

A photograph showing a person from behind, carrying two large bundles of harvested rice stalks on a shoulder pole. The person is walking on a dirt path through a rice field. In the background, a city skyline with several tall buildings is visible under a hazy sky.

PACIFIC FOOD SYSTEM OUTLOOK 2007-2008

**LINKAGES TO GROWING URBAN MARKETS
SPUR RURAL DEVELOPMENT**



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Pacific Food System Outlook 2007-2008

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FOREWORD

Rural development in the PECC region is key to the future of the food system. In the midst of rapid urbanization, the urgency for a more efficient food system is growing as food demand becomes more concentrated and markets more sophisticated. Cities need to be better integrated with rural areas to assure the more efficient transmission of economic signals from consumer to food producer. This will give rural areas and food producers a better chance to produce what the market wants, to raise productivity, and to ultimately improve their own incomes. This year's Pacific Food System Outlook (PFSO) report examines the role of transportation infrastructures and modern supermarket supply chains in promoting rural development through improved rural-urban integration.

This report draws on the proceedings of the Pacific Food System Outlook project team annual meeting in Beijing, China on July 10, 2007 and a cosponsored workshop on the retail food market transformation in Asia. It also draws on our project's previous work published in annual reports: *A Revolution in Food Retailing* (2005), *The Role of Transportation Infrastructure in a Seamless Food System* (2004), and *Where Demographics Will Take The Food System* (2003).

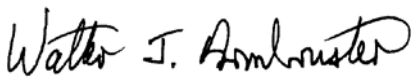
For this year's project, thanks are due to Tom Reardon of Michigan State University who organized the workshop, Emerging Links Between Retail Transformation and Agrifood Trade in Asia, from which we benefited greatly. This workshop was held in conjunction with the symposium, China's Agricultural Trade: Issues and Prospects, sponsored by the International Agricultural Trade Research Consortium (IATRC).

We thank the China National Committee for Pacific Economic Cooperation (CNCPEC) for hosting our meeting in 2007. Special thanks go to Ambassador Jiang Chengzong, secretary general, and Li Zeren, deputy secretary general, for their warm hospitality and substantive contribution.

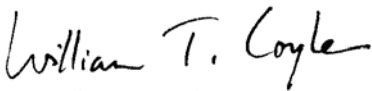
We are also grateful to Betty Ip, Director of Public and Business Affairs, PECC International Secretariat, for helping to make this year's meeting a success and for her ongoing administration of project activities and our part of the PECC Web site.

As usual, we are grateful to the individual economists representing the participating economies of the PECC region for their contributions and continued support. The financial support of Farm Foundation and USDA's Economic Research Service as well as the support from the country PECC committees continues to be critical in making this multinational project a reality.

We appreciate the exceptional talent of Joe Yacinski and Carol Hardy of Yacinski Design; the editorial support of Mary Thompson of Farm Foundation; and the program support of Mary Anne Normile, Cheryl Christensen and Neil Conklin, all of ERS.



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December 2007

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LINKAGES TO GROWING URBAN MARKETS SPUR RURAL DEVELOPMENT

Rapid income growth and urbanization is having profound impacts on the food system, food producers and rural areas in developing PECC economies. To maximize the opportunities generated by these rapid changes, sustain a strong food system, enhance farm-sector profitability and encourage vibrant rural areas over the next 20 years, private and public decision makers must work to overcome tradition-bound practices, and to embrace new approaches that help to streamline and mod-

and processed foods to expanding urban-based middle classes, helping overcome the logistical challenges of urban congestion. They also provide opportunities for small producers able to implement business strategies compatible with supermarket needs.

To meet the future food demand in cities, public policy makers and private-sector business leaders must support producers and rural communities with appropriate physical and informational infrastructure. Roads, railways, waterways and ports are

Where Demographics Will Take The Food System (2003).

The Changing Nature of the Future Food System

While more food is traveling greater distances, the share of processed foods and major bulk agricultural commodities imported around the world has remained fairly low, 6 and 16 percent, respectively (Regmi and Gehlhar 2005). Historically, the overwhelming share of food globally is produced relatively close to where it is consumed due to perishabil-

Rural areas and food producers will need to adjust production to the dietary changes and increased concentration of demand associated with higher incomes and urbanization

ernize the food system.

To remain economically viable, food producers and rural areas will need to adjust to changing consumer dietary habits. With income growth, consumers increase consumption of animal protein, fruits and vegetables, and processed products. To keep pace with these changes, producers need marketing systems that provide information on demand patterns and efficient market access to maximize returns. A key tool may be accessing the marketing systems of new supermarket chains, which have dramatically increased their presence in the region over the last decade. These supermarket chains provide a continuous flow of safe, reasonably priced, fresh

needed to link rural areas to marketing channels and commercial supermarkets. Producers need timely economic signals, and tools to increase productivity in agriculture. For public policy makers, this means addressing access to credit, building extension services for farmers, and providing business structures that allow producers with small operations to pool resources and maximize profit opportunities.

This report is based on discussions at the 11th annual Pacific Food System Outlook meeting which took place in Beijing, July 10, 2007. It also draws on the previous PFSO reports: *A Revolution in Food Retailing* (2005), *The Role of Transportation Infrastructure in a Seamless Food System* (2004), and

ity and the high cost of shipping bulky food products.

Rapid economic growth and demographic change in the less developed parts of the PECC region will put increasing adjustment pressure on food producers and the rural areas in which they live. A major question is whether these producers will be able to keep pace with the food system impacts of rapid urbanization and economic growth or if they will lose ground to foreign suppliers.

Urbanization, the most significant demographic change facing the region (Fig 1), is the inevitable consequence of economic growth. In the PECC developing economics, economic growth is forecast to be about

twice as fast as in the PECC developed economies. This rapid growth will be sustained by institutional policy reform and demographic factors. The populations of developing economies have a higher percentage of young people who are expected to boost growth rates beyond those of the developed economies, where older populations have a lower propensity to save and invest. Larger working-age populations require fewer public resources for healthcare and safety-net programs, another potential advantage of developing nations over the aging populations of developed economies.

