MALAYSIA

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Infrastructure Issues: Implications for the Food and Agricultural System

Malaysia has been investing heavily in the development of infrastructure over the past decade, including major improvements to interstate highways, public transit, and port facilities; a new international airport; and improved electrical power generation. The financial crisis has led to the cancellation of one of the highway projects, still in its early planning stages, and the cessation of work on the Bakun Hydroelectric Dam in Sarawak, but most other infrastructure projects have proceeded. A brief overview of the infrastructure development is as follows:

ROADS - Road development including bridge construction is based on a three-pronged strategy, namely, to improve interurban linkages, alleviate capacity constraints, and extend the road network to open up new growth centres and rural areas. The Road Density, Road Development Index, and Road Service Level are three measurements of road development for Malaysia. Over the decade from 1985 to 1995, Road Density, which measures road length over total area, increased from 0.12 to 0.20 kilometres of road per square kilometre, representing a 67% increase in road coverage and accessibility in any given area. The Road Density will increase to 0.25 by the year 2000. The Road Development Index, which measures the level of road development, taking into account both area and population size of the country, also improved significantly from 0.54 in 1985 to 0.8 in 1995. It is envisaged that an additional 16,100 kilometres of roads will be constructed by both the public and private sectors through the privatisation program up to 2000. Out of 16,100 kilometres, 60% is under the rural roads program to improve accessibility and enable greater participation by rural people in socioeconomic development. This will increase the Road Development Index to 0.94. The Road Service Level, which measures kilometres of road to 1,000 persons, is anticipated to improve from 3.22 kilometres in 1995 to 3.82 kilometres in 2000.

SEAPORTS - Seaport development will continue to focus on expanding capacity, upgrading and increasing equipment and facilities, as well as enhancing the efficiency of port and port-related services. Most of the planned projects were completed before the economic crisis. By 2000, the total planned capacity at all Malaysian ports is expected to increase to about 280 million tonnes as compared with 174.1 million tonnes in 1995. The volume of cargo handled is estimated to increase from 152.3 million tonnes in 1995 to about 255 million tonnes in 2000, representing an average annual growth rate of 10.8%. The West Port in Port Klang has completed the unloading facility for Panamax ships. A rail linkage from West Port to Kuala Lumpur is under construction.

More concerted efforts are being undertaken to promote Port Klang as a hub port. Cargo from all other Malaysian ports, including in Sabah and Sarawak, which act as feeder ports, is being consolidated where possible through Port Klang, where shipping services are more frequent and expedient.

AIRPORTS - The Kuala Lumpur International Airport (KLIA), which opened in July 1998, was developed to meet the long-term air transport needs of Malaysia and the region. The KLIA has a capacity of 25 million passengers per annum (mppa) and one million tonnes of cargo per annum. The airport has two staggered four-kilometre runways and a terminal building with a total of 80 aircraft contact piers. A high-speed rail link from the airport to Kuala Lumpur is under construction, but the progress is slow due to the current economic slowdown. In addition to the existing highway, one major highway that links the airport to Kuala Lumpur and West Port was completed before the economic crisis.

COMMUNICATIONS - The national penetration rate increased from 9.3 Direct Exchange Line telephones per 100 persons in 1990 to 16.6 in 1995. The urban penetration rate was higher at 16.6 in 1990 and 24.8 in 1995, while the rural penetration rate was 2.2 in 1990 and 5.5 in 1995. The national rate is expected to reach 24.7 by 2000. The rural penetration rate is anticipated to reach 9.5.

As regards agriculture, the Ministry of Agriculture is strengthening the role of Agrolink and ICIS (Integrated Commodity Information Services) as efficient providers of local and global information and as a tool for rapid communication for all parties involved in agricultural development.

POWER GENERATION - Nationally, 92% of rural households are served with electricity. On the Peninsula, 99% have electricity, compared with 65% in Sabah and 67% in Sarawak. It is expected that by 2000, the rural electricity coverage on the Peninsula, Sabah, and Sarawak will reach 100%, 75%, and 80%, respectively.

WATER SUPPLY - National water supply coverage increased from 80% of total population in 1990 to 89% in 1995. National rural coverage increased from 67% in 1990 to 77% over the same period. By 2000, urban coverage is expected to reach 100%, while rural coverage is expected to increase to 83%.

IRRIGATION AND WATER DRAINAGE - About 22% of the land in Malaysia is utilised for agriculture. Total arable land is 664,000 hectares with some 294,000 hectares provided with irrigation facilities and 650,000 with drainage facilities. The main objective of the irrigation project is to manage water into and out of rice fields to increase productivity. Drainage facilities primarily aid water management in low-lying areas for the cultivation of perennial crops such oil palm, rubber, and cocoa.

INFRASTRUCTURE CONSTRAINTS

Rice – The present farm roads were designed only to support light and medium-weight farm machinery. With the increasing use of heavy machines such as combine harvesters and trailers, the weight-bearing capacity of these roads is no longer sufficient to cope with the increased loads, and the roads will require upgrading.

Livestock – Infrastructure support is inadequate in such areas as transportation, handling, and storage facilities for livestock and downstream processing industries. The marketing of live animals, especially ruminants, is still disorganised and structurally inefficient.

