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# OUTLOOK OF GLOBAL AND REGIONAL FOOD SECURITY, AND ITS IMPACT TO JAPAN

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He returned to FAO in 1985, based at the FAO Regional Office for Africa in Ghana for 4 years, and was transferred to FAO headquarters in Rome in 1989 working as a project operations officer. Seven years later, he was appointed the FAO representative in Bangladesh (1996) and served there till his transfer to the FAO Regional Office for Asia and the Pacific in Bangkok in 1999.

Based in Bangkok, he has progressively been assigned to senior positions as the chief of the Operations Branch, chief of the Policy Assistance Branch and deputy regional representative. He was appointed assistant director-general and FAO regional representative for Asia and the Pacific in March 2010.

# ABSTRACT

The world population is projected to increase from the present level of 7.1 billion to over 9 billion by 2050. Thus, more food is needed to feed the rapidly growing world population, especially for the next 30-40 years towards 2050. Another challenge is a rapid increase in per capita food consumption which is predicted to exceed 3,000 kcal per day per capita by 2050 from that of 2,770 kcal in 2005/07 reflecting increased number of people in middle income countries who would consume more food, especially meat, milk, eggs, fish, etc. On the other hand, rapid urbanization is taking place. It is estimated that nearly 65-70% of the total population would live in cities in 2050.

Overall, world agricultural production would need to increase by 60% (or 77% for developing countries alone) between 2005/07 and 2050 to meet the needs of the growing population. FAO's baseline projections to 2050 indicate that it should be possible to meet this target, if we would be able to advance agricultural research and succeed in yield increase.

However, there are several serious constraints and challenges, such as the stagnation of expansion of arable lands, increasing scarcity of water resources, decline of agricultural productivity growth affected by lack of investment in agriculture in recent decades, high food losses and waste, and various uncertainties including future crude oil prices, negative impact of climate changes and natural disasters, and rapid expansion of bio-energy crops which would compete the use of lands and water with food crops.

We are yet not fully sure if we can overcome these constraints to achieve the goal, as many of which are unpredictable. What will happen if the world is unable to meet the production target, and if there is a food shortage in the future? We anticipate that the export ban of food by food exporting countries to protect their own consumers might happen as witnessed previously, which would result in great uncertainties and food insecurity for food importing countries. The situation would likely cause food price crisis, negative impact to the poor consumers, and might lead to social unrest and political instability in vulnerable countries as already seen in recent past. Japan may not be an exception.

In order to prevent or minimize such negative consequences, it would be necessary to prepare for potential food crisis and identify measures to prevent risks, particularly for food importing countries.

As a first step, a clear agricultural policy and food security policy and strategy should be formulated and implemented through multi-disciplinary and inter-ministerial coordination and public-private sector partnership. More specifically, it is suggested that domestic food production should be maximized on sustainable manner to reduce import dependence through protecting agricultural lands, encouraging farmers to grow more food with quality and safety, promoting soil fertility and water saving technology, promoting climate change adaptation and mitigation technology, accelerating the benefit of research on the 2nd and 3rd generation of bio-fuel, reducing post-harvest losses and waste, promoting agro-processing and value additions, expanding value chains and markets, promoting sustainable agricultural mechanization, attracting young generations to become farm successors, and advancing agricultural research, productivity growth and bio-technology including vertical farming, plant factory, urban/peri-urban agriculture and other innovative technologies. These initiatives mean not only a more stable domestic food supply, but also fresher, safer and more nutritious food.

On the other hand, it is suggested that the role of food processing industry be enhanced towards the manufacturing of safe and quality processed foods using raw materials imported or locally produced for export market or domestic market, which would eventually enhance national food security and facilitate narrowing food trade balance.

Of course, such domestic food strategies have obvious limitations, and food importing countries such as Japan will never be self-sufficient in food. Therefore, promoting technical cooperation with food exporting developing countries, especially those in Southeast Asia, would increase political, economic

and psychological ties and mutual trust, and would facilitate securing long-term stable food import from them.

One particular area where Japan can contribute is to build upon its current work and expand its reputation as an international center of excellence in agricultural research including bio-technology and other technology supporting small scale farmers. Such research is crucial for assuring global and regional food security as well as for developing a healthy agricultural sector, and it is the one area where Japan actually has a comparative advantage in agriculture.

Cooperation in agricultural research has much more potential to improve Japan's food security than buying land in other countries, which often leads to feelings of mistrust and damages relationships with other countries. In addition, even if a country owns land in another country, there is no guarantee that the food produced on those farms can be exported in times of crisis. It may be possible to invest in some land in developed countries with land surpluses, but buying land in developing countries with limited land is very problematic.

Japan may wish to promote further in free trade, especially free trade agreements in food and agriculture. Freer trade generally means more food security for Japan and for other countries as well. It will also help to diversify trade sources, in order to avoid excessive dependence on one or two partners. Japan may also wish to negotiate long-term forward contracts for various foods in order to ensure stability of supply. Building emergency food reserve is another measure which would help to cope in any emergency situations.

Japan has created very close ties with ASEAN and its members. It would be important to promote ASEAN Integrated Food Security Framework and associated food security policies to ensure strong commitments within ASEAN community to help each other to achieve sustainable food security. Japan may benefit from this regional governance under the framework of ASEAN +3 and alternatively a larger framework such as ASEAN +6.

