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16

ASEAN-Japan Cooperation to Enhance Food and Water Security

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Among the many factors necessary to sustain human life, food and water are the two most important. In today's world, when an extensive globalization process is underway and the demand for development in many countries keeps getting stronger and growing faster, the need to ensure food and water security for individuals and states is urgent, necessary, and justifiable.

During the past several decades, the world has observed many important trends that have a serious impact and implications for the future of the human race. First, although the pace of growth has slowed in recent decades, the global population has continued to increase, passing the 7 billion people mark in 2011, and this has led to an ever-growing demand for food and water across the world.[1] Second, increases in human activity have contributed to substantial global warming and climate change, the effects of which have been seen around the globe. These changes have many implications for agriculture and production patterns, which all countries around the world must now take into account when dealing with food and water security. Third, the world is entering a new period of development, in which the scarcity of natural resources is the most prominent feature. All of these trends, along with others, are putting strong pressure on states and international organizations to design new programs, policies, and measures that will guarantee food production, a stable supply of and access to food, as well as the sustainable use and management of water.

In this context, in recent years the United Nations, together with a number of international institutions and countries around the world, has made great efforts to promote awareness of the importance of food and water security, creating many programs and plans of action and providing the necessary resources to carry them out. The aim is to ensure food and water security

at three levels: individuals, states, and the international system. However, there are still many challenges ahead; more needs to be done, especially in developing regions.

Southeast Asia has long been among the world's leading rice producers, but in recent years, Southeast Asian countries have become more and more vulnerable to global warming and climate change. This situation is threatening the region's rice productivity. If these challenges are not dealt with properly, food and water security for Southeast Asian countries may not be sustained.

Japan is facing the same situation. Even though Japan is the third largest economy in the world, it is constantly affected by severe natural disasters. Japan is facing an unpredictable future in which those natural disasters are likely to become even more severe and frequent, and therefore food and water security is becoming an issue of great concern for its future. Given their common interests within this new global context, ASEAN and Japan have the potential and willingness to cooperate with each other to contribute, in many different forms, to food and water security at the regional and global levels.

This chapter examines the nature of food and water security from a global perspective and the current state of global governance and institutions in this area. Based on projections by some key international organizations in the field, it synthesizes and puts forward some of the key trends and shifts related to food and water security that are expected over the next 15 years, from 2015 to 2030, and beyond. Finally, the chapter proposes some policy recommendations as food for thought on how ASEAN and Japan can cooperate with each other, as well as with other partners, in order to jointly ensure food and water security at home and at the global level.

The Nature of Food and Water Security: A Global Perspective

Food security and water security are two different, but closely related, issues. The nature of food security comprises many elements such as supply of and access to food, sustainable agriculture, food price management mechanisms, application of technology, and government intervention.

The 1996 World Food Summit defined food security as existing "when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life."[2] The World Health Organization notes that often the concept of food security covers "both physical and economic access to food that meets people's dietary needs as well as their food preferences," and it points to three pillars on which food security is based:

- Food availability: sufficient quantities of food available on a consistent basis
- Food access: having sufficient resources to obtain appropriate foods for a nutritious diet
- Food use: appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation[3]

Stability underpins these three factors, making stable food security as important as the other aspects. This is particularly true given the close connections between food security and sustainable development, health, the environment, and trade. Agriculture remains the largest employment sector in most developing countries, and international agriculture agreements are crucial to a country's food security.

Water security, meanwhile, is a familiar concept. According to UN-Water, the UN's interagency coordination mechanism for water-related issues, water security entails "the capacity of a population to safeguard sustainable access to adequate quantities of and acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability."[4] Several elements are necessary to ensure that communities can maintain water security:

> (T)he core elements needed to achieve and maintain water security include: Access to safe and sufficient drinking water at an affordable cost in order to meet basic needs, including sanitation and hygiene, and safeguard health and levels of well-being; protection of livelihoods, human rights, and cultural and recreational values; preservation and protection of ecosystems in water allocation and management systems in order to maintain their ability to deliver and sustain functioning of essential ecosystem services; water supplies for socio-economic development and activities (such as energy, transport, industry, tourism); collection and treatment of used water to protect human life and the environment from pollution; collaborative approaches to trans-boundary water resources management within and between countries to promote freshwater sustainability and cooperation; the ability to cope with uncertainties and risks of water-related hazards, such as floods, droughts and pollution; and good governance and accountability, and the due consideration of the interests of all stakeholders through appropriate and effective legal regimes; transparent, participatory and accountable institutions; properly planned, operated and maintained infrastructure; and capacity development.[5]

The level of food and water security, and especially availability and access to safe and sufficient food and water, varies greatly for each country in Asia. But all agree that pressures and challenges are mounting and efforts must be made to promote cooperation and coordination among all stakeholders in order to ensure food and water security for all in the future.

