

FOOD SECURITY PERSPECTIVES: FOCUS ON ASIA AND THE PHILIPPINES¹

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Introduction

The world today has the capacity to produce more food than it can consume. However, millions of the poor the world over are still unable to partake of this abundance of food supply, an irony most pronounced among low income countries. The 1996 Rome Declaration states that food security exists only when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This underscores the problem of food security today as primarily one of access and not only of availability.

Meanwhile, market forces are being unleashed throughout the world in sectors and ways that have a direct bearing on the food security problem as it poses itself today. These forces are manifested in two ways. *First*, trade barriers have gone down in agricultural commodities including food stuff. The ratification of the General Agreement on Tariffs and Trade - Uruguay Round (GATT-UR) in 132 countries and the entry of the same into the World Trade Organization (WTO) signals an important epoch in global agricultural trade. In consonance with this development, several countries especially, in the Asian region, have moved away from policies aimed at achieving self-sufficiency in staple production; preferring instead to produce only part of their domestic needs while relying on imports for the balance. The 1996 World Food Summit also supports the view that food security can increasingly be met through imports and international trade in food. FAO has re-defined food self-reliance to mean "reliance on trade to meet food needs" where it once meant supplementing domestically produced food with trade. The view that food security can increasingly be met through imports and the international trade in food is also ensconced in the 1996 World Food Summit (WFS) of the FAO where "food self-reliance" was redefined to mean 'reliance on trade to meet food needs' where it once meant supplementing largely domestically produced food with trade. To be sure, world trade could

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indeed facilitate availability and access to food with its potential to widen the food supply pool and drive food prices down. However, subjecting national food systems to the globalization process also poses new challenges and dilemmas to shaping food security policies at the national and international levels. One of these is the problems associated with the possible displacement of millions of smallholder food producers who comprise bulk of the population in developing countries.

Second, the nature of state intervention in local food and agricultural markets is being re-shaped from a regime of direct market participation through price controls and production procurement to one of crisis management and buffer stocking. In an effort to meet the conflicting goals of promoting cheap food and raw material prices and protecting national food systems, many developing countries used to employ market restrictions through quantitative quotas, price controls, the procurement operations of national marketing agencies, export taxes and other levies. With the promulgation of structural adjustment policies in the 80's, many of these measures were scrapped in favor of more market-friendly measures.

This paper focuses on the first of these forces and delves into food and markets in developing Asia. Developing Asia has been at the center of the global stage of late, with its rise as an economic power in the 80's and 90's and the current episode of financial crisis weakening many of its economies. This region offers an interesting showcase for how market forces impacts upon welfare objectives relevant to food security.

The paper discusses the nature of the global food problem, how market forces impact upon this problem and then zeroes in on developing Asia to essay considerations and constraints that these forces cannot hope to address by itself.

Part I presents the global food supply and distribution and tackles the issue of food insecurity in developing countries. Part II examines market forces and international regimes as they affect food security of developing Asia. Part III deals with the domestic dimensions - institutional and resource-related constraints that shape food security problems in developing Asia.

1.0 The nature of the food security problem: Global empirical dimensions

This paper begins by looking at two sets of trends to ascertain the nature of global food scarcity. The first has to do with food production and how it has kept pace with population growth. The second has to do with the movement of real food prices which indicates how global supply is keeping pace with demand. It then verifies how these food availability indicators compare with some food consumption statistics.

WORLD TRENDS IN FOOD PRODUCTION AND DEMAND

Grain production outpaced population changes in the seventies— a trend that heightened in the eighties but appear to have reversed in the first five years of the nineties. (Table 1) Throughout the seventies, change in production has been greater than change in population in practically all parts of the world except South America and Africa. The African situation improved in the eighties— as with the rest of the world except South America. The dramatic increases in South American cereal sector productivity only bore fruit in the nineties when it was the only region in the world where change in production outpaced change in population.

According to FAO, a considerable increase in plant production between 1970 and 1990 was due to increased productivity and improved yields and to a lesser extent, to an increase in cultivated area. The slowing of grain production in the nineties, on the other hand, is attributed to the exhaustion of land frontier, such

that further increases in production are bound to be technology-driven.