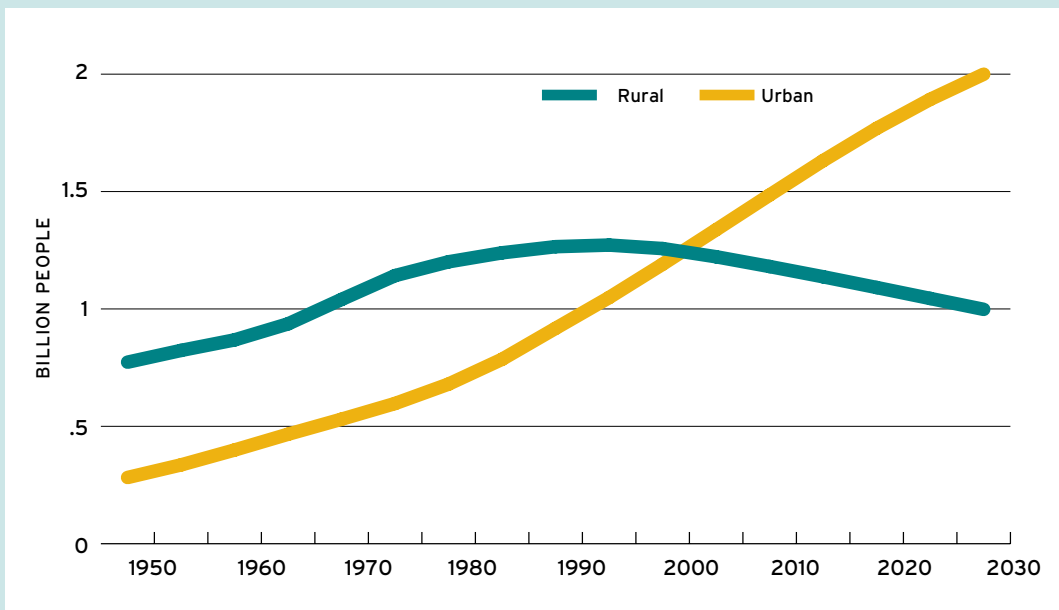
Urban areas in the PECC region are forecast to grow by 565

million people, or 42 percent, in the next two decades, more than twice the growth rate of the total population (Fig 2). Three-quarters of this growth will be in the less developed parts of the region, with very large increases of 290 million in China, 70 million in Indonesia, 30 million in the Philippines and 20 million in Mexico. Income and urban growth will lead to greater concentrations of people and wealth. Cities are where most of the middle and upper classes reside and where a disproportionate share of the region's output is produced. Mexico City, for example, has 20 percent of Mexico's population but accounts for a third of national income. Shanghai has 1.3 percent of

China's population yet generates more than 10 percent of the nation's GNP.

Food producers will need to adjust production to the dietary changes and increased concentration of demand associated with higher incomes and urbanization. Urban food demands reflect per capita diets richer in meats fruits and vegetables than those in rural areas (Fig 3). As incomes rise, consumers increase caloric intake and improve dietary composition. Higher incomes also increase the opportunity cost of food preparation, raising demand for convenience and away-from-home dining. In the PECC developing economies, food product marketing will increasingly focus

Figure 1 Rapid urbanization is changing the region's food system



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2005 Revision, <http://esa.un.org/unpp>, Tuesday, October 30, 2007; 3:49:59 PM.

on densely populated higher-income urban centers, such as Mexico City, Shanghai, the Hong Kong-Shenzhen-Pearl River Delta area, Manila, Jakarta, Bangkok, Santiago-Valparaiso, and Lima-Callao (Fig 4).

While food demand is concentrating in the cities, food production is broadly distributed --in many parts of North America, in pockets along the western coast of South America, throughout much of Southeast Asia, in the eastern half of China, and along the eastern and southern coastal areas of Australia. Some food is produced in nearly every state, province and prefecture of the PECC region. Dispersal of production may even be greater where prime agricultural land is displaced

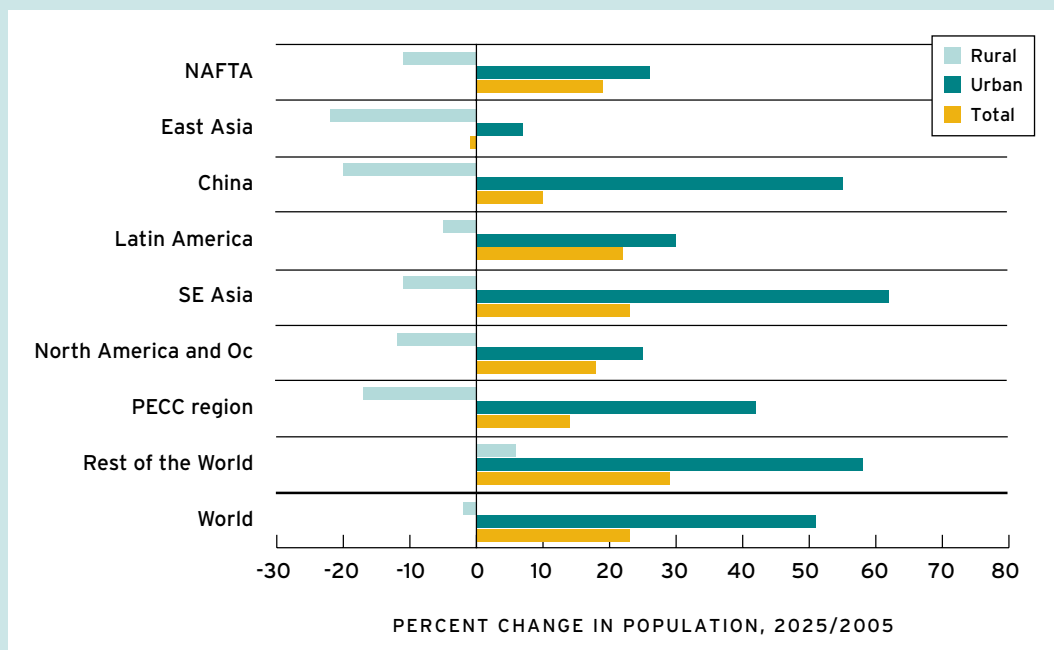
by urban encroachment. To compete in these urban markets, rural areas and food producers will need to be connected to increasingly complex and longer supply chains.

Rural areas also have to be attuned to potential foreign competition in urban areas, many of which are coastal (Map 1). Modernizing port facilities is often the first infrastructure investment of coastal cities. This allows for global trade and increased access to foreign agri-food imports. Modernization may include privatization of formerly government-owned entities by private interests that provide financial resources and introduce market principles. This private, market-driven motivation promotes conformity

with international standards of trade and adoption of fast changing technology. Private interests have played a critical role in port and infrastructure development in Malaysia, the Philippines, Mexico, Korea, Thailand and Vietnam. Customs regulations might still make port clearance slow in the less developed parts of the region, but the port facilities are approaching “best practices” and are sometimes equal in productivity to ports in the more developed economies. This suggests that with regulatory reform, port throughput could be even greater and less costly.