Finally, on the consumption side, Japanese consumers might be encouraged to re-evaluate their diets. Exportation of dietary models based on modern food technologies and traditional Japanese diets will create new markets and rich food culture with improved health and nutrition in the world. It would also be important to reduce food losses and table wastes, as we anticipate nearly 15-20 % of foods are wasted in Japan after they are cooked and served at dining tables.

In conclusion, we need to promote food security policy, sustainable domestic food production and consumption, long-term trust with food exporting countries to secure sustainable supply of foods, and promote awareness and advocate the importance of food and agriculture among all generations in society to ensure food for all, for our future generations.

## **KEYWORDS**

food security, FAO, climate changes, ASEAN, Japan

## **REFERENCES**

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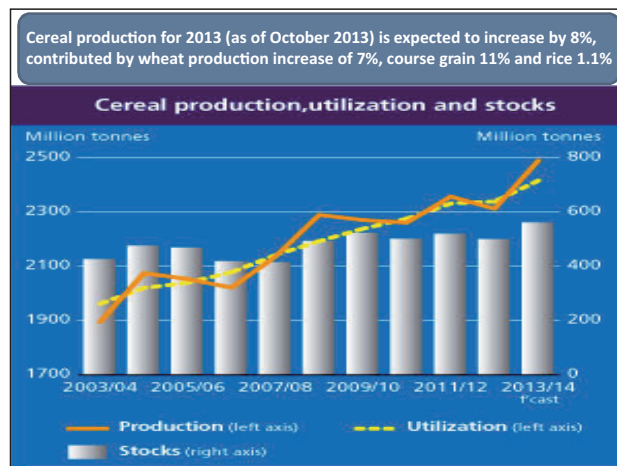


## Outlook of Global and Regional Food Security, and its Impact to Japan

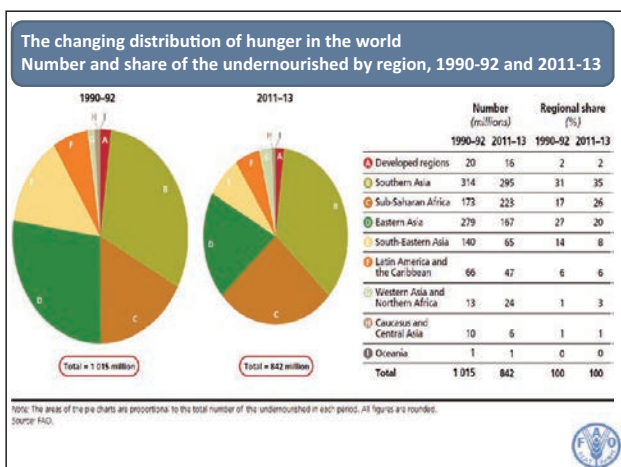
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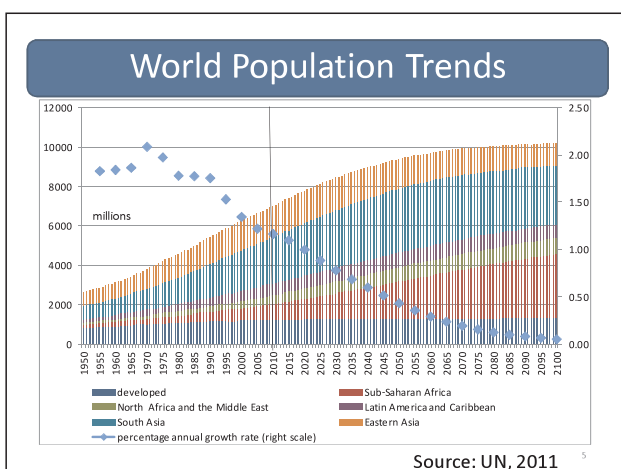


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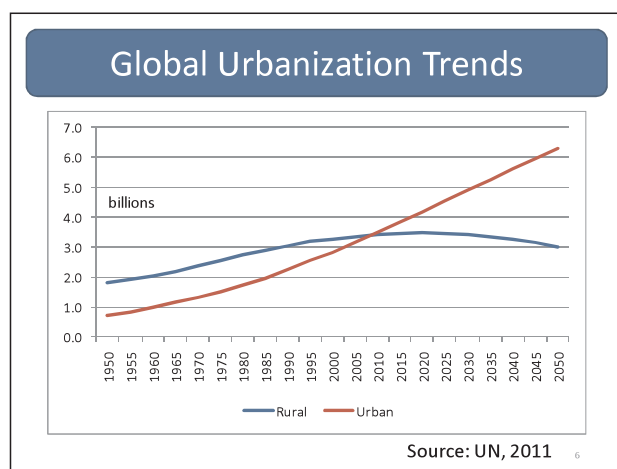
### Future Outlook Towards Year 2050

Can we produce sufficient food to meet the demand of the growing future population ?