Table 1. Average annual percentage change in production and population: 1971-1995

Area	Average annual % change in production			Average annual % change in population		
	1971-80	1981-90	1991-95	1971-80	1981-90	1991-95
N. America	4.43	4.52	-0.19	0.97	1.01	1.02
S. America	1.95	1.23	6.15	2.31	1.99	1.63
Europe	3.66	1.26	-0.67	0.52	0.33	0.25
Africa	2.22	3.11	2.43	2.71	2.84	2.71
Oceania	6.39	9.02	10.27	1.62	1.54	1.39
Asia	2.81	3.34	1.36	2.10	1.89	1.98
World	2.76	2.44	-0.45	1.85	1.74	1.49
Developed	2.89	2.03	-3.05	0.83	0.70	0.51
Developing	2.74	3.12	1.76	2.25	2.08	1.79

Basic Source: FAO, 1997

Table 2. Average annual change in productivity: 1971-1995

	1971-1980	1981-1990	1991-1995
N. America	2.01	3.82	1.21
S. America	1.12	1.70	5.60
Europe	3.74	1.85	0.33
Africa	2.46	0.61	-0.17
Oceania	2.06	8.43	4.83
Asia	2.39	3.12	1.70
World	2.10	2.52	0.01
Developed	1.83	2.81	-1.47
Developing	2.38	2.62	1.51

Basic source: FAO, 1997

The role of productivity in boosting production between 1970 and 1990 is mirrored by the trends in average annual percentage change in productivity. (Table

2) Between 1971 and 1990, productivity growth was rising for all of the economic groups and all of the continental groups except Europe and Africa. The first half of the nineties, in contrast, is characterized by the slowing

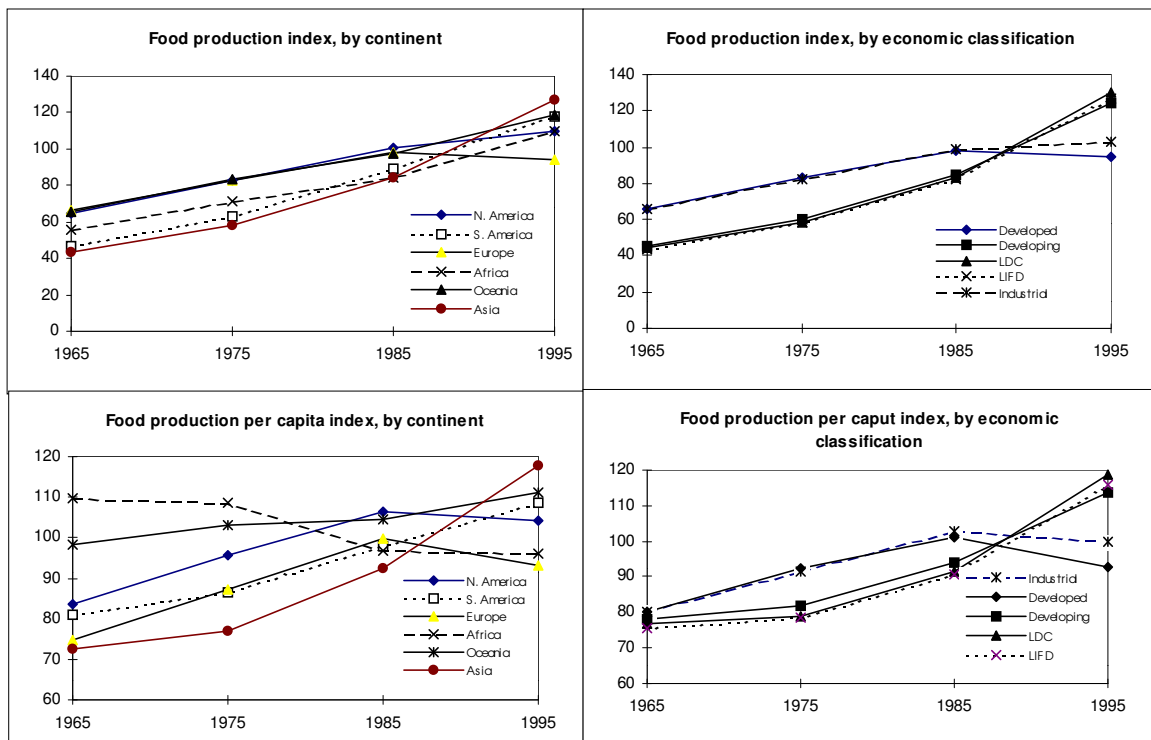
down in annual productivity increases except in South America.