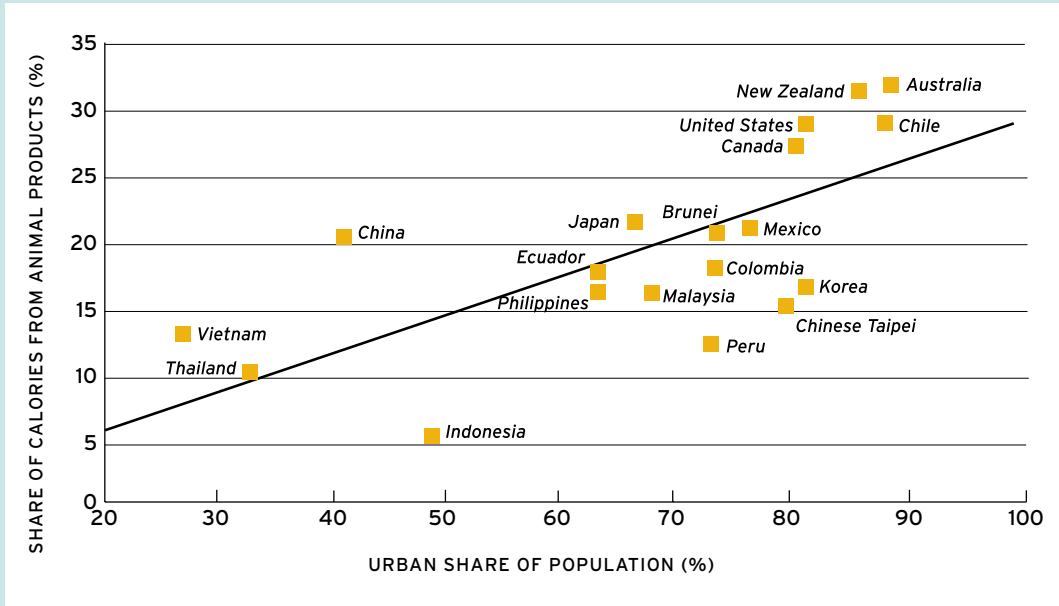
With modern ports and low ocean transport costs, foreign suppliers may be more competitive in these rapidly grow-

Figure 2 Urbanization is advancing most rapidly in China and Southeast Asia



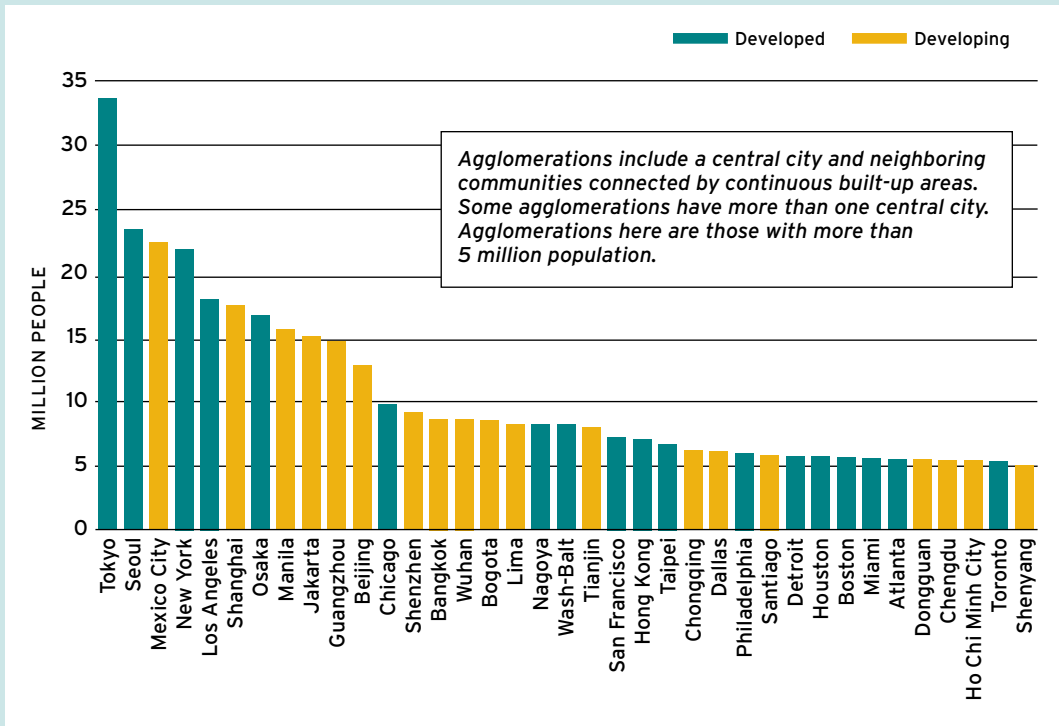
Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2005 Revision, <http://esa.un.org/unpp>, Tuesday, October 30, 2007; 3:49:59 PM.

Figure 3 Income growth and urbanization boost demand for animal products



Source: Data is from FAOSTAT food balance tables for 2005; urban population share is from the UN and is for 2005.

Figure 4 Urban agglomerations will change food demand



Source: Thomas Brinkhoff: The Principal Agglomerations of the World, <http://www.citypopulation.de/>, Sept. 30, 2007.

Map 1 Urban populations in the Asia-Pacific region tend to cluster in coastal areas, making them more accessible to foreign food supplies



ing coastal urban markets than are inland domestic producers. Inadequate transportation infrastructure may make it difficult for inland producers to meet the high freshness and consistency standards of higher-income urban consumers in their own economies. China, Australia, and the United States can deliver fresh produce to residents of Manila at prices below those received by small-scale producers in the province of Benguet, the salad bowl of the Philippines, who have to truck their vegetables down time-consuming wind-

ing mountain roads to Manila (Financial Times, May 23, 2007). Large areas of Southeast Asia and Southern China have good soils but lack adequate infrastructure to profitably access markets and yield-enhancing inputs, including seeds, fertilizer and pesticides.

The future of rural development in the region and the future capacity of domestic food producers to penetrate urban and coastal markets will depend on two inter-related factors:

- the quality and extent of transportation infrastructure; and

- whether domestic food producers are able to participate in the development of modern food supply chains.

Transportation infrastructure

An economy's transportation network is a critical element of the logistics chain through which arbitrage and competition in food products and services occur, promoting efficient resource allocation. The amount and quality of infrastructure in an economy is associated with income levels. Infrastructure must be con-



stantly maintained, upgraded and expanded to keep pace with a growing economy.

From a rural development perspective, expanding and enhancing infrastructure can lower transaction costs for marketing food products and purchasing farm inputs, reduce the likelihood of post-harvest losses by increasing the quantity and quality of transport services, and ultimately bring higher returns for the producer and lower food costs for the consumer. Further, rural households gain better access to health care and schools, contrib-

uting to higher labor productivity on the farm. While transportation infrastructure is needed for rural development, it does not guarantee progress. An economy's agricultural, regulatory or trade policies may offset the benefits from upgraded infrastructure. In the early stages of development, governments may have to mitigate policies which raise domestic transportation costs, such as licenses, tolls and fuel taxes that ultimately get passed on to agricultural producers and consumers.