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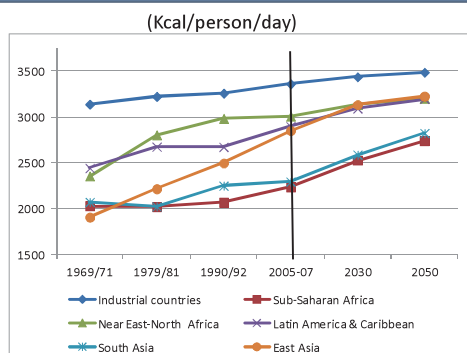


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## Food Consumption Trends



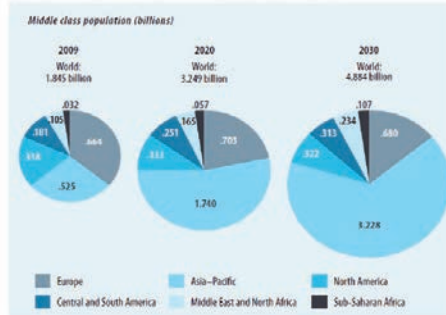
Source: Alexandratos, 2011

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## Middle-Income Class Population

(source: UNDP Human Dev. Report 2013)

The middle class in the South is projected to grow continuously

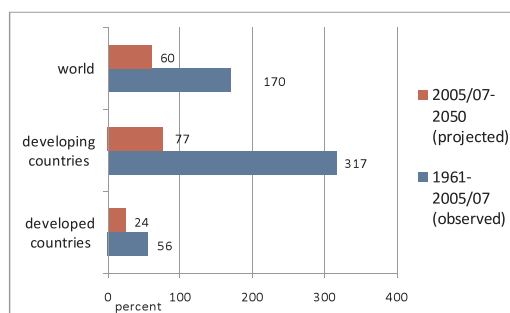


Notes: The middle class includes people earning or spending \$10-\$500 a day (in 2005 purchasing power parity terms). Source: Brookings Institution 2012.



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## 60% increase in food production needed by 2050 (77% increase, if developing countries only)



Source: Bruinsma, 2011



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## Future Outlook Towards Year 2050

Can we increase food production by 60 %  
(or 77% in developing countries) by 2050  
to meet the needs of growing population  
which would exceed 9 billion at that time?

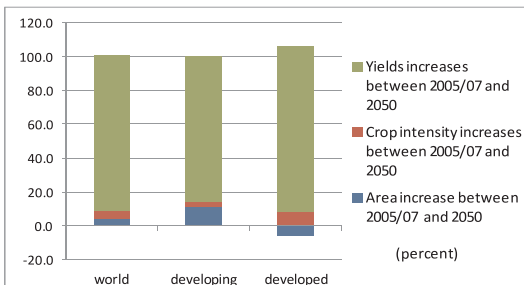
Yes! In principle  
we have to

**But majority of it (91 %) has to come from  
existing arable land through agricultural  
research and yield increase**

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## Sources of Production Growth (91% is expected to come from yield increase)



Source: Bruinsma, 2011

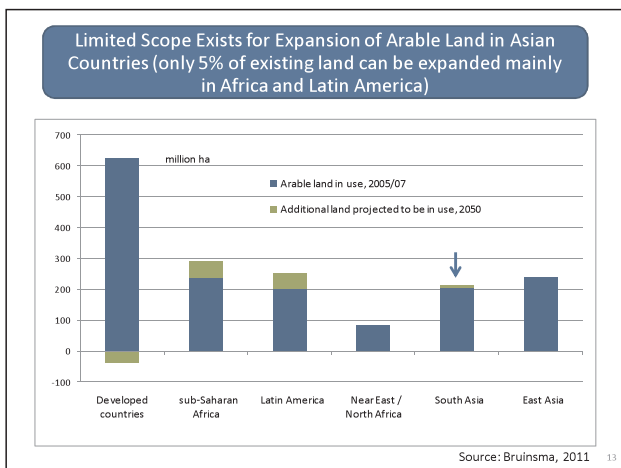
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## Targeted Increases in Food Production must be met under Existing Constraints and uncertainties

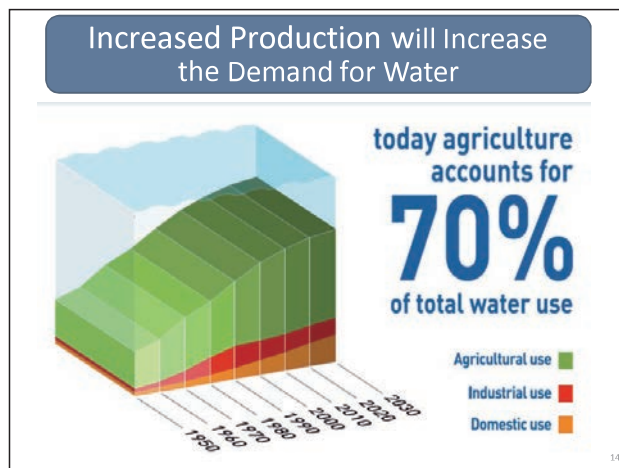
- Stagnation of expansion of arable land
- Increasing scarcity of water resources
- Decline of productivity growth affected by lack of investment in agriculture in recent decades
- Increasing post-harvest losses and table waste
- Various uncertainties such as future crude oil prices, food price hike and volatilities, negative impact of climate changes and natural disasters, and bio-fuel development.