Despite this apparent slowing in cereal production, food production and food production per capita indices continue to be on a general upswing for most of the developing world. (Figure 1) The important exception is Africa where, given the primacy of roots and tubers in its diet, production statistics pertaining to cereals may not be as important as per capita food production index. Food production and per capita food production indices in North America and Europe in 1995 fell, compared to their position in 1985, to points approximating their 1975 positions. The decline for developed countries however, bear minimal impact to their populations in as much as their supplies still increasingly exceed their energy requirements. In Northern America, for instance, food supply exceeds energy requirements by almost 50 percent. (FAO, 1996) Per capita indices follow the direction of food production indices when countries are grouped according to their economic classification. However, continental grouping point to dramatic increases only happening in Asia and to a lesser extent, South America.

PRICE MOVEMENTS

Trends and projections based on World Bank data suggest that the real price of food relative to industrial commodities have been on a downward trend throughout this century, declining at about 0.5 percent every year. This implies that the global capacity to supply food has grown slightly more rapidly than global demand. The latest projections by the World Bank point to the continuation of this broadly balanced growth with real prices in 2005 lower than those prevailing in the first half of the 1990's. (Anderson, et. al., 1996)

Figure 1. Food production and food production per capita indices: 1965-1995



Basic Source: FAO, 1997

However, there has been a spate of nominal increases in cereal prices in the nineties. As with the slowing of cereal production, this has not gone unnoticed. The optimistic picture painted by the trends in production, population growth and real prices prior to the nineties, is offset by the Malthusian warnings of Brown (1995). Brown projects that given expected declines in land and water availability for grain production in China, China would be needing more than 200 million metric tons of grain imports by year 2030, a volume roughly equaling the current volume of global international trade in grain.

Three studies done independently by World Bank, FAO and IFPRI— all taking into consideration concerns about land degradation, the conversion of agricultural land to industrial uses and the limits to the expansion of irrigation—are far less pessimistic in their expectations of the capacity of producers, consumers and policy makers to respond appropriately to resource and environmental challenges. (Table 3) Small changes in grain self sufficiency are projected and the studies suggest that developing countries (including China), as a group would be importing only around 190 metric tons from advanced industrial economies in 2010, doubling the volume of the early 1990's. (Anderson, et. al., 1996)

Table 3. Grain self-sufficiency, various regions: Actual 1989-1991 and projected 2010

Actual	Projected	Projected	Projected
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	1989-91	2010, WB	2010, IFPRI	2010, FAO
Advanced economies	128	136	124	128
Eastern Europe & former Soviet Union	88	105	102	102
All developing economies	91	86	88	89
East Asia	94	91	94	95
South Asia	100	90	97	97
Latin America	87	84	92	86
Sub-Saharan Africa	86	86	73	85
Middle East & North Africa	67	57	64	62

Source: World Bank from Mitchell and Ingco (1995), FAO from Alexandratos (1995) and IFPRI from Agcaoili and Rosegrant (1995) cited in Anderson, et. al. (1996)

THE QUESTION OF ACCESS

Has the availability of food translated to food security at the national and household levels? It has to the extent that the proportion of population who are food-deficient has been declining in all developing regions except Inter-tropical Africa. (Table 4)

Table 4. Estimates of food energy deficiency in developing regions

Region	Period	% of food-energy-deficient persons in population	Number of food-energy-deficient persons (in millions)
Inter-tropical Africa	1969-71	38	103
	1979-81	41	148
	1990-92	43	215
Near East & North Africa	1969-71	27	48
	1979-81	12	27
	1990-92	12	37
East Asia & Southeast Asia	1969-71	41	476
	1979-81	27	379
	1990-92	16	269
South Asia	1969-71	33	238
	1979-81	34	303
	1990-92	22	255
Latin America & Caribbean	1969-71	19	53
	1979-81	14	48
	1990-92	15	64