Fishery – Certain fish landing sites are facing siltation problems. The limited number of processing plants restricts the market's capacity to absorb a large quantity of certain species of fish, especially low quality and trash fish. These are among the factors that have discouraged domestic and foreign vessels from landing their catches in Malaysia.

Fruits – Farm roads, especially in East Malaysia, as well as inadequate wholesale markets, packing house facilities, and air cargo space for certain destinations are constraints in the fruit trade.

Vegetables – Among that factors that limit the vegetable sector are the lack of market infrastructure such as farm collection centres, packing house facilities, cold rooms, and wholesale markets in production areas and transportation services to facilitate market transactions from the farm to retail outlets. Lack of reliable production data and poor dissemination of price information has resulted in ineffective production planning leading to wide fluctuations in supply and prices.

Palm Oil – The lack of both suitable R&D on mechanisation and the development of appropriate technologies to reduce the labour-to-land ratio constrain this sector. Excess capacity in the palm oil refining sector and a dependence on foreign workers are also problems.

Cocoa – The lack of basic infrastructure such as electricity and water and the required support industries hinder the development of cocoa downstream processing in Sabah. In addition, high freight costs and a low shipping frequency between Sabah and the Peninsula, where most of the downstream activities are located, are also limiting the competitiveness of the industry.

Overall infrastructure constraints seem to be concentrated in the areas of marketing and distribution, for example, transport systems to facilitate the collection, storage, and supply of raw materials and handling facilities.

IMPLICATIONS OF INFRASTRUCTURE CONSTRAINTS

Malaysia has made major public and private investments in the development of infrastructure over the past two decades in its quest to become a developed country by 2020. For agriculture, the government has put in place a number of incentives to foster the development of downstream processing. Malaysia recognises that it needs to create value-added activities in agriculture to raise incomes in the rural sector. Consequently, the infrastructure issue in the past decade has been one of growing excess processing capacity. This problem has been made even more acute by the decline in the production base of many of the major crops including rubber, cocoa, rice, and pineapple as well as the decline in the harvest of timber. Among the major crops, only palm oil has continued to expand in area and, even here, there is substantial excess refining capacity. This creates disincentives to new investments in more modern facilities and generates demands from the industry for assistance from the government.

For major imported commodities, including animal feeds, dairy products, and wheat, the public infrastructure constraints have largely been addressed through the investment in new transportation and handling facilities. Private sector infrastructure investment—for both imported commodities and domestic production of fruits and vegetables and other small-scale production for the domestic market—seems to be constrained primarily by economic considerations. Investment in refrigerated trucking and handling facilities dedicated exclusively to the fruit and vegetable trade, for example, is lacking because the market has not developed sufficiently to justify the investment. As incomes rise and Malaysian consumers demand higher quality and fresher produce, these infrastructure constraints will begin to disappear.

