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Promoting Food Diversification in Asia-Pacific: Toward Better Food Security: Paper

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PROMOTING FOOD DIVERSIFICATION IN ASIA PACIFIC: Toward Better Food Security¹

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ABSTRACT

The World Food Summit of 1996 defined food security as a condition when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life. The importance of food security for sustainability of a nation has formally been recognized by many governments. The fact that food insecurity still widely exist in Indonesia –and in many past of the world- showed that increase understanding and commitments of the government toward food security is still needed. Food security should be developed utilizing local resources, having strong backward-linkages with local farming systems. Considering he abundant natural resources, food security program should be directed toward establishing food diversification to reduce dependency on only one (or two) food commodities – especially rice in the case of Indonesia. Food diversification by development of food industry has a big potential impact in improving food security. This impact is closely associated with capability and competences of food industry in developing and operating food business to ensure better value and more diversified food, leading to better food availability, food accessibility, food utilization. For better global food security, consequently, promotion of food diversification thru partnership in the development of food industry is needed .

INTRODUCTION

The World Food Summit of 1996 defined food security as a condition when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life. Systematic efforts in achieving food security is a responsibility of the government, to assure the right of food of their people (Presidential Commission on World Hunger, 1980), which in turn that every individuals will have a healthy and active life.

In general, there are three main components of food security (Smulders, M 2007). Firts component is food availability, which stresses the essential nature of sufficiency of variety of foods in good safety and quality. Second component is food accessibility, which

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requires having sufficient resources to obtain appropriate foods for a nutritious diet. Third component is food utilization; which stresses the appropriate handling and use of food with respect to nutrition, hygiene and sanitation. Provided that those three components of food security can be maintained sustainably; at every time and at every location, then this condition will eventually lead to the achievement of criteria of healthy and active individuals. In more detail, several indicators for food security based on its main components are presented in Table 1.

Consequently, no country is said to have a perfect food security status if there are still individuals unable to meet their needs to stay healthy and actively participate in various economic activities. In other words, the level of food security (or insecurity) of a country is actually manifested by the nutrition status of the people (Hariyadi et al., 2006). In this respect, food insecurity in APEC member economies can be illustrated at Table 2. It is important to be stated here that malnutrition that may prevent the achievement of active and healthy life for individuals is not only associated with undernutrition, but also very well correlated with over nutrition. Obesity is another alarming fact associated with poor food utilization aspect of food security. Johnson et al (2010) has indicated that obesity is on the increase in both developed and developing economies. This is to stress that even though data on under nutrition (such as percentage of underweight children under 5 years old of age; Table 2) is low or very low, do not necessarily indicate better food security; since food security condition is also associated with data on overweight and/or over nutrition.

Table 1. Food Security Aspects and Their Indicators

Aspects of Food Security	Immediate Indicators	Sustainability Indicators	Impact indicators
Food availability	<ul style="list-style-type: none"> • Quantity • Safety • Quality (nutrition) • Variety 	Food availability, accessibility, and utilization at every time, and in every location	Active and healthy life of Individual
Food Accessibility	<ul style="list-style-type: none"> • Physical, economic and social accessibility • Agreement to preferences/food habit and culture • Compliance to belief and religion 		
Food Utilization	<ul style="list-style-type: none"> • Intake sufficiency • Quality of household food processing • Quality of household sanitation and hygiene • Quality of drinking water • Quality of child care 		

Tabel 2. Data of per capita incomes, poverty levels, and child malnutrition levels in APEC economies (Johnson, R. Et al., 2010).

APEC Economies	Purchasing Power Parity (international Dollars) ¹	Population below \$1/day, % ²	Child malnutrition –children under age 5 underweight, % ²
Australia	34,040	n/a	n/a
Canada	50,200	n/a	n/a
Chile	13,270	n/a	n/a
China	6,020	16,6	10
Hongkong, China	43,960	n/a	n/a
Indonesia	3,830	7,5	27,3
Japan	35,220	n/a	n/a
Republic of Korea	28,120	<2	n/a
Malaysia	13,740	<2	19
Mexico	14,270	9,9	7,5
New Zealand	25,090	n/a	n/a
Papua New Guinea	2,000	n/a	n/a
Peru	7,980	18,1	7,1
The Philippines	3,900	15,5	31,8
Russia	15,630	<2	5,5
Singapore	47,940	n/a	n/a
Chinesse Taipei	n/a	n/a	n/a
Thailand	5,990	<2	17,6
United States	46,970	n/a	n/a
Vietnam	2,700	<2	33,8

¹Source: World Development Indicators database, World Bank, 7 October 2009

²Source: World Bank 2005 World Development Indicators

Notes: PPP is purchasing power parity; an international dollar has the same purchasing power over GNI as a U.S. dollar has in the United States. a. 2008 data not available. b. Estimate is based on figures extrapolated from the 2005 International Comparison Program benchmark estimates.

This indicator can be applied to measure a government's performance in assuring the peoples' access to food. Moreover, this concept not only shows the level of a government's commitment in fulfilling the right to food but also in improving capacity of human resources leading to the improvement of national competitiveness. Furthermore, increasing national competitiveness will result in economic growth and a demand for a higher standard of food security of a nation. Policy makers should be aware of this important framework in order to design priorities of development programs.

FOOD DIVERSIFICATION

Strategy in fulfilling food security should be developed by considering many factors that suits the conditions of the available resources, in terms of its environment (including natural, social and cultural environment), technology (including daily habits and other practices) and human resources (Hariyadi et al. 2006). National food systems developed

utilizing local resources will have strong backward-linkages with local farming systems, improve food diversification, and have less dependency on only one (or two) food commodities – such as rice in the case of Indonesia.