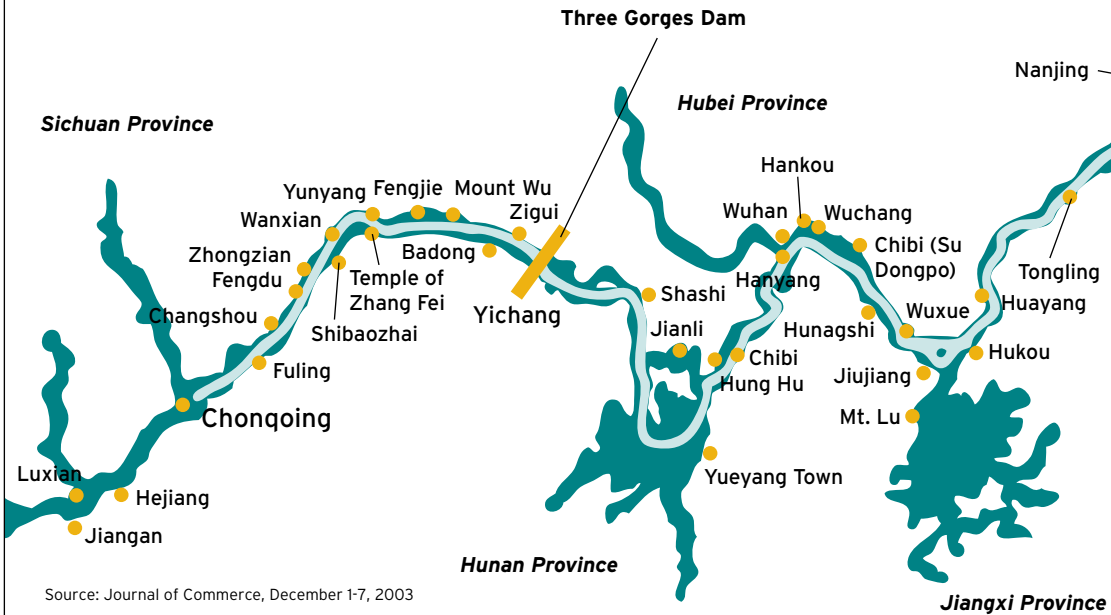
Across the PECC region, the quality and extent of road and rail

systems vary greatly. As measured by length of road or rail per square kilometer (density), or length of road or rail per capita (service), the lower-income economies of China, Southeast Asia and Latin America significantly under-invest in road and rail infrastructure compared to the region's developed economies (Fig 5).

While progress is being made, underinvestment in infrastructure results in slower delivery times and higher domestic shipping costs. For example, the overland shipping time of a container from Chongqing in central China to Shanghai (about 2500 kilometers) is 10 to 15 days, about the same time it takes to ship a container from Los Angeles to Shanghai, a distance four times as far. In another example, the fragmented geography of Indonesia and the Philippines, and poorly developed infrastructure, increase shipping times and the possibility of spoilage. Fruit delivery by truck from Manila to Davao on the southern island of Mindanao requires two ferry crossings and 3 days to cover 850 kilometers (510 miles).

Underinvestment in infrastructure is explained in part by the public goods nature of infrastructure. Once the initial investment is made, many parties can use the infrastructure, often without payment. The potential for free riders who pay nothing but can readily use the product means that market forces alone tend to result in underinvestment in infrastructure. Governments are crucial in encouraging and funding infrastructure investments. The largest share of financial support for developing infrastructure in the region's low-income economies comes

Map 2 **Three Gorges Dam has made the Yangtze River navigable from Shanghai to Chongqing, opening up China's heartland**



from oftentimes cash-strapped local and national governments, and a smaller share from private investors. International financial institutions, such as the Asia Development Bank, World Bank, and the Inter American Development Bank, have played a modest role, providing about \$5 billion to \$10 billion in loans per year of the more than \$100 billion needed for new investment and maintenance of rail and road infrastructure, according to the World Bank. Bond markets need to be further developed to allow governments to tap into the high savings rates of PECC economies to fund expensive long-term infrastructure projects.

Efforts are underway across the region to improve infrastructure and more efficiently connect rural areas and food producers to fast growing urban markets:

CHINA'S EFFORTS to connect interior provinces with populous coastal areas include a multi-billion dollar program to expand the nation's rail system and extensively develop and enhance inter-Provincial road systems. The government plans to increase its investment in the nation's rail system by four times by 2010. This should raise rail's share of commerce, including bulk agricultural products. Rail can be more economical than truck transport over distances greater than 500

kilometers (Wall Street Journal, March 20, 2007).

As a result of the construction of the Three Gorges Dam, navigability of the Yangtze River now extends from Shanghai to Chongqing (MAP 2), in the central part of the country. This has made barge shipping from Chongqing to Shanghai about half as costly as shipping by rail—even less than by truck—and a few days quicker. Containerized barge traffic increased by four times from 2000 to 2005 (Journal of Commerce, June 4, 2007). Expanding navigability, along with other infrastructure development, is making the Yangtze River basin a potential rival to the Guangzhou-Pearl River delta



area adjacent to Hong Kong in southern China, currently one of the most important manufacturing centers in the economy. These developments are making food delivery to urban areas faster and less expensive, raising returns to farmers, lowering consumer costs, and making domestic products (e.g., citrus, semitropical fruit, and certain vegetables) more export competitive.

THE GREATER MEKONG SUB-REGION (MAP 3) project will integrate China, Vietnam, Laos, Cambodia, Thailand and Myanmar in the Mekong River watershed area. Supported by national governments and the Asia Development Bank, the

project links remote agricultural areas with urban centers and ports. Three major roads or economic corridors are being developed—one connecting southern China with Bangkok and Hanoi; a second between Myanmar and Da Nang, Vietnam; and a third between Bangkok and Ho Chi Minh City and other parts of Vietnam. Simultaneously, customs procedures are being streamlined to reduce time spent at border checkpoints. The overall project potentially will benefit 70 million people living in the Mekong basin, many of whom are subsistence farmers in rural areas. The recent completion of the Second Mekong International Bridge, part of the Myanmar—Da Nang road, will shorten travel time from Bangkok to Hanoi from two weeks by sea to three days over land (“Bridge Brings Indochina Region Closer.” The Nikkei Weekly, January 15, 2007). In December 2007, the Asian Development Bank approved US\$1.1 billion in loans for construction of a 244 kilometer highway from Hanoi to Lao Cai, on Vietnam’s border with China. The new road, expected to be completed by 2012, will reduce to less than one day the travel time between Kunming, China, and Hanoi, a trip that now takes two to three days (ADB, 2007). In general, travel times and transport costs across the region are declining, and food produced in remote rural areas can now more easily reach major urban and, through ports, export markets.

THE NORTH AMERICAN FREE TRADE AGREEMENT (NAFTA) involving the United States, Mexico and Canada, has

focused on developing infrastructure to better integrate Mexico, which is less developed than the other two partners. Privatizing Mexico’s rail system in the late 1990s and forming joint ventures with other North American rail companies has improved service and raised the share of freight transported by rail. Mexico’s private and public sectors plan to spend \$20 billion to \$30 billion in the next 10 years, much of it going to road infrastructure (Journal of Commerce, January 15, 2007). Improving roads and rail systems are reducing the cost of transporting Mexican horticultural products to domestic urban markets and to more distant U.S. and Canadian markets. United States imports of these labor-intensive products from Mexico have tripled to more than \$9 billion since the NAFTA agreement was implemented in 1994.