Source: FAO 6th World Food Survey (1996) cited in FAO (1996)

The situation in terms of energy requirement coverage has vastly improved over the last forty years. The improvement is most noticeable in Asia where the coverage rate of energy requirements went from a deficit of 6 percent in 1962 to a surplus of 17 percent in 1990. (FAO, 1996)

However, the absolute number of the hungry has also risen by as much as 17 percent between 1980 and 1992. While the proportion is expected to decline over the coming years, the absolute number of the hungry is expected to rise continuously. In 1992, 841 million people were deemed energy deficient—a figure comprising 20 percent of the developing countries' population. The situation is most dire in the least developed countries where, despite an increase

in global availability, per caput fat supply has risen only minimally, dietary energy supply has stagnated, and per caput protein supply has even declined.

What are the most salient insights to be gleaned from the above empirical trends?

The first conclusion is that supply often has little to do with access. Food security continues to be a developmental problem and poverty remains to be the single most important obstacle to ensuring it at the national and household levels. The relative improvement in the performance of developing Asia compared to developing Africa in both production- and, more importantly, consumption-side statistics point to the close relationship between economic development and the alleviation of hunger.

But while supply cannot guarantee food security, the reverse is true enough. Food security cannot be attained without ample food supply. In view of continuing population growth, increasing land scarcity and mounting difficulties in achieving sustainable increases in food-crop yields, technological innovation remains a cornerstone in achieving long-run stability in food supply. For developing countries, the role of public investment in research and development cannot be understated as with the importance of institutions, infrastructure and development of human resources in democratizing access to new technologies.

Third, an increased involvement in international food trade is bound to be an important feature of the policy environment towards attaining food security goals. In a globalized food system, the fiscal capacity of nations to finance their food imports becomes a central issue. In developing countries where food producers are among to the most food-insecure sectors, exposing their food market to the vagaries of international trade pose new opportunities and challenges.

2.0 Food and markets - international regimes and national policies

The preceding section showed how the question of access is the central issue in food security. How does the policy of freer international food as embodied in the GATT-UR impact upon this problem? The question will be approached by exploring the nature of global exchanges in food and then examining GATT-UR measures pertinent to the agricultural and food sectors. This section outlines how the agreement may run counter to the food security objectives of developing countries and will then argue that trade policy by itself cannot solve the problem of food security.

TRENDS IN FOOD TRADE BALANCES

Trends in food trade balances point to the increased dependence of developing countries on food imports. (Table 5) Even as current levels of imports represent a minimal proportion of total consumption, the degree of dependence of developing countries on the international market, especially for grains, is expected to deepen. Rising income, especially in developing Asia, is expected to spur demand for both food and feed grains that may not necessarily be fulfilled by local production. World Bank estimates that the developing countries' share in world food grains imports would reach 70 percent by the year 2000.

Table 5. Net trade balance in food: 1965-1995*

	1965	1975	1985	1995
Developed	(8,091,100)	15,294,000	40,766,000	106,323,800
Developing economies	13,142,870	(11,555,660)	(42,023,000)	(92,239,200)
Developing Africa	3,272,740	(6,080,880)	(28,419,500)	(29,764,760)
Developing Asia	(14,103,880)	(24,851,630)	(43,482,990)	(84,002,210)

*A negative trade balance point to net imports; positive - to net exports

Basic Source: FAO, 1997

Trends also suggest the dominant role of the developed world, despite falling rates of productivity and production, as international trade net food supplier—a role that, if various projections are to be believed, it is unlikely to relinquish. World Bank envisages that the developing countries' share in world cereals exports will increase from 12.7 percent in 1987 to only 14.4 percent by 2000. Both FAO and the World Bank posit that Argentina and Thailand are likely to remain the only significant Third World suppliers of cereals. OECD countries, in contrast, are likely to increase their exports because these countries are said have the ecological, technological and structural capacity to meet rising export demands. (Brown and Goldin, 1992)

