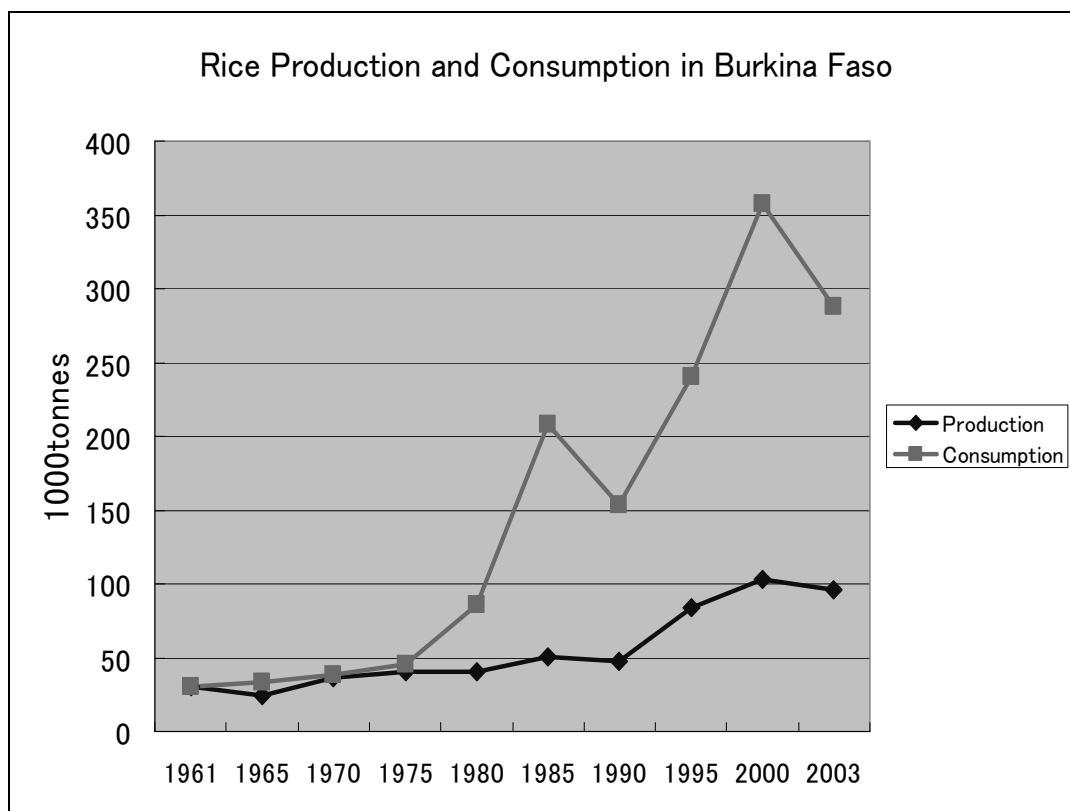
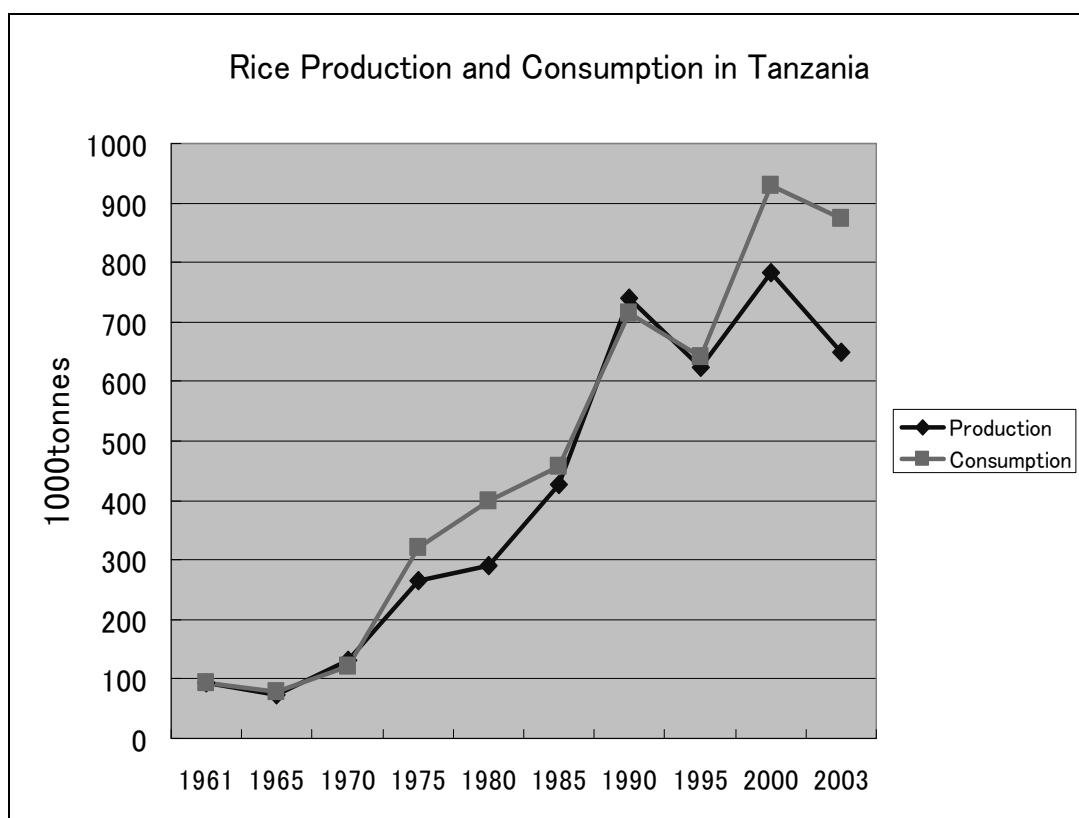