Take Indonesia as an illustration – a rice-based food policy has resulted in many non-ideal conditions for food security in Indonesia. Those unfavorable conditions are : (i) consumption per capita of rice is very high 130-139 kg, and consequently (ii) rice is the dominant feature of consumers' nutrient intake, i.e. rice contributes as much as 53 % of the total calorie needs and about 47 % of the protein needs, thus the Indonesian food system has a high dependency on rice; (iii) rice as not only a trade commodity but also a political one; (iv) trade of rice has become a very sensitive issue, even though in terms of proportion, rice imports are relatively low. The worst effect of the rice-based policy for Indonesia is that it has caused a reduced development of local food resources, less research investment into non-rice-based foods. Consequently, consumer friendly and convenience technologies of handling and preparation for non-rice based food are not developed; making even more difficult for non-rice (local and traditional) foods to enter the market and menus of the people.

To equate food security with one or two food items is strategically wrong. Taking into consideration its characteristics and potentials, countries such as Indonesia have a big opportunity in realizing its food security by improving food diversification. The government (especially the local government) has to re-evaluate whether rice is the only staple food appropriate to the needs of its region. Government needs to seriously look into its local potential related to staple foods that suit their natural and cultural environment. The concept of food diversification requires that each region needs to create regional food security that conforms to its regional potential. Consequently, several additional indicators are needed to better assess food security, such as (i) contribution of local/indigenous resources, and (ii) level of diversity of food/dietary sources.

Food diversification programs are essential not only to reduce the high dependency on rice and to boost the development of local food resources (Hariyadi 2003), but also to improve quality of dietary pattern of the population, leading to better nutritional status and health (Table 3). Currently, consumption or dietary pattern of Indonesia population is far from ideal. As mentioned above, Indonesian diet is dominated by rice, and still lacking in food of animal origin, fruits and vegetables, and also other carbohydrates sources such as cassava, sweet potato, potato, and sago. Consequently, food diversification a good strategy for better food and nutrition security.

Food technology and food industry, in particular, has to play an important role in developing food diversification based on local resources, especially at the industrial level. Several critical issues of food diversification need to be addressed, including: (i) efforts in exploration and using the potential of the best local material, (ii) improvement and application of cultivation technology, processing and packaging, and (iii) application of the food industrialisation concept. Industrialisation of local-based foods should be conducted by creating added value in such a way that the local food product has a better value than or at least the same as that of rice-based food products (and wheat) which are currently dominating traditional Indonesian menus. Creating added value is a challenge for the food technologist and food industry. Research to explore the unique characteristics and functionalities of local foods, to identify and map local preferences and consumers habits, for example, should be conducted intensively.

Table 3. Food Consumption Pattern in Indonesia (g/capita/day): Reality vs. Ideal*)

Food Groups	Consumption		Deviation (Δ)
	Reality	Ideal**)	
Cereals (Rice, Corn, wheat)	325.9	275	+ 40,9
Tubers and trunks (Cassava, Sweet potato, Potato, Sago)	40.0	100	- 60.0
Animal-based foods (Meat, Eggs, Milk, Fish)	95.9	160	- 54.1
Oil bearing fruits and seeds	6.0	10	- 4.0
Fats/oils	22.8	20	+ 2,8
Nuts/legumes	22.7	35	- 12.3
Sugar	22.2	30	- 7.8
Fruits/Vegetables	197.3	250	- 52.7

*) Hardinsyah et al., (2012)

***) Based on Ideal Dietary Pattern of FAO

ROLE OF FOOD INDUSTRY

Food Industry certainly has important role in diversifying food choices for better food security based on local resources, all the way from production (farm) to consumption. Food industry has specific competences to promote food diversification. Food industry not only has the capability to develop new products; but also to produce, market and promote them in a very efficient way.

Considering that most agricultural products are of seasonal in nature with various qualities, perishable and specific to location, then there is an obvious need for appropriate handling based on types of products and its specific characteristics. In relation to food availability -for example, food industry potentially has important role to play; especially in managing the new product development, continue to their production, marketing, distribution and promotion (Hariyadi, P. 2003).

Food Industry has specific competences in developing and operating food business to ensure better value and more diversified foods. These potential resources from food industry sector should to be incorporated into national food system to contribute to better food security. The role of food industry is even more apparent when we consider their contribution in minimizing post-harvest losses, improving food safety, and increasing nutritional values. Food industry has capability to develop better and more efficient logistics and distribution system; which potentially may provide more affordable food to the consumers.

Food industry also has extensive experiences in creating value addition. This capability, coupled with extensive network within global and regional food industry sector, in turn will initiate new trade activities. This argument shows that development of food diversification through scheme of industrialization may facilitate the economic development, associated with diversification of international food trade.

CONCLUSIONS

Food diversification by development of food industry has a big potential impact in improving food security. This impact is closely associated with capability and competences of food industry in developing and operating food business to ensure better value and more diversified food, leading to better food availability, food accessibility, food utilization. Active participation of food industry may also facilitate the economic development, through development international food trade. For better global food security, consequently, promotion of Food Diversification through development of food industry is needed.

Strengthening global food security system is a shared responsibility. Mutual partnership among/between APEC economies to promote food diversification through industrialization –leading to international trade- is essential in strengthening global food security. Partnership in (i) research to explore the potential of underutilized food resources, (ii) production and commercialization, and (iii) trade development based on -currently- underutilized food resources are of great importance for better global food security.

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