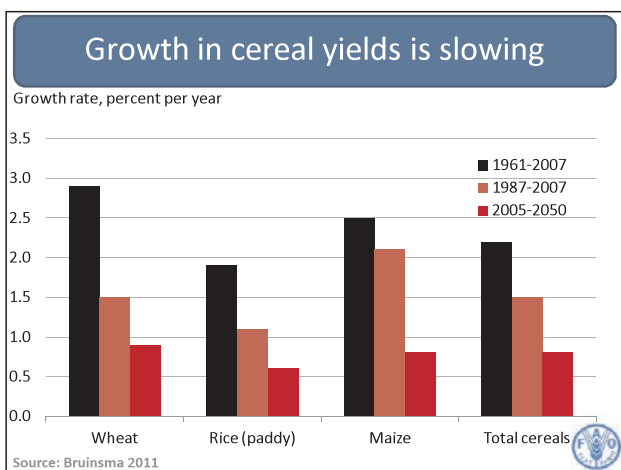
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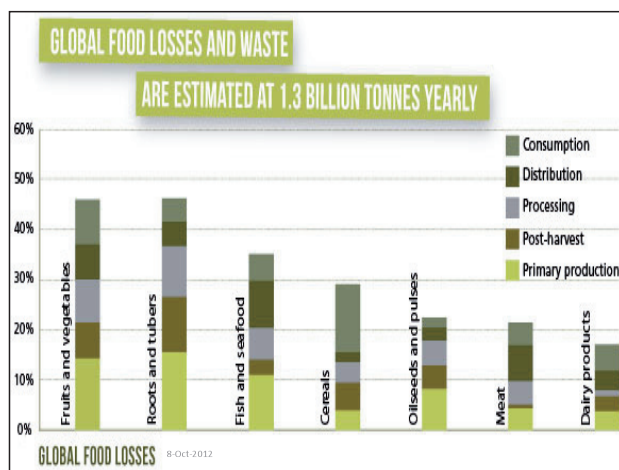
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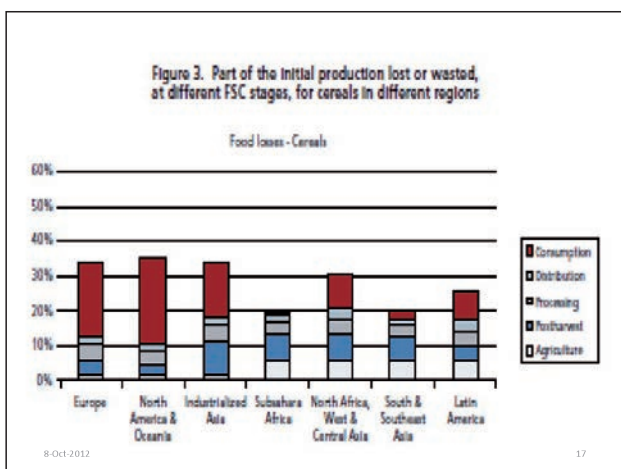
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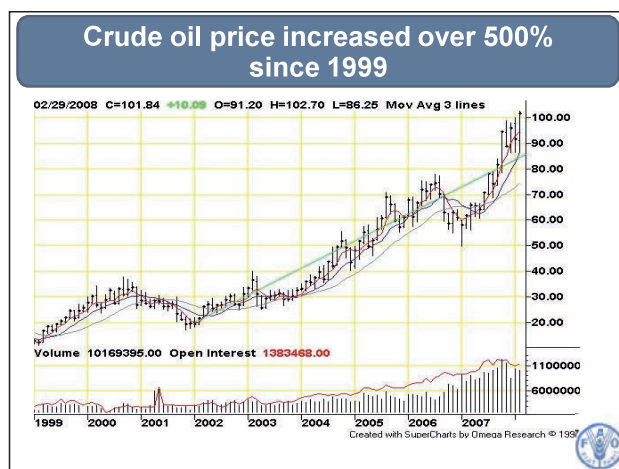
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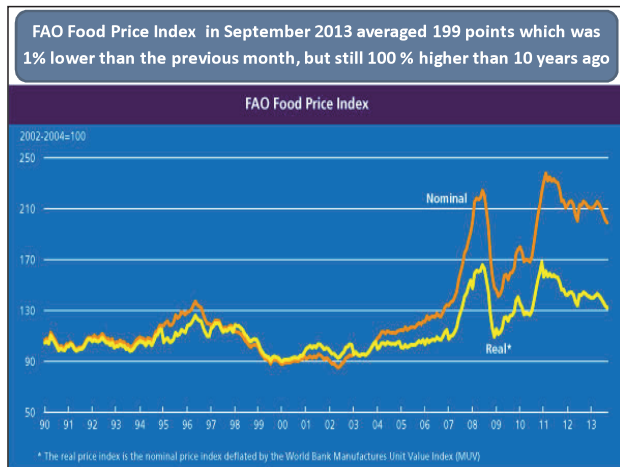


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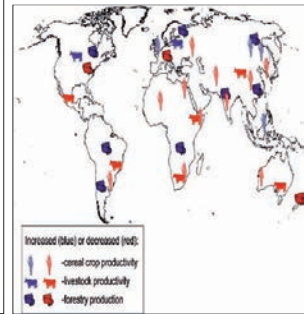
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## Uncertainty: climate change