The dependence of the developing world on developed countries for their food needs is not an accident of endowments. The structural advantage in food production of the former derives from agricultural price support systems that encouraged intensive farming methods and provided price support for virtually unlimited output thus generating unprecedented surplus production. Prior to the ratification of GATT-UR, the US and the EU spent more than US\$20 billion per annum on agricultural subsidies. (Watkins, 1992) Said countries' price support systems undoubtedly helped shaped their dominance in food and feed grains to this day. US controls over three-quarters of the world market for corn. It also produces over 80 percent of corn substitutes soya and sorghum exports. Around one third of US agricultural land is said to be used to produce for export markets. In an average year, exports account for 25 percent of corn production, 40 percent of wheat production and 30 percent of soya production. The European Union, on the other hand, is the second major player in the basic foodgrains trade. The US and the EU together account for almost 50 percent of world market shares for wheat.

THE GATT-UR AGREEMENT AND AGRICULTURAL TRADE LIBERALIZATION

The signing of the General Agreement on Tariff and Trade Uruguay Round (GATT-UR) in 1994 represents an important epoch for many developing countries which have long protected their food sectors from the vagaries of international trade. The GATT-UR marks a watershed in that agricultural trade has hitherto escaped previous GATT rounds. More importantly, the GATT-UR was launched in 1986 just as the world was reeling from the slump in world agricultural prices brought about by the above described developed country agricultural price support systems that generated unprecedented levels of surplus production in the face of depressed world demand. It was envisaged that market liberalization under GATT would bring down the distortions brought about by such systems. The key features of said agreement thus revolve around the reduction of price support and more open trade rules. (Table 6) Such market-oriented approach to agricultural policy reform was expected not only to police international trade tensions but more importantly, to bring international production back in line with demand.

Table 6. Key features of the GATT-UR

domestic support reduction	• reduction of trade distorting subsidies equal to 20 percent of AMS, using 1986-1988 as the reference period • remarks: provision does not apply where AMS does not exceed 5 percent of the total value of agricultural production for developed countries and 10 percent for developing countries
export subsidies reduction	• for developed countries, reduction of export subsidies by 21 percent for each product from its 1986-1990 average • for developed countries, reduction of budgetary expenditure on export subsidies by 36 percent over six years • for developing countries, reduction by two thirds of the above figures over 10 years • remarks: food aid and unsubsidized exports exempted
improved market access	• for developed countries, tariffication of all import restrictions and reduction by 36 percent • for developing countries, reduction for each tariff line by at least 15 percent over six years, increasing to 24 percent over ten years • for developing countries, introduction of minimum access requirements beginning at 3 percent of domestic consumption and rising to 5 percent by the end of the agreement • remarks: under certain conditions, developing countries exempt from tariffication commitment where primary staples are concerned

Source: Watkins (1992)

THREATS POSED BY FREER TRADE IN THE CONTEXT OF INSTITUTIONALIZED SUBSIDIZATION

The most serious question being raised against the agreement in terms of actually forwarding the food security objectives of developing countries has to do with the extent to which the mandated 20 percent reduction in domestic support level would actually contribute to the cause of leveling the global agricultural and food market distorted by heavy subsidization in the developed world. Preliminary evidence seem to point to the fact that such a reduction has already been eroded by technological edge and concomitant productivity gains, too much flexibility in production baselines and the conversion of price support into GATT-exempt direct payments. (Watkins, 1993) For instance, under the "Green Box"

provisions of the agreement, direct income subsidies to farmers have been exempted from reductions that market price support measures are subjected to on grounds that such payments are “decoupled” from production and thus not “trade-distorting”. It has however been pointed out that direct payments to European and US farmers are anything but decoupled from production because the profitability of the agricultural sector is said to hinge upon these transfers. For instance, deficiency payments make up between one-fifth and one-third of US farm incomes (Moor 1994 cited in Bello 1997). OECD estimates that each US farmer received an average transfer amounting to \$29,000 in 1995. The total subsidy given to EU farmers, \$97 bn, is equivalent to half the value of its production. (Table 8) The overall impact of subsidization by the US and the EU is that commodities are exported at prices which bear no relation to the real costs of production. Because the same countries are major grain producers, this has serious consequences for developing countries now required by the GATT-UR to eliminate trade restrictions in agriculture and foodstuff. Prices at which export activity takes place are the residual outcomes of Northern farm policies. International prices, as a consequence, are depressed relative to domestically produced grain in most developing countries where farmers in contrast, are subject to negative producer subsidies. (Bello, 1997)