Commercial linkages and modern supermarkets

Parallel to the expansion and enhancement of transportation infrastructure in the region’s developing economies is the rapid spread of modern self-service supermarket chains, including supermarkets, hypermarkets, discount and club stores, and chain convenience stores. The emergence of supermarkets is a recent phenomenon for the developing parts of the region going back only 15 years. Foreign investment has played an important role in the region’s retail revolution as a source of capital and a vehicle for technology transfer and organizational innovation. Such prominent foreign supermarket chains as

Wal-Mart, Carrefour, and Tesco are heavily invested in the PECC region. Carrefour only began investing in the PECC region in 1989 (Taiwan), Wal-Mart in 1991 (Mexico), and Tesco in 1998 (Thailand). Carrefour and Wal-Mart are expanding rapidly in China (Fig. 6).

Today's large supermarket chains first opened in the biggest cities, catering to a limited number of high-income consumers, then expanded to smaller cities and towns, increasingly serving a middle-to-lower-income-working class customer base. This retail food transformation presents a major challenge for many rural areas and food producers. Traditional markets—wet markets, street vendors, mom and pop shops—are still dominant throughout the developing parts of

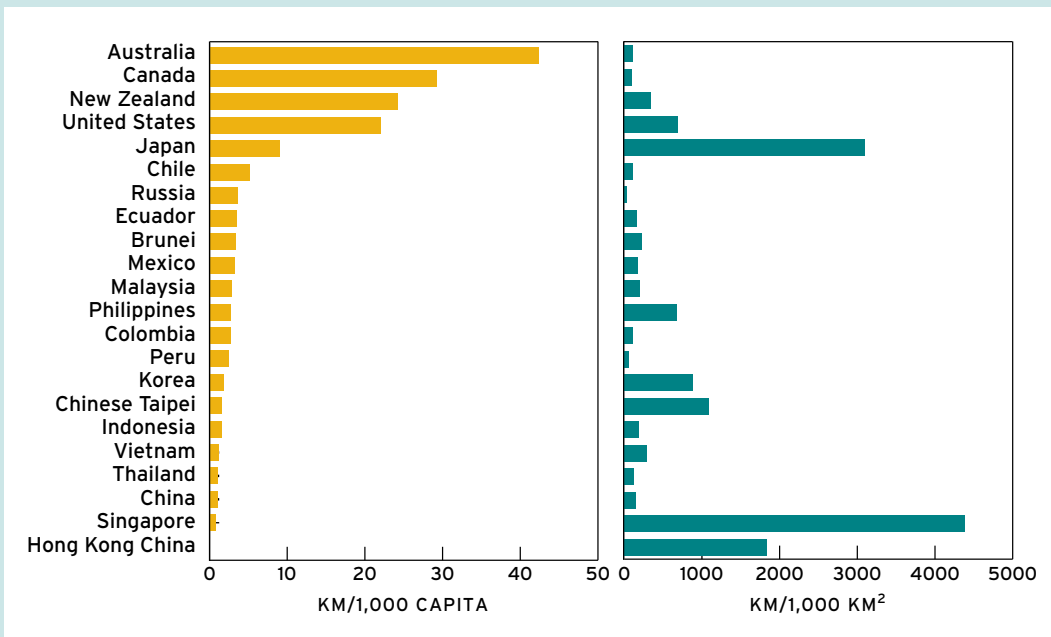
the region, but are quickly losing ground to supermarkets. Growth in the supermarket share of the retail food market is most rapid as per capita incomes approach \$10,000 per year and then levels off after \$20,000. Per capita incomes in the developing parts of the PECC region are almost all in this fast growing stage, varying from \$2,520 in Vietnam to \$9,990 in Chile (Fig 7).

Modern supermarkets expand the scale of food procurement and distribution, emphasizing large volumes and lower prices. This is in sharp contrast with traditional food sector segments that deal in smaller volumes and with more intermediaries. Supermarket chains with more than 10 outlets in a particular geographic area invest in centralized warehousing and

distribution centers. This lowers overall costs by reducing handling, delivery times and, in the case of fresh produce, shrinkage (loss of weight or volume). Centralization allows supermarkets to add products and services to meet consumer demands and to spread risk and cost over a larger product portfolio. This diffusion of risk allows companies more flexibility in pricing strategies, including lower prices and deep discounts on some items, to attract customers. Smaller firms follow a similar pattern on a smaller scale, sometimes forming joint ventures and/or participating in collective arrangements to procure and distribute dry goods and fresh produce.

Centralized procurement and distribution broadens the geographic reach of a firm's business

Figure 5 Road service and density lags in the less-developed economies



Source: Pacific Economic Cooperation Council. Pacific Food System Outlook 2004-2005 (2004). *The Role of Transportation Infrastructure in a Seamless Food System*. November.

Map 3 Expanding interregional roads integrate the economies of Southeast Asia, connecting rural areas to urban centers