Current State of Global Governance and Institutions

At the global level, there are a number of institutions that govern and promote food and water security. The UN plays a central role at the global level, and it has two arms that focus on food security. The first and most important is the Food and Agriculture Organization (FAO), which has a mandate to improve nutrition, raise agricultural productivity, increase standards of living in rural areas, and contribute to economic growth worldwide. The FAO describes its core mission as "achieving food security for all" by ensuring "that people have regular access to enough high-quality food to lead active and healthy lives."[6] Accordingly, its strategic objectives include helping to eliminate hunger, food insecurity, and malnutrition; making agriculture, forestry, and fisheries more productive and sustainable; reducing rural poverty; promoting inclusive and efficient agricultural and food systems; and increasing the resilience of these systems from disasters.[7]

Since its establishment in 1943, the FAO has been lauded for its many achievements. It has launched a large number of successful campaigns and spearheaded the establishment of initiatives and agreements that mobilize support from various governments and nongovernmental organizations (NGOs). It also set up AGROSTAT (now FAOSTAT), which is widely recognized as the world's most comprehensive source of agricultural statistics and data, and it publishes the annual FAO Food Price Index as well as many other useful publications on food-related issues. It has become known for championing a dual-track approach that combines a commitment to sustainable development and the provision of short-term hunger relief. It does this by investing in rural infrastructure and efforts to make rural markets sustainable; providing vouchers for seeds, fertilizer, and other materials and services; and using subsidies that increase the purchasing power of vulnerable households and food and cash transfers, such as school feeding programs and emergency food distribution.[8]

The second arm of the UN that is active in this area is the World Food Programme (WFP). The WFP focuses on the provision of targeted food aid to help improve the lives of the world's poorest, and it describes the

ultimate objective of its assistance as the eventual "elimination of the need for food aid."[9] In keeping with this mandate, the WFP uses food aid to "support economic and social development, meet refugee and other emergency food needs and the associated logistics support and promote world food security in accordance with the recommendations of the United Nations and FAO."[10] It therefore focuses primarily on responding to humanitarian emergencies, improving nutrition and quality of life in the world's most impoverished and vulnerable communities, and promoting programs that mobilize economically disadvantaged communities to help build up their assets and become more self-reliant. For instance, it runs a Food for Assets Program through which participants from vulnerable communities receive food vouchers in exchange for their work on local infrastructure projects or their participation in training programs on new skills that will increase food security and enhance community resilience to shocks.[11]

The UN has also played a pioneering role in promoting water security at the global level, although the focus on this issue came much later than its focus on food security. A key milestone came in 2000 with the issuance of a ministerial declaration at the 2nd World Water Forum in the Hague, which stressed the importance of tackling water security challenges. In recent years, national governments have been increasingly aware of the importance of water security, although this has a degree of sensitivity since many of the challenges entail issues related to national sovereignty and transboundary conflicts. Furthermore, the international community has run into difficulties in agreeing to a working definition and description of water security that reconciles the promotion of water security for individuals and communities with the transboundary concerns that naturally are involved with efforts to manage water supplies.[12]

At the global level, great efforts have been made by international organizations like the World Bank, the International Monetary Fund, and others, which have also set up various programs and frameworks to help their clients deal with climate change and global warming, water resource management, food security, water supply and sanitation, and integrated urban water management. The World Bank identifies water as the center of economic and social development, and it has been the largest external source of financing for water projects in developing countries. From fiscal year 2011 to 2013, the World Bank has committed a total of US$17 billion for water projects, 56 percent of which went to initiatives dealing with water supply and sanitation, 16 percent to hydropower projects, 15 percent to irrigation and drainage projects, and 13 percent to flood protection. Many of these activities helped governments ensure basic access to water and sanitation services for their most vulnerable populations, and the World

Bank increasingly has worked to take into account poverty alleviation in its water projects. Recognizing that public sector financing and development funding is not sufficient to fully deal with the challenge of water security, the World Bank has also used its clout to leverage financing from other sources, including the private sector in developing countries as well as public-private partnerships.[13]