The food security threat comes in the form of the obstacles to access that small holder producers in developing countries may have to face due to the potential livelihood losses in sectors directly competing with food imports. The mechanized and subsidized food systems of the north obviously bear little semblance to the predominantly small-holder production of the south. For the latter to be able to compete in the global arena, big strides will have to be made by developing countries in terms of technological breakthroughs in increasing and sustaining productivity, human resource development, and agricultural infrastructural support. The dislocation meanwhile bears serious implications for the poverty-reduction efforts of low-income countries where agricultural production accounts for some two-thirds of employment. This argument is usually assumed away in cases where the poor are net buyers of food— here increasing national food supplies through relatively cheaper food imports may render net economic welfare gains. However these gains are only possible if the welfare losses of producers are properly compensated. Safety nets as compensating mechanisms become an important policy concern.

The problem may also pose itself as an unsustainable dependence on food imports. As developing countries become more reliant on the international food market, their capacity to finance imports becomes a major factor in ensuring food supply for their population. The sustainability and source of their foreign exchange revenues determine the kind of strain on the balance of payments that increased food imports will impose. Here, the interplay between food security objectives and economic growth are underscored. The improved food security statistics in developing Asia have largely to do with its ability to procure from the international market compared to say, Sub-Saharan Africa.

It should also be noted that the impact of subsidization in the US and EU farms sectors is not only measured in terms of foreign exchange losses suffered by exporters and the fiscal cost of food imports but also cultural implications of the possible erosion of the roles of indigenous food groups. In Sub-Saharan Africa, for instance, imports of wheat and rice have been increasing at over 8 percent per year while production of local food staples such as cassava, sorghum and millet has declined. (Watkins, 1996)

BEYOND GATT AND TRADE LIBERALIZATION: THE DOMESTIC FRONT

Having said all these, it would still be wrong to overstate the role of northern agricultural policies and how GATT institutionalizes such policies in undermining developing country food security objectives. To be sure, many market-interventionist national policies that emphasized the provision of cheap food to underpin industrialization led to the marginalization of the agriculture and food sectors in many developing countries. Policies associated with import-substituting industrialization strategies like agricultural export taxation, the protection of manufactured goods and overvaluation of currencies are all seen to discriminate against the agricultural sector. Here, market reforms may prove to forward food security objectives as far it allows for the increased viability of the agricultural sector.

The weight of ideology about the role of markets and governments cannot be underestimated in the design of food security policy. Advocates of state-intervention dislike the income distribution and apparent lack of control of economic events as a result of a dependence on market forces. Disciples of the market are wary of the risk of excessive politicization of economic activities and are skeptical about the planners' ability to guide economic activities. The question, however, should not be how whether economic activities should be organized one way or the other. The important policy issue is to decide which activities should be organized by means of markets and which should be organized by the public sector. This is an empirical question to be resolved in the context of the particular economy and its stage of development.

The underlying objective is to make the agricultural sector more competitive. The freer flow of food imports may contribute to national food security by assuring adequate supplies and a cheaper means of achieving food security. Freer trade, in general, may facilitate food security by facilitating faster agricultural growth and economic development. But by itself, food imports and freer trade do not guarantee individual food security. Neither can food self-sufficiency, a productionist fallacy often committed by protectionists.

To crystallize further some of the arguments made in this section, Box 1 offers the Philippines as an illustrative case. Philippines is a food-deficient developing country which used to be self-sufficient in rice. Like some of its Southeast Asian neighbors, it embarked upon a series of policy reforms directed at agriculture

and is a member of the World Trade Organization. Here, the issues pertaining to the impact of market reforms if the agriculture and food sectors are examined.

What are the institutional arrangements and resources constraints that make access to food and meaningful participation in the markets impossible? The preceding section delves into this, focusing its analysis on developing Asia.

BOX 1. FOOD AND MARKETS IN THE PHILIPPINES

In 1994, the Philippine government concurred with the General Agreement on Tariffs and Trade Uruguay Round (GATT-UR) treaty and in so doing set the stage for liberalizing the importation of a wide range of agricultural commodities including foodstuff. The expected influx of food imports as a result of the treaty's ratification has become a crucial issue in the ensuing debate, coming as it at a time of very weak performance of the agricultural sector.