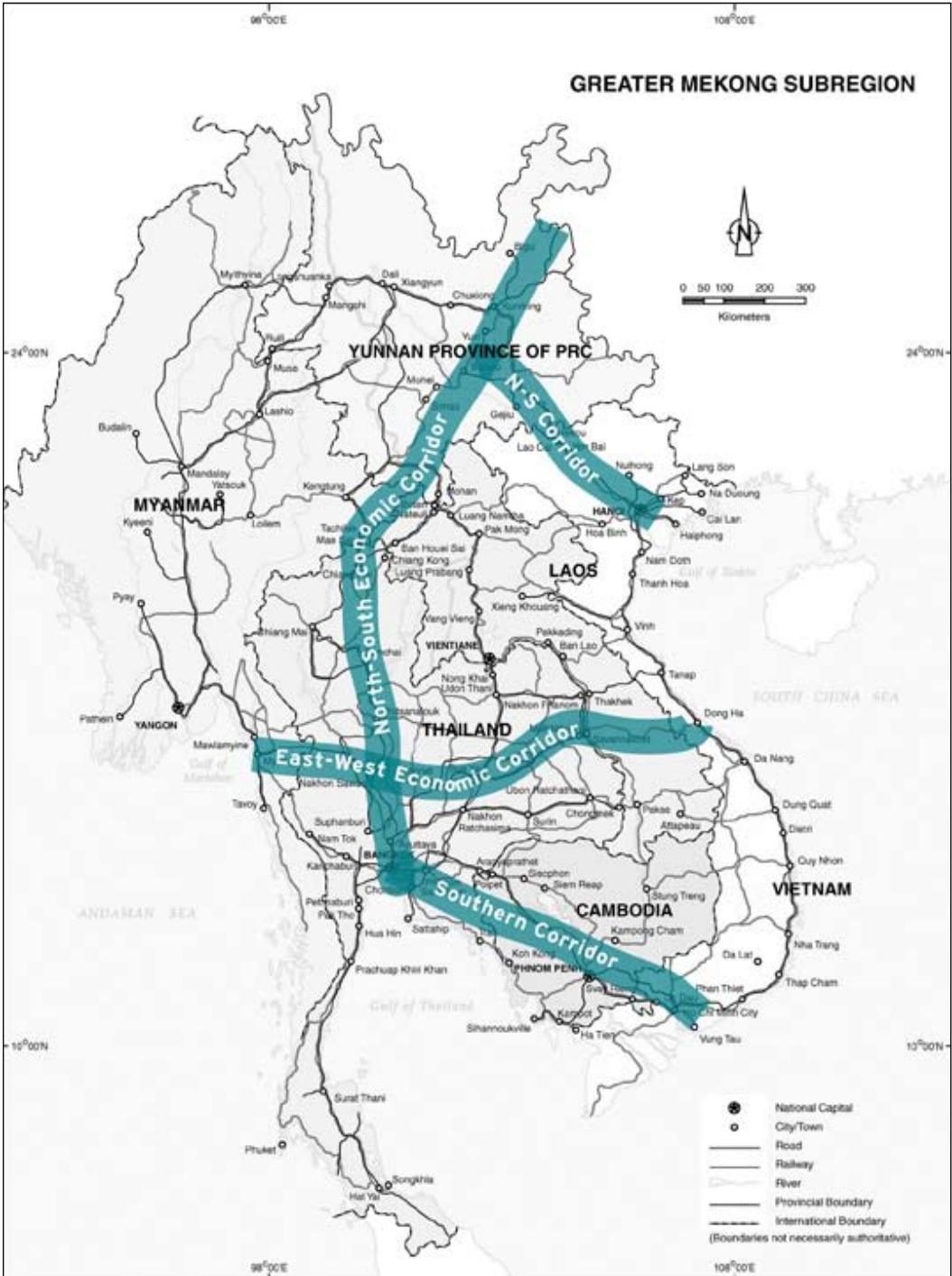
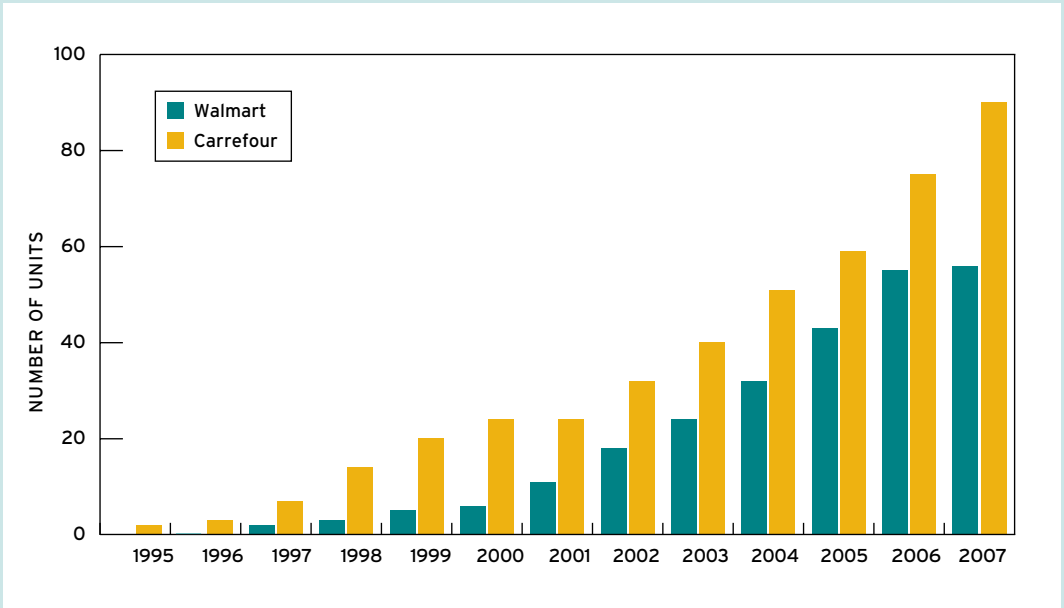
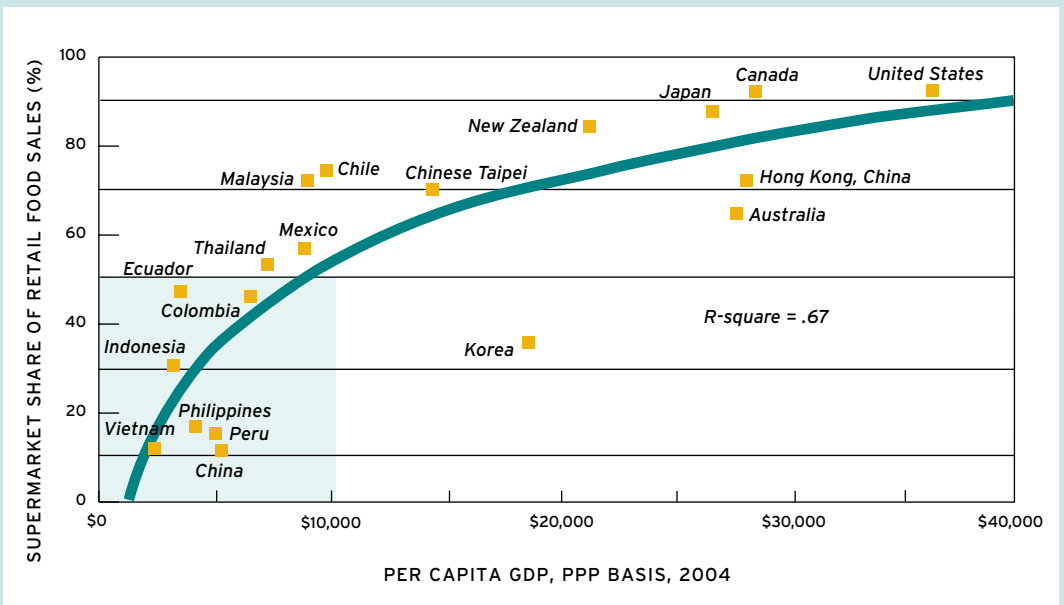


Figure 6 Foreign supermarket chains expand rapidly in China



Source: Company annual reports found on their websites

Figure 7 Rising incomes lead to rapid expansion of modern supermarkets and their supply chains



Source: World Bank World Development Indicators; Euromonitor data for 2003 in blue; other data from other sources, including data from PFSSO meeting in Kunming, China, May 2005

to include more distant regional and national suppliers, typically displacing traditional, localized channels in the process. Use by distribution centers of standardized equipment and organizational systems—such as shipping containers, tractor trailers, pallets, forklifts, and bar-code readers and computerized inventory management systems—enhances domestic and international transactions with large suppliers and other distribution centers. For example, Wal-Mart’s distribution center in Mexico pro-

ment well adapted to modern supermarkets and centralized procurement systems, including those of Nestlé, the Lotte Group, and Unilever which operate in the region. Modern supermarkets naturally favor these suppliers. They also favor importing from large foreign suppliers products they cannot procure locally. These imported products may include out-of-season or tropical fresh fruits and vegetables; livestock products the production of which requires the production of which requires forage area and grain supplies

of the supermarket chain, such as timely delivery and quality and food safety requirements. Achieving these goals increases the potential for the producer to get a better return for his/her product, and have better access to credit and other productivity-enhancing inputs, including technical assistance.