At the regional level, the Asian Development Bank has long played an important role in promoting food security and, in recent years, it has broadened its strategic focus from agriculture to promoting more comprehensive multisectoral approaches that advance food security among poor and vulnerable communities. Its 2009 Operational Plan for Sustainable Food Security in Asia and the Pacific stresses the importance of integrating efforts to raise agricultural productivity, increase market connectivity, and build resilience to climate change and other shocks. This operational plan identified three constraints on sustainable food security: (1) stagnating agricultural productivity and production; (2) a lack of access in rural areas to financing, infrastructure, technology, markets, and nonfarm income opportunities; and (3) the threat of climate change and food price volatility.[14]

All of these global and regional initiatives to ensure food and water security are multilateral in nature, using funds mainly from G8 countries, G20 countries, and international financial institutions. Therefore, they depend very much on the will and support of sponsors and their sustainability is often questioned. Apart from these efforts, we have to mention and highly appreciate the efforts made by individual countries and the role of NGOs in the field of food and water security. Even though much more needs to be done, without their efforts, food and water security could not be maintained for poor populations in developing regions around the world.

Expected Global Trends and Shifts during the 2015–2030 Period

Looking toward the future, especially the period from 2015 to 2030, the following global trends or shifts can be expected to affect the overall food and water security of the world.

(1) **The world population will continue to grow until at least 2050.** According to the UN's World Population Prospect report, the world population is currently growing by approximately 74 million people a year. It is projected to continue expanding through 2030 at an average of 1.1 percent per year, and in the absence of any major unanticipated wars, diseases, or

dramatic demographical changes, it should reach 8.321 billion people by 2030. Over the next 15 years, less developed countries are expected to experience the most growth, while more developed regions are expected to maintain current levels, with a projected 2030 population of 1.2 billion. Many of the world's most populous countries are in Asia, including India, China, Indonesia, Pakistan, Bangladesh, the Philippines, Vietnam, and Japan.[15]

(2) **There is likely to be a decline in the number of hungry people in developing countries.** This number is projected to fall from an estimated 777 million in the early 2000s to about 440 million in 2030. According to the FAO, average caloric intake worldwide is likely to reach 3050 kilocalories (kcal) per person by 2030, compared with 2283 kcal per person per day in the early 1960s.[16]

(3) **The expansion of farmland for food production appears likely to slow.** This comes at a time when land loss due to the expansion of infrastructure and climate change is increasing. Roughly 11 percent of the natural areas remaining in 2000—approximately 7.5 million square kilometers—could be lost by 2050. Accordingly, the world's biodiversity potential is in danger of declining by 5 percentage points, from 70 percent in 2010 to around 65 percent in 2030.[17]

Developing countries, particularly in sub-Saharan Africa and Latin America, are projected to need an additional 120 million hectares over the next 30 years for crops. Much of this extra land is likely to come from forest clearance. Meanwhile, other developing regions are likely to face challenges related to land scarcity since almost all suitable land is already in use and some arable land is being converted to other purposes.[18]

According to FAOSTAT, roughly 12 percent of the world's land surface was used for crop production in the 2005–2007 period. Arable land comprises roughly 28 percent of land considered prime and good, leaving approximately 1.4 billion hectares of land with crop production potential. Therefore, there is still the capacity to bring significantly more agricultural land into use.[19]

(4) **Most of the growth in food production in the coming decades is likely to result from increased productivity.** Almost 70 percent of growth in crop production in developing countries is projected to come from higher yields, just around 20 percent from the expansion of arable land, and under 10 percent from decreased fallow periods and planting of multiple crops.[20] According to the FAO, by 2030 global production will need to rise by 40 percent to keep pace with global demand, necessitating a level of investment in the agricultural sector that has been lacking for many decades.[21]

Due to globalization, patterns of food consumption are converging around the world. For instance, in developing countries, annual per capita meat consumption more than doubled to 26 kg by the late 1990s from what it was three decades earlier, and it is projected to rise further to 37 kg per person per year by 2030. There has also been rapid growth in the consumption of milk and dairy products, from 28 kg per person per year to 45 kg, with further increases to 66 kg per person expected by 2030.[22]