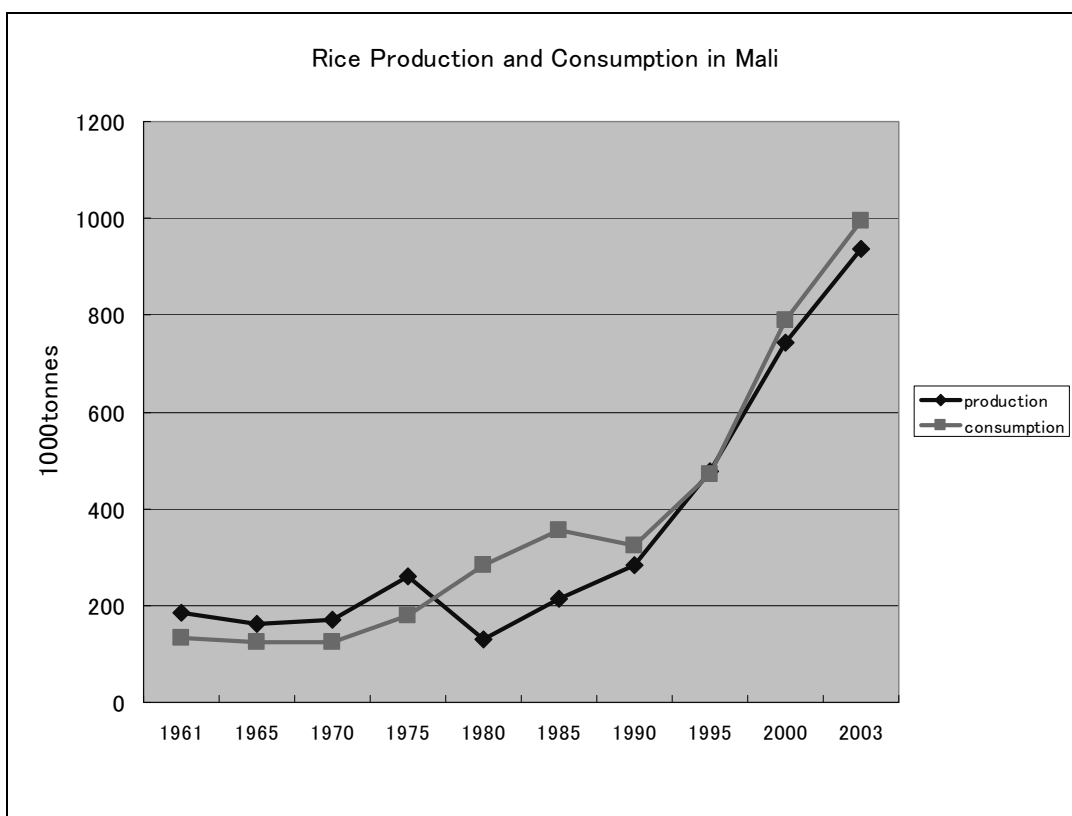
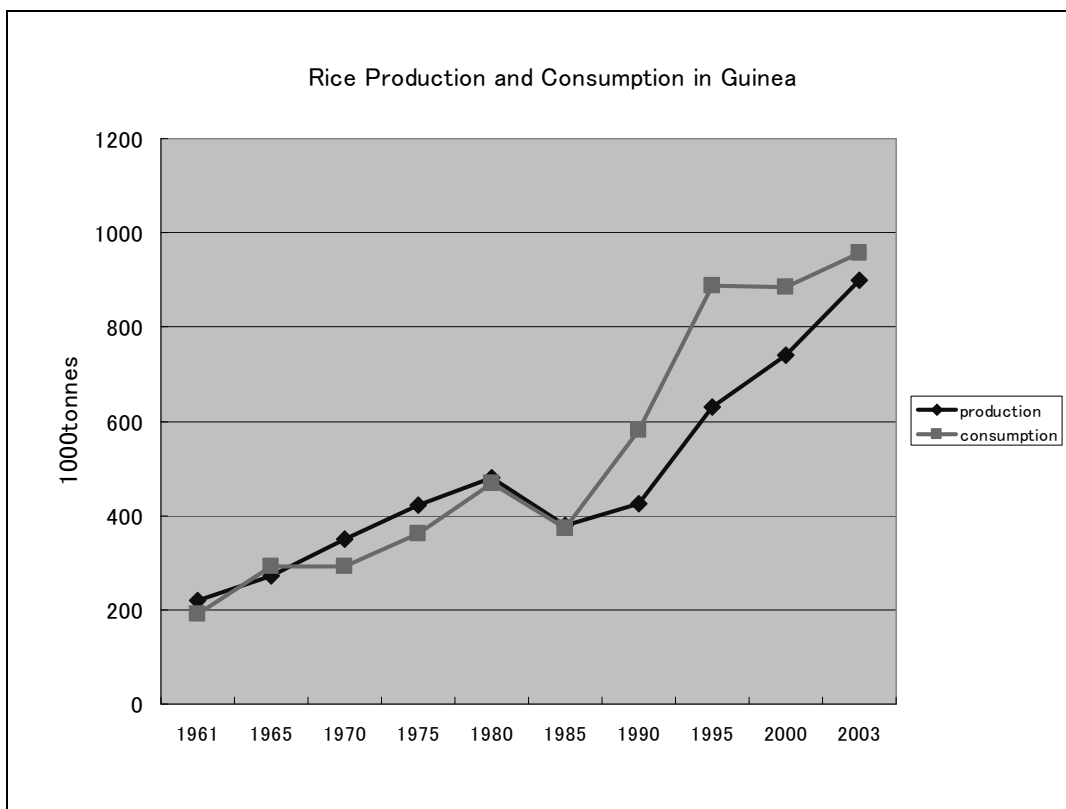