Specialized suppliers are emerging as transitional change agents, enhancing the best that traditional small-scale producers and markets now offer. Specialized suppliers (see box) are

Specialized suppliers are developing and adapting to help modern supermarkets do business with small-scale-producers and traditional market channels.

cures avocados not only for its Mexican stores but for shipment to distribution centers in other economies, including China. From their Shanghai headquarters, the European chains Metro and Auchan procure exotic vegetables for sale in their stores in Chengdu, China, more than 1,200 miles away. The compatibility of Carrefour’s procurement and distribution operations across economies facilitates procurement of nonfood products in China for sale in its Indonesian hypermarkets.

These structural changes increase the intensity of competition among food suppliers, putting adjustment pressure on the more traditional elements of the food supply system. The food sectors of all less-developed economies in the region have a technologically advanced and competitive manufacturing seg-

ment typically found in land-extensive economies, such as the United States, Argentina, Australia, Brazil, Canada or New Zealand; and highly processed products with an exotic appeal, like French wines and Dutch cheeses.

In a developing economy, a significant share of food supplies still must come from the traditional sector, which tends to be fragmented, small-scale, and often burdened by inadequate transportation and cold storage infrastructure. Expansion of modern supermarket chains in an economy provides an opportunity for small-scale food producers to link with supermarket or agribusiness supply chains. Not all are willing or capable of doing so. A key challenge is for small-scale producers to coalesce with one another to achieve significant marketing volumes, and to meet other specifications

of developing and adapting to help modern supermarkets do business with small-scale producers and traditional market channels which, while still dominant, will gradually lose share to modernizing market forces. These suppliers assume responsibility for collecting production, packaging, assuring steady supply, and, in some cases, meeting traceability objectives. They provide modern food retailers with larger product volumes at lower cost.

Specialized suppliers are also held accountable and may delist producers who cannot meet quality, consistency and food safety standards—factors that strongly influence a supermarket’s business reputation. Lapses in quality or food safety, even if it originates from a link elsewhere in the food supply chain, can damage a supermarket’s business prospects.

Policy Implications

Governments of developing economies need to consider options to better integrate rural areas with rapidly developing urban areas. Both direct government investments in infrastructure and indirect support will be needed to provide rural communities and producers the tools they need to better adapt to the rapid spread of modern supermarkets and their supply chains.

■ *More attention must be focused on lagging inland infrastructure in developing economies.* Bringing it to the same quality as trade-oriented port infrastructure investments in major coastal cities would help level the playing field for domestic food producers, providing a much needed impetus for rural development.

■ *Leaders of developing economies could provide incentives* for modern supermarket chains to better connect with rural areas and domestic producers. This must be done in ways that do not restrict foreign trade vital in promoting economic development and providing low-cost food supplies for rapidly growing urban populations.

■ *Policy makers can help small- and medium-sized participants in the food supply chain to better respond to changes in the food system.* As the food retailing system modernizes, policy makers may need to implement programs to assist farmers and traditional merchants respond to the changes. Policymakers may :

- Provide extension services to help farmers be more responsive to supermarket demands.

- Improve producer access to credit to ease the shift away from cash payments, common in the traditional sector.

- Encourage farmers to form associations to deal more competitively with supermarkets or wholesalers.

- Promote farmer-supermarket linkages, such as Malaysia's FAMA.

- Provide, as does Mexico, technical assistance to enhance small producers' organizational, management and financial capacity to deal directly with domestic supermarkets and foreign buyers.

■ *Policy makers may need to support traditional markets, helping them identify and maximize their niche in the evolving food system.* Policy makers could:

- Assist traditional retail shops and wet markets to upgrade facilities and food safety practices. Hong Kong, for example, has established blocks where traditional retailers can have covered market stalls with access to safe water and utilities. This subsidy to small traditional market participants provides the consumer with a public good of safer food supplies.

- Provide laboratories to test for food-borne pathogens, either subsidized to provide the public with greater food safety or on a reimbursement basis to those in need of these services to meet more stringent market-driven or government-mandated standards

- Set up government-sponsored distribution centers for

small retailers, as has been done in Thailand to subsidize those needing to adapt to market changes.

- Control supermarket growth by putting population and distance restrictions on where supermarkets can locate relative to traditional retail food outlets, like those in effect in Indonesia and Thailand. But regulation is seldom as efficient as providing incentives to stimulate adaption to changing market conditions.

■ *Policies may be needed to facilitate demand driven/urban-based market development.* Instead of struggling to sell what is traditionally produced, farmers must be flexible to produce food that is in demand as changes occur along with economic development. A streamlined, modern food system is in the interest of the food consuming public, especially the growing urban-based middle-class.

■ *Other important policy strategies may be used to support infant industries through the early stages of growth. These include:*

- Promote entrepreneurship.
- Assure property rights.
- Provide access to capital to grow small businesses in order to serve expanding food markets.
- Provide temporary relief from government regulations for emerging industries.

Robust policies will encourage development of an improved food distribution system in developing economies. When combined with incentives for private-sector action, the entire population will benefit.

SPECIALIZED SUPPLIERS CRITICAL IN TRANSITION TO A MODERN FOOD SYSTEM

Specialized suppliers of fresh produce take many organizational forms to bridge the divide between the modern and traditional food sectors. They may be large modern farms that supplement their own production by contracting with small producers or buying from intermediaries, including traditional wholesale markets. Others might be companies that specialize in procurement and marketing, sometimes deriving experience from international trade. In other cases, small farmers might form associations or cooperatives, sometimes with the aid of government, to deal directly with modern supermarkets. Some suppliers expand by contracting with more producers. Others consolidate by dealing only with producers capable of meeting demand for growing volume and higher standards. The following examples illustrate the variation within the specialized supplier trend.