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	Units	1996	1997	1998	1999	2000	2001	2002	2003	2004E	2005F
FOOD CONSUMPTION PATTERNS *a*											
Per-capita caloric intake	Cal/day	2813	2818	2822	2834	2842	2850	2858	2860	2868	2876
From animal products	Cal/day	524	533	539	549	557	565	573	573	574	575
From vegetable products	Cal/day	2289	2285	2283	2280	2277	2278	2277	2277	2278	2278
Protein (percent of calories)	%	7.9	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.7
Fat (percent of calories)	%	33.4	32.5	33.6	33.6	33.7	33.8	33.9	33.9	33.8	33.8
Carbohydrates (percent of calories)	%	58.7	58.6	58.6	58.6	58.5	58.5	58.5	58.5	58.6	58.6
INCOME AND FOOD PRICE *b*											
Per-capita income	US$/capita	4446	4377	3093	3238	3516	3584	3814	4031	4310	4568
% disposible income spent on food	%	34.9	34.9	34.9	34.9	33.8	33.8	33.8	33.8	33.8	33.8
% disp. income food away from home	%	9.8	9.8	9.8	9.8	9.7	9.7	9.7	9.7	9.7	9.7
Food price index	1990 = 100	133.5	138.9	151.3	158.3	161.3	162.5	163.6	165.7	168.5	172.2
General price index (CPI)	1990 = 100	125.6	129.0	135.8	139.6	141.8	143.8	146.4	148.2	150.6	153.6
Food price index	%	5.3	3.5	8.6	4.6	1.9	0.7	0.7	1.3	1.7	2.2
General price index (CPI)	%	3.5	2.6	5.2	2.8	1.6	1.4	1.8	1.2	1.6	2.0
POPULATION *b, c, d*											
Total population	Million	21.2	21.7	22.2	22.7	23.3	24.0	24.5	25.0	25.6	26.2
Urban	%	55.6	56.5	57.3	58.1	58.8	59.6	60.4	61.2	62.1	25.9
Nonurban	%	44.4	43.5	42.7	41.9	41.2	40.4	39.6	38.8	37.9	37.1
Share of population in the following age groups											
0-4 years	%	12.0	11.8	11.7	11.6	11.5	11.6	11.5	11.3	11.2	10.8
5-14 years	%	23.0	22.7	22.5	22.4	22	21.4	21.1	20.7	20.3	19.9
15-19 years	%	10.0	10.0	10.1	10.1	10.2	10.1	10.1	10.2	10.2	10.3
20-44 years	%	38.6	38.8	38.7	38.9	39	39.2	39.3	39.5	39.7	39.9
45-64 years	%	12.7	13.0	13.2	13.2	13.5	13.8	14.1	14.3	14.6	14.9
65-79 years	%	3.1	3.1	3.2	3.2	3.2	3.3	3.3	3.4	3.4	3.5
80-over years	%	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7
Median age of population	Years	22.2	22.5	22.8	23.0	23.4	23.7	24.0	24.2	24.5	24.8
Female labor force participation *c, e*	%	45.8	44.9	43.8	43.8	44.5	44.3	45.5	44.3	44.4	44.6
LIFE EXPECTANCY *d, e*											
Males	Years	69.6	69.7	69.7	69.9	70.1	70.3	70.4	70.6	70.8	71.0
Females	Years	74.1	74.5	74.7	74.8	75.0	75.2	75.3	75.5	75.7	75.9
FOOD INFRASTRUCTURE											
Trade capacity											
Grain exports *f, g*	1000 Tons	253	251	316	224	243	263	286	315	354	396
Grain imports *f, g*	1000 Tons	3930	4392	3569	4145	4321	4504	4695	4883	4986	5090
Total food and agricultural trade	Million US$	14118	13240	12286	11827	10674	10844	11021	12278	12471	12670
Total food and agricultural exports *h, i, j*	Million US$	8703	8312	8386	7691	6449	6460	6471	6471	7494	7534
Perishable products *k*	Million US$	349	347	275	325	344	352	360	374	381	388
Fishery exports *h, i*	Million US$	320	330	301	295	344	350	357	359	361	363
Total food and agriculture import *i, j, l*	Million US$	5415	4928	3900	4136	4225	4384	4550	4550	4679	4810
Perishable products *k*	Million US$	1078	1040	761	864	931	975	1020	1062	1072	1083
Fishery imports *i, l*	Million US$	331	326	221	253	293	299	305	317	317	320
AIR TRANSPORT											
cargo movement	metric tons	541416	651601	544245	657087	773892	702892	816470	na	na	
total terminal area	sq.meter	193905	193905	434905	434905	434905	434905	434905	434905	434905	
total land area	sq.meter	2.1x109	2.1x109	1.21x1010	1.21x1010	1.21x1010	1.21x1010	1.21x1010	1.21x1010	1.21x1010	
Port capacity *c*	Million Tons	174	174	257	300	344	384	423	465	485	
WATER, IRRIGATION SYSTEM											
total irrigated area	Ha	na	na	na	na	341000	na	na	na	na	
canal + drain	Km	na	na	na	na	na	na	na	36164	na	
waterways	Km	38000	38000	38000	38000	38000	38000	38000	38000	38000	
Road access *e*	Km	63383	64981	65552	65877	67591	73018	73403	79790	83654	
Rail access *e*	Km	2227	2227	2262	2265	2279	2311	2325	2325	2325	
Telecommunications *e*	Lines/100 person	24.2	28.5	29.3	31.4	35.2	38.3	41.5	42.5	43.5	
Gas mmscfd	1000	1000	1000	2000	2000.0	2000.0	2000.0	2000.0	2000.0		
Power Generation *m*	Gigawatts	52819	58674	60471	62553	66506	72413	78845	79790	83654	
Percent of population with refrigerators	%	92	92	93	93	93	95	95	95	95	
FOREIGN INVESTMENT IN THE FOOD SECTOR											
Inward FDI in the food sector, total *n*	Million US$	50.8	61.9	93.1	72.8	70.6	72.5	180.9	77.4	74.4	
From other PECC economies *o*	Million US$	40.6	43.6	75.1	50.2	29.9	28.8	31.8	29.4	28.	
ROLE OF AGRICULTURE AND TRADE IN THE ECONOMY *b, c, f*											
Agriculture as a share of GDP	%	9.8	9.2	9.6	9.4	8.7	8.3	8.0	7.6	7.3	7.2
Self-sufficiency in grain	%	35.8	32.8	38.0	31.0	30.6	30.2	29.7	29.5	27.8	27.8
Self-sufficiency in rice	%	75.2	74.2	73.1	72.1	71.1	71.2	71.4	71.6	71.8	71.8
Self-sufficiency in horticultural products	%	78.1	79.0	83.7	74.7	72.0	69.2	66.5	68.6	68.4	68.4
MACROECONOMIC INDICATORS *b*											
GDP growth	%	8.6	7.7	-7.4	5.8	8.5	0.4	4.1	5.2	6.0	6.0
Interest rate *p, q*	%	9.2	10.3	8.0	6.8	6.8	4.0	3.0	3.0	3.3	3.3
Exchange rate	Ringgit/US$	2.52	2.81	3.92	3.80	3.80	3.80	3.80	3.80	3.80	3.80

na = not available E = estimate F = forecast

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