"worse case" 2080 scenario:

- less harvested area, up to -39% (World) and -29% (developing countries)
- up to 130 million more undernourished in S-SH Africa

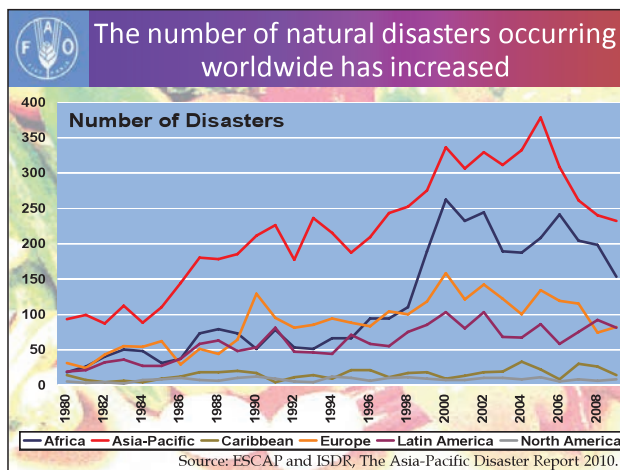
Source: IIASA (Fischer, 2011)



Source: IPCC (2007)

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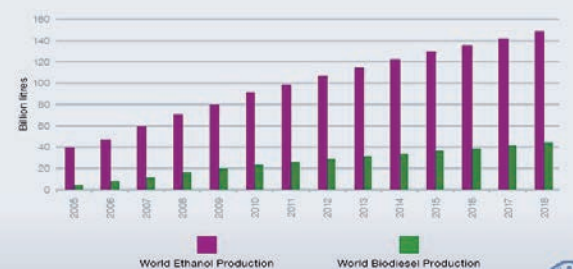
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World bio-ethanol and bio-diesel production is projected to be doubled in 20 years between 2009 and 2018; increasing competition of land and water use with food production

Figure 2. World ethanol and biodiesel projections, 2006-2018

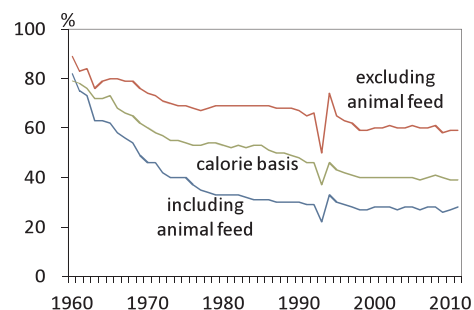


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What are the implications and impact for Japan (less than 40% self-sufficiency rate in calorie basis) for its future food security?

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## Japan's self-sufficiency rate



Source: Ministry of Agriculture, Forestry and Fisheries, Japan, [http://www.maff.go.jp/j/zyukyu/zikyu\\_ritu/012.html](http://www.maff.go.jp/j/zyukyu/zikyu_ritu/012.html)

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### Potential Risks (if the world is unable to meet the production target, and if there is a food shortage)

- Export ban of food by food exporting countries to protect their own consumers
- Uncertainty to secure food import
- Food price hike
- Food price volatility
- Negative impact on poor consumers
- Social unrest, political instability, .....

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In order to prevent or minimize such negative consequences, it would be necessary to prepare for the potential food crisis and identify measures to prevent the risks, particularly for food importing countries.

#### A. Policy

- A clear national agriculture, food security and energy policy.
- Reduce import dependence.
- Active participation in international effort to strengthen global governance on food security to prevent food crisis.

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### B. Promote Domestic Production

- More specifically, it is suggested that the domestic food production should be maximized on sustainable manner to reduce import dependence through
- protecting agricultural lands,
- encouraging farmers to grow more foods with quality and safety,
- promoting soil fertility and water saving technology,
- promoting climate change adaptation and mitigation technology,
- accelerating the benefit of research on the 2<sup>nd</sup> and 3<sup>rd</sup> generation of bio-fuel,
- reducing post-harvest losses and waste,
- promoting agro-processing and value additions,
- expanding value chains and markets,
- promoting sustainable agricultural mechanization,
- attracting young generations to become farm successors
- advancing agricultural research, productivity growth and bio-technology including vertical farming, plant factory, urban/peri-urban agriculture and other innovative technologies.

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### C. Food industry, Trade

- Promote competitiveness of food processing industry
- Encourage more free trade agreements to secure food supply
- Diversify trade sources
- Negotiate long-term forward trade contracts
- Establish emergency food reserve
- Promote food security partnership with ASEAN, ASEAN +6

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### D. Consumption

- Re-evaluate diet, export dietary model
- Reduce food losses and waste
- Create awareness and advocate the importance of food and agriculture

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### E. Agricultural Research and Technical Cooperation

- International center of excellence in agric. research
- Promote technical cooperation
- Building up sense of mutual trust, secure long-term stable food import assurance

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#### **F. Conclusion**

- In conclusion, we need to promote national food security policy and prepare for potential risks, contribute to global governance on food security to prevent food crisis, enhance sustainable domestic food production and consumption, harness agricultural research and contribute to global efforts, establish long-term trust with food exporting countries to secure sustainable supply of foods, and promote awareness and advocate the importance of food and agriculture among all generations in the society to ensure food for all for our future generations. Thank you.