The Lanbo Company is a sole supplier of mushrooms to 30 large-scale supermarkets in the Beijing region. Sales volume and varieties sold have grown rapidly in the last five years. Because of high demand for the company's products, it has developed arrangements with different sources to assure a steady, high quality supply to its customers. These supply arrangements include 3-5 year contracts with 10 small operations outside the Beijing area which have relatively high technical capacity and are directed fairly closely by the company. It also has less formal cooperative ties with 50 other small-scale operations in the region, buying all products that meet company standards. To assure stable supply of certain mushroom varieties not available in the Beijing area, Lanbo purchases from small-scale rural households through an agent and from large scale industrialized farms; and imports from Japan, Korea, and Chinese Taipei (Hu et al., 2007).

PT Saung Mirwan, established in 1983 near Bogor, Indonesia, is a relatively large vegetable and flower farm that supplements its own production with supplies from 50 other producers, 40 of which are small-scale operations averaging less than half a hectare of cultivated area. The company supplies 18 types of flowers and more than 40 varieties of fresh vegetables to supermarkets' central distribution centers. The company has grown rapidly, doubling its greenhouse capacity to 3 hectares by the early 2000s from 1.5 hectares in 1991.

Xincheng Foods supplies fresh vegetables to supermarket chains in the Shanghai area. It operates nine farms, with 1,000 hectares of vegetable production. It also produces livestock and fish. In 1997, Xincheng began supplying China's top three national supermarkets; by 2003, it was supplying 500 supermarkets owned by domestic and foreign chains. As much as 20 percent of the company's supplies comes from its own land and greenhouses, 50 percent from 4,200 contract producers, and 30 percent from wholesale markets. The company also rents land to grow vegetables for export to Japan and Southeast Asia.

PT Bimandiri of Indonesia specializes in procurement and marketing of fresh produce, buying 30 percent from producer groups and the remainder from traditional channels. Since 1998, Bimandiri has been a dedicated supplier of produce to Carrefour, Indonesia, rapidly expanding its business to 7 tons per day in 2003 from half a ton per day in 1998. In 2001, it contracted with a group of 100 farmers to produce a small low-pesticide watermelon for Carrefour. Eventually, half the farmers were able to produce this special watermelon, earning twice the price per kilogram compared to that for a standard watermelon.

Malaysia's state-run Federal Agricultural Marketing Authority (FAMA) began supplying supermarkets and hypermarkets in 2000. It has contract arrangements with more than one thousand producers of fruits and vegetables, livestock, freshwater aquaculture and coconuts. Farmers produce according to cropping schedules designed to ensure steady supply. FAMA's 44 collection centers supply seven distribution centers. Supermarkets also obtain supplies directly from farmers and wholesalers.

The Bukidnon Lettuce Cluster in northern Mindanao, the Philippines, consists of five farms that sell lettuce directly to fast food companies and a cash-and-carry chain. According to the United Nations Food and Agriculture Organization, Bukidnon ships 10 tons of lettuce weekly. The largest of the farms coordinates the cluster's business activities and serves as a liaison with input suppliers, transporters and buyers. Surplus production or off-sizes of lettuce are sold on the wholesale market.

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The China National Committee for Pacific Economic Cooperation (CNCPEC) is a national organization established in 1986 in accordance with the PECC Charter. It is made up of representatives from government, business and industry, and academic and other intellectual circles. Its principal objective is to promote economic cooperation and prosperity in the Asia-Pacific region.

CNCPEC promotes economic development and cooperation by engaging in joint research with other member economies, organizing and coordinating China's participation in various PECC task forces and other activities, promoting multilateral and bilateral exchanges with other PECC members, and hosting international conferences, meetings, and seminars.

Economic Research Service

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The Economic Research Service (ERS) is the main source of economic information and research in the U.S. Department of Agriculture. ERS economists and social scientists develop and distribute a broad range of economic and other social science information and analysis to inform public and private decision making on agriculture, food, environmental, and rural issues.

The ERS's timely reports are distributed to public and private decision makers to assist them in conducting business, formulating policy, and learning about the farm, rural, and food sectors. ERS publications are available to the public and the news media in both print and electronic form.

The agency's three divisions—Food and Rural Economics, Market and Trade Economics, and Resource Economics—conduct research, perform commodity market and policy analysis, and develop economic and statistical indicators. The executive and legislative branches of the U.S. federal government use ERS information to help develop, administer, and evaluate farm, food, rural, and resource policies and programs.

In addition to research reports and commodity analyses, ERS publishes *AmberWaves*, a magazine covering the full range of the agency's research and analysis, including the economics of agriculture, food, rural America, trade and the environment.

Farm Foundation

<http://www.farmfoundation.org>

Farm Foundation is a publicly supported nonprofit organization working to improve the economic and social well-being of U.S. agriculture, the food system and rural communities by assisting private- and public-sector decision makers in identifying and understanding forces that will shape the future. Serving as a catalyst, Farm Foundation partners with private- and public-sector stakeholders, sponsoring conferences and workshops to understand forces shaping the competitiveness of agriculture and the food system; encouraging transfer of research into practical tools for increasing human capital; promoting informed dialogue on public issues and policies; and building knowledge-based networks for U.S. agriculture and rural people. Farm Foundation does not lobby, or advocate positions or policies. Its 74-year reputation for objectivity allows it to bring together diverse stakeholders for quality discussions on issues and policies, providing a solid basis for informed private- and public-sector decisions.

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PACIFIC ECONOMIC COOPERATION COUNCIL

Overview

The Pacific Economic Cooperation Council (PECC) is an independent, multi-stakeholder organization committed to the promotion of cooperation and dialogue in the Asia Pacific region. Founded in 1980 at the initiative of Mr. Masayoshi Ohira and Mr. Malcolm Fraser, then Prime Ministers of Japan and Australia, the PECC is a network of member committees composed of individuals and institutions dedicated to promoting cooperation across the region. The Council is one of the three official observers of the APEC process.

Membership

Currently PECC has a total of 26 member committees representing the economies of Australia, Brunei Darussalam, Canada, Chile, China, Colombia, Ecuador, Hong Kong, China, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, the Pacific Islands Forum, Peru, the Philippines, Singapore, Chinese Taipei, Thailand, the United States, Vietnam, France Pacific Territories and Mongolia and institutional members: the Pacific Trade and Development conference (PAFTAD) and Pacific Basin Economic Council (PBEC). Member committees comprise representatives from business, government, academic, media and civil society who initiate and/or participate in PECC work program while undertaking their own activities to promote Asia Pacific cooperation in their respective economies.

Governance

PECC's governing body is its Standing Committee which consists of the chairs of each member committee. The Standing Committee meets once a year. Day-to-day operations are managed by PECC's International Secretariat in Singapore.

Projects

PECC signature projects are decided on by the Standing Committee and undertaken by its member committees. In addition PECC's member committees also collaborate on a number of international projects.

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The *Pacific Food System Outlook* represents the first regionwide coordinated effort to provide the outlook for the Pacific food system. The food system includes not just production agriculture, but also the whole complex of economic relationships and linkages that tie the region's food consumers to producers. The goal of the *Pacific Food System Outlook* is to help increase knowledge about the diverse components of this vital segment of the global economy.