## Profile

### 浅沼 修一 Shuichi Asanuma

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1977年名古屋大学大学院農学研究科博士課程修了。1979年12月からナイジェリアにある国際熱帯農業研究所(IITA)でポストドクトラルフェローとしてダイズとカウピーの根粒菌の研究に従事。1983年から九州東海大学農学部で土壌肥科学の講師を勤めたのち、1986年、農林水産省北海道農業試験場に採用され、1993年に九州農業試験場に異動。この間一貫して圃場における根粒菌利用の研究に従事。1998年6月から国際農林水産業研究センター(JIRCAS)に勤務。JIRCASでは国際プロジェクト研究の調整業務や研究企画業務に従事。2003年11月からJIRCAS沖縄支所長として研究運営管理を担当し、同時に、カンキツグリーニング病プロジェクトのリーダーをつとめる。2005年4月、名古屋大学農学国際教育協力研究センター教授、現在に至る。専門分野は土壌生物学、農学分野における国際協力研究。

### *Academic career*

Professor Shuichi Asanuma graduated from Post-Graduate School of Nagoya University in 1977.

### *Professional career*

Professor Shuichi Asanuma started his professional career as a post-doctoral fellow for the International Institute of Tropical Agriculture (IITA), Nigeria, from 1979 to 1983, working on rhizobium of soybeans and cowpea. In 1983, he started to work as a lecturer for the faculty of agriculture, Kyushu Tokai University, Japan. In 1986, Professor Asanuma joined the Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF), and worked as a soil microbiologist for the National Agricultural Experiment Station of MAFF, in Hokkaido from 1986 and in Kyusyu from 1993. He was transferred in June 1998 to Japan International Research Center for Agricultural Sciences (JIRCAS), an organization of MAFF, as the international research coordinator and later as the head of research planning section. Professor Asanuma assumed the Okinawa Subtropical Station of JIRCAS in November 2003 as the director, leading its research and management, citrus greening disease project particularly. Since April 2005, he has worked as a professor of International Cooperation Center for Agricultural Education (ICCAE), Nagoya University. His fields of specialization is soil microbiology and international cooperation study in agricultural areas.