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**Chair Koyama:** Good afternoon, ladies and gentlemen. I have the honor to introduce today's distinguished keynote speaker, Mr. Hiroyuki Konuma. He is Assistant Director-General of FAO, the Food and Agriculture Organization of the United Nations. He is currently stationed in Bangkok, Thailand as the Regional Representative for Asia and the Pacific.

As you see in his brief profile on the last page of the program, he has been working for many years outside of Japan, basically in developing countries, devoting himself to agricultural development, especially for poor farmers, but he never forgets about Japanese agriculture too. He is always giving good suggestions to us. He kindly accepted our invitation despite his very busy schedule, so I would like to thank him again on this occasion.

He will talk about "Outlook of Global and Regional Food Security, and its Impact to Japan." I think we will get stimulating suggestions from his keynote speech. So let's call Mr. Hiroyuki Konuma to the stage. Mr. Konuma, please.

**Mr. Hiroyuki Konuma:** Distinguished guest, speakers, participants, ladies and gentlemen, first of all, I wish to express my gratitude to JIRCAS for inviting me for this very important gathering today. I also wish to thank the United Nations University for hosting this symposium.

I wish to start my presentation by reviewing present global food production and food security situation, followed by assessing future outlook and challenges in food security, and their potential implications and impact to Japan.

At present, the world produces more than sufficient food to meet the demand of everyone, and maintains adequate food stocks. Indeed, with an estimated good harvest this year, at present, cereal supply is about 3 percent higher than the estimated demands.

Preliminary forecast of cereal production for 2013 (as of October 2013) shows an estimated increase of production by 8 percent to about 2.5 billion m/t with world record, contributed by increase of wheat production by 7 percent, coarse grain 11 percent and milled rice by 1.1 percent.

Despite of this, the world is a home of 842 million undernourished people in 2011-13. The number of hungry people in the world remains unacceptably high. One in every eight people is suffering from chronic hunger. The vast majority of them (98 percent) live in developing countries (826 million people). One out of 4 children under the age five are stunted which may affect their life time physical and mental growth.

Indeed, the fundamental cause of chronic hunger is not food production itself, but due to largely lack of accessibility to adequate and quality food by the poor and disadvantaged groups in society.

Asia Region remains a home of nearly two thirds (63 percent) of the world total chronic hunger population, despite of its rapid economic growth.

The benefit of economic growth was not equally shared among population in different economic status. In many cases, it benefitted the rich who could invest further, while the poor who did not have a capital or resources were left behind, resulted in widening of income disparity and social equity.

The question before us in this challenging time is what is the food requirement to meet the needs of growing population and what is the future prospect of production and challenges in food production to ensure food security for our children and future generations. FAO has been looking at this question analytically for many years and has produced a series of perspective studies projecting the state of world food and agriculture in the future. The most recent study makes projections to the year 2050.

One of the most critical challenges is the population growth. The world population is projected to increase from present level of 7 billion, and would exceed 9 billion by 2050.

Thus, more food is needed to feed the rapidly growing world population, especially for next 30-40 years towards 2050. The annual population growth rate is projected to slow down from present level of 1.2 percent to less than 0.5 percent in 2050. Another challenge is a rapid urbanization and change in dietary habit which would result in increased demand of meat, milk, eggs, fish, etc.

At present, a half of world population live in cities. It is estimated that 60 percent of world population would live in urban centres in 2030 and nearly 70 percent by 2050.

For Southeast Asia, nearly 63 percent of total population is expected to live in urban areas in 2050. This implies a rapid decline of agricultural labour force, changes in dietary habits, growth in the importance of urban and peri-urban agriculture to meet food needs, etc.

With the advancement of economy, per capita food consumption per day has increased and reached 2,770 kcal/person/day in 2005/07, while it was only of 2,370 kcal/person/day at the beginning of the 1970s. There are identical differences among the regions. In our most recent (provisional) projections, the world average consumption is expected to be just over 3,000 kcal/person/day in 2050.

Per capita consumption in East Asia is expected to approach saturation levels, reaching 3,225 kcal/person/day in 2050. The middle income class is estimated to increase by 2.5 times between 2009 and 2030. For Asia and the pacific region, it would be increased by 6 times by 2030, largely contributed by China, India and Indonesia. This would imply to rapid increase of demand for high value food commodities such as meat, dairy products, fish, etc.

Overall, world agricultural production would need to increase by about 60 percent (77 percent for developing countries alone) between 2005/07 and 2050. However, if we compare these expected developments with the past, we realize that this is a slowdown: in terms of growth rates, as world agricultural production has recorded an increase of about 170 percent between 1961-63 and 2005-07, largely contributed by green revolution. For Asia alone, the green revolution facilitated cereal production increase of 300 percent during the same period, which pushed the cereal prices down by 40 percent in real term and halve the proportion of chronic hunger from 34 to 17 percent during the same period.

In summary, FAO's baseline projections to 2050, indicate that it should be possible to meet the food (including feed) demand of the projected world population of year 2050, making reasonable assumptions about growth in yields and in land and water use. Achieving the projected increase in production. However, will require several significant challenges to be met, and may have side-effects that need to be addressed.