Modern biotechnology is increasingly considered to be an important means for improving food security. To ensure that this potential is realized, the FAO has been calling for improved testing and safety protocols for genetically modified organisms. Other promising technologies have emerged such as conservation agriculture and integrated pest and nutrient management. Meanwhile, at the local level, the spread of organic agriculture could allow it to become a realistic alternative to traditional agriculture.[23]

(5) **Climate change continues and has become more severe.** According to some forecasts, over the next 15 years, global CO_2 emissions will increase by 16 percent, while per capita emissions should stay relatively stable at 4.2 metric tons. Developed countries' CO_2 emissions are expected to decline by 14 percent, and will account for 32 percent of the world's emissions. Meanwhile, developing countries' share of CO_2 emissions is expected to increase by 38 percent to comprise 68 percent of global emissions, although per capita emissions will remain below those of developed countries.[24] There is a risk that climate change will make some developing countries more dependent on food imports, but the overall effect of climate change on global food production by 2030 is likely to be limited. This is partly because production is likely to continue rising in developed countries. But small farmers in some areas are likely to be hard hit by drought, flooding, salt water intrusion, and sea surges, making some countries, mainly in Africa, more vulnerable to food insecurity.[25]

The average global temperature is expected to rise further, increasing by 0.5°C to 1.5°C. Developing countries have fewer resources to adapt socially, technologically, and financially, and they are more heavily dependent economically on agriculture. This leaves them at greater risk from temperature increases.[26]

Natural disasters are set to continue to grow dramatically in number and magnitude. Since the 1970s, the duration and intensity of major tropical storms in both the Atlantic and the Pacific regions have already increased by about 50 percent. Climate change has caused sea surface temperatures to rise by 0.5°C, which has contributed to the increase in the number of major storms. Between 1970 and 2011, more than 74 percent of fatalities worldwide

from disasters took place in Asia Pacific. In 2011, for example, 80 percent of world economic losses due to disasters occurred in this region.[27]

(6) **There are sufficient water supplies globally, but there will be severe shortages in some parts of Asia as well as in other regions.** By 2030, water consumption for irrigation is projected to increase 14 percent from 2003 levels in developing countries, and one in five developing countries is likely to suffer water scarcity. Ground-water levels are falling by 1 to 3 meters per year in parts of India and China, so efforts to use water more efficiently are particularly important in these areas. Since agriculture is responsible for roughly 70 percent of fresh water use, conserving water in agriculture is key. In particular, developing countries are expected to expand their area of irrigated land from 202 million hectares in 2003 to 242 million hectares by 2030, so it is particularly pressing that measures to utilize water more effectively in irrigation be instituted.[28] It should also be noted that in East Asia, a number of rivers are dying due to hydroelectric projects and industrialization, so disputes over water are likely to continue to arise.

Contributions from ASEAN and Japan

Given the context discussed above, ASEAN and Japan should further strengthen cooperation with each other as well as with other partners around the world in order to achieve two strategic goals: (1) to ensure food and water security for Asia Pacific, and (2) to contribute to the extent possible to helping international institutions attain their targets in food and water security globally. However, ASEAN and Japan should focus their efforts mainly on the regional rather than the global level, and resources should be allocated for these two goals accordingly. The following policy recommendations are meant to help ASEAN and Japan achieve these goals.

First, at the global level, ASEAN and Japan should strengthen cooperation in raising people's awareness, further promoting mutual communication and connectivity with the FAO, WFP, UN-Water, and other relevant institutions, in order to better share information, resources, and technology and ensure food and water security in the coming decades.

Second, at the regional level, ASEAN and Japan should further their agricultural cooperation aimed at increasing agricultural productivity by transferring high technology, expanding the use of biotechnology, and diversifying agricultural products in the entire value chain in both Japan and ASEAN countries.

Third, ASEAN and Japan should jointly host a forum on family planning for East Asia to further promote cooperation on population growth control throughout the region.

Fourth, ASEAN and Japan should think beyond the framework of Japan-Mekong cooperation by setting up another mechanism, for example, a regionwide conference on water and climate change. At the very least, they should expand this kind of cooperation to include all ASEAN countries.

Fifth, the ASEAN Secretariat should be strengthened so that it can be a more efficient and effective coordinating mechanism in mitigating the consequences of natural disasters, providing humanitarian assistance in emergency situations in the region, and playing a more active role in food and water security in the region.

Finally, ASEAN and Japan should set up a food and water security fund, a joint food warehouse, or a logistics coordinating agency with the aim of promoting national resilience on food and water security.

Notes

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