Can we increase food production by 60 percent (or by 77 percent in developing countries) by 2050 to meet the needs of growing population which would reach 9.2 billion at that time? from almost fully exploited arable land and scarcity of water? The answer is "yes, in principle. We have to." But majority of it has to come from existing arable land through agricultural research and yield increase.

FAO's projections indicate that the most likely outcome will be an intensification of production. At world level, about 91 percent of the growth in production is expected to derive from increases in yields, while 4.3 percent would originate from area expansion and another 4.5 percent from an increase in crop intensity. In developing countries, 12 percent of the projected growth in crop production would come from an increase in arable land, while higher cropping intensities would account for 3 percent and about 85 percent would originate from increased yields. The projected intensification will carry increased environmental pressure that needs to be addressed through improved and more eco-friendly and climate-smart cultivation techniques. This also necessitates that

greater attention be accorded to the development of food crops of high productivity that can grow well on marginal lands and that can tolerate growth in unique habitats such as fresh water swamps and saline conditions .

Even if we succeed to increase food production by 60 percent by 2050, it is just only one achievement out of many constraints we have to overcome. Indeed, there are several critical constraints and uncertain factors which are out of our control and would influence food security. We have to attain the target under existing constraints such as stagnation of expansion of arable land, increasing scarcity of water resources, decline of productivity growth affected by lack of investment in agriculture in recent decades, and various uncertainties such as future crude oil prices, food price hike and volatilities, negative impact of climate changes and natural disasters, and uncertainty of bio-fuel development.

According to FAO data, in 2005/07 about 12 percent of the globe's land surface was used for crop production, corresponding to little more than 1.5 billion ha. In 2050 arable land is expected to expand by some 70 million ha, or less than 5 percent. Such expansion would happen mainly in Sub-Saharan Africa, Latin America and part of Asia. Most of the projected increase in arable land use is concentrated in a small number of developing countries, including Brazil, Indonesia, Nigeria, Ethiopia. The size of arable land in some of Asian counties such as China and Vietnam started to decline.

Water resources are becoming more and more scarce. Do we have enough water to support the projected increase in production? Historically irrigation has been a major determinant of increased production and productivity. Agriculture uses about 70 percent of the water resources of the planet. If we aim to increase agricultural production by 60 percent towards 2050, increase in demand for water use for agriculture is predicted and the pressure on water resources would be increased considerably. Therefore, another major challenge will be water saving agricultural production and improving irrigation technology and increasing the efficiency of irrigation systems. Annual productivity growth rate of cereals has been slowed down considerably since past one decade if compared to the time of green revolution.

Indeed, in the past 10 years, the average annual productivity growth of wheat and rice recorded at around 0.6-0.8 percent, which was below population growth rate of 1.2 percent.

Moreover, we should not forget that a lot of foods are wasted after harvest – as much as 45 percent for fresh fruits and vegetables, and 30 percent for cereals. And a lot of food waste is recorded even after foods have reached on dining table. These figures include wastage of foods after they were cooked. Indeed, 15-25 percent food waste after cooking and they reach our dining table in Europe, North America and industrial Asian countries.

One of future uncertainties which might influence food security is crude oil prices. We often forget that the crude oil price was less than US\$ 20 per barrel in 1999, which is now jumped by over 5 times high at the level of US\$ 105-110 per barrel. This influenced the drastic increase of production cost of foods associated by the cost increase of chemical fertilizers, transportation cost of farm produce, cost of diesel for irrigation, etc. It also resulted in high cost of bio-ethanol and corresponding cost of raw materials especially maize which is one of the key staple foods for human and feed for animals for meat, milk and associated products.

It is still very uncertain how the trend of future crude oil prices will be, which are often influenced by political and social stability of oil producing countries.

Food prices have been volatile in past decade. At present, food prices are more or less stabilized but remain very high. FAO Food Price Index in September 2013 averaged 199 points, which was 1 percent lower than that of in August 2013. However, it is about 100 percent higher than that of 97.7 points in 2003.

According to most credited scientists, key climate variables are likely to change over the coming decades. Global

mean surface temperatures are projected to increase between 1.8°C and 4.0°C by 2100. This entails higher carbon dioxide concentrations, changes in the pattern of precipitation, increased weeds, pests and diseases. Impacts on agricultural production are likely to be unevenly distributed. Broadly speaking, the Southern hemisphere may suffer damages in terms of declining yields and greater frequency of extreme droughts and floods. The estimated aggregated negative impact on African agricultural output ranges from 15 to 30 percent. And developing countries are expected to increase their food imports under climate change scenarios. In the Northern hemisphere, instead, higher temperatures may benefit agriculture, expanding potentially suitable crop areas and yields. In the worst scenario in 2080, world would have 39 percent less harvested areas, while developing countries have 29 percent less which might result in additional 130 million undernourished people in sub-Sahara Africa.

In Asia and the Pacific region, negative consequences of climate change are seen as a frequent occurrence of natural disasters such as floods and droughts which has doubled in past 10 years. These have affected food production and price stability. On the other hand, bio-energy crops compete with food crops on the use of land and water which are already scarce and hence threaten food security.

It is projected that the bio-ethanol and bio-diesel production would be doubled in 20 years from 2009, which would influence food security if choices are left entirely to farmers. A comprehensive food security and bio-energy policy is needed to promote appropriate land use planning and to ensure that food security would not be compromised by the excess expansion of bio-fuel production.

What are the implications and impact for Japan (less than 40 percent self-sufficiency rate in calorie basis) for its future food security? Japan's food self-sufficiency rate has declined considerably in past 50 years from nearly 80 percent in 1960 to around 40 percent in 2010. We should not forget that domestic meat, dairy and other livestock production is very much dependent on imported feeds.

As I mentioned, in theory, world would be able to produce sufficient food to meet the demand of growing future population. However, there are many factors which pose uncertainty and risks to achieve the target. Let's look at the potential risks if the world is unable to meet the production target, and if there would be a food shortage in the future. We anticipate that export ban of food by food exporting countries to protect their own consumers might be happened as observed previously, which would result in great uncertainty to secure food import by food importing countries. The situation might result in food price hike, food price volatility, negative impact to the poor consumers, and might lead to social unrest and political instability in some countries as witnessed in recent past in number of countries.

In order to prevent or minimize such negative consequences, it would be necessary to prepare for the risks of potential food crisis and identify measures to prevent them, particularly for food importing country like Japan.

As the first step, a clear national agricultural policy and food security policy and strategy should be formulated and implemented through multi-disciplinary and inter-ministerial coordination and public-private sector partnership. Reducing food import dependence would be an important step to build up national solidarity, even if self-sufficiency. At the same time, active participation in international effort to strengthen global governance on food security to prevent food crisis is important.

More specifically, it is suggested that the domestic food production should be maximized on sustainable manner to reduce import dependence through protecting agricultural lands and agricultural heritages, encouraging farmers to grow more foods with quality and safety, promoting soil fertility and water saving technology, promoting climate change adaptation and mitigation technology, accelerating the benefit of research on 2nd and 3rd generation of bio-fuel, reducing post-harvest losses and waste, promoting agro-processing and value additions, expanding value chains and markets, promoting sustainable agricultural mechanization, attracting young generations to become successor farmers, and advancing agricultural research, productivity growth and bio-

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On the other hand, it is suggested to enhance the role and competitiveness of food processing industry towards the manufacturing of safe and quality processed foods using low materials imported or locally produced for export market or domestic market, which would eventually enhance national food security and facilitate narrowing food trade balance.

Japan may wish to promote further in free trade, especially free trade agreements in food and agriculture. Freer trade generally means more food security for Japan and for other countries as well. It will also help to diversify trade sources, in order to avoid excessive dependence on one or two partners. Japan may also wish to negotiate long-term forward contracts for various foods in order to ensure stability of supply. Building emergency food reserve is another measure which would help in coping with any emergency situation.

Japan has created a very close tie with ASEAN and its members. It would be important to promote ASEAN Integrated Food Security Framework and associated food security policies to ensure strong commitments within ASEAN community to help each other to achieve a sustainable food security. Japan may benefit from this regional governance under the framework of ASEAN+3 and alternatively a larger framework such as ASEAN+6 involving wider framework including India, Australia and New Zealand.

On the consumption side, Japanese consumers might be encouraged to re-evaluate their diets. Exportation of dietary models based on modern food technologies and traditional Japanese diets will create new markets and rich food culture with improved health and nutrition in the world.

It would also be important to reduce food losses and table waste, as we anticipate nearly 15-20 percent of foods are wasted in Japan after they were cooked and served at dining table.

One particular area where Japan can contribute is to build upon its current work and expand its reputation as an international center of excellence in agricultural research including bio-technology and other technology supporting small scale farmers (SRI originated from Japan's rice intensification technology is widely recognized internationally). Such research is crucial for assuring global and regional food security as well as for developing a healthy agricultural sector, and it is the one area where Japan actually has a comparative advantage in agriculture.

Cooperation in agricultural research has much more potential to improve Japan's food security than buying land in other countries, which often leads to feelings of mistrust and damages relationships with other countries. In addition, even if a country owns land in another country, there is no guarantee that the food produced on those farms can be exported in times of crisis. It may be possible to invest in some land in developed countries with land surpluses, but buying land in developing countries with limited land is very problematic.

We need to recognize that Japan would never be self-sufficient in food. Therefore, promoting technical cooperation with food exporting developing countries, especially those in Southeast Asia, would increase political, economic and psychological ties and mutual trust, and would facilitate securing long-term stable food import from them.

In conclusion, we need to promote national food security policy and prepare for potential risks, contribute to global governance on food security to prevent food crisis, enhance sustainable domestic food production and consumption, harness agricultural research and contribute to global efforts, promote food security partnership with ASEAN/ASEAN+6, establish long-term trust with food exporting countries to secure sustainable supply of foods, and promote awareness and advocate the importance of food and agriculture among the all generations in society to ensure food for all for our future generations.



Thank you.

**Chair Koyama:** Thank you very much, Mr. Konuma. His speech gave us very updated information on food security in the region and on earth. And he pointed out clear-cut issues for further discussion. He always gives us very stimulating suggestions from a global point of view, which we sometimes miss. We tend to think from inside of Japan but he is always thinking about Japan from outside. Thank you very much. Please join me in giving a big hand for his excellent lecture.