In the sixties and the seventies, the Philippines' agricultural sector registered the highest growth rate among the developing Asian countries. In the eighties and early nineties, it registered the worst performance. The trends in growth rates of rice, corn, sugarcane and coconut, the four most important crops of the Philippines, are telling. While sugarcane enjoyed a surge in the late eighties due to conducive world prices, the rest went through a growth slump from the eighties onwards. In the same period the poultry and livestock and to some extent, the fisheries sectors, became the major sources of growth of the beleaguered agricultural sector.

Other trends paint a dismal picture in terms of the sector's ability to supply the needs of a burgeoning population. Trends suggest that the agricultural frontier may already have been reached as the expansion of arable land and permanent crop hectares stagnated in the eighties. Much of the stagnation in the nineties reflects the uncertainty in property rights due the unsuccessful implementation of agrarian reform and the resultant conversion of farm lands to non-agricultural uses. (Lim, 1996) Although productivity in major crops have generally been on the upswing since the seventies, there have been worrisome movement since the eighties. (Figure 2) Rice yields growth was fastest in the seventies as a result of the introduction of green revolution. They have relatively stagnated since the mid-eighties although the levels are currently still in pace with yield levels in most Asian countries except China and Indonesia. Corn yields, on the other hand, grew fastest in the eighties with the introduction of high-yielding yellow feed corn varieties but still among the lowest in Asia. Meanwhile, coconut yields have not recovered its yield levels in the late seventies and have largely deteriorated since then.

These trends, along with declining agricultural relative prices, have led to the decline in agricultural output and its relative importance in national output. However, the sector continues to be the single most important source of livelihood for a large portion of the population. (Table 5)

The liberalization of the agricultural sector by way of GATT-UR thus presents a dilemma of the following nature. On one hand, there is a need to liberalize food imports in the face of declining production and the bleak prospects for the sector to catch up with population growth and demand. On the other hand, given the extent of population dependent on the agricultural sector, especially in corn and rice, any major displacement brought about by the structurally deficient agricultural sector's inability to compete in the global market cannot be trifled with. (Lim, 1996)

GATT-UR & Other liberalization measures

By how much will GATT-UR measures open the Philippine agricultural sector? The tariff rates committed by the Philippine government are generally above the tariff levels prior to the ratification. (Table 6) Minimum access volumes in rice and corn represent a minimal amount of consumption and past levels of imports. Much of the threat, however, stems from how the implementation guidelines allows for increasing these volumes, sans consultations with the producers, whenever there is a perceived shortage in corn and rice (i.e. projected price is more than the border price by a rate equal to the average of the out-quota and in-quota tariff).³

³ The implementing guidelines of the MAV stand among the most criticized aspects of the agreement. Even as it is touted to be a "freer market" mechanism, its logic is not governed at all by free market principles. David (1996) cites how the guidelines tend to counter the spirit of tariffication in as much as (a) access to imports under MAV are not bidded out but are based on historical market shares in the initial year ergo quota rents will accrue to those granted access; (b) whenever there is a perceived shortage as described in the introduction of this paper, MAV will be increased but the increase will have to be approved by congress; (c) NFA is both an MAV consolidator and a member of the MAV management team thus it can provide indirect pressure for importation to be coursed through it; and (d) all revenues derived from MAV in-quota tariff duties are earmarked by congress for rural infrastructure, research and development program

However, the liberalization of the Philippine agricultural sector must be appreciated in the context of the economy-wide deregulatory framework, the regional trade agreements that the Philippines has entered into and the agricultural modernization program.

In the eighties, the government embarked on economy-wide and sector-specific reforms under the auspices of the World Bank's structural adjustment programs meant to improve economic efficiency, increase growth and minimize fluctuations in price levels. These reforms were also meant to correct the inherent bias of trade policies for industry and against agriculture. They included: (1) trade policy reforms to remove quantitative restrictions, to lower average and limited dispersion of tariffs, to eliminate implicit and explicit taxes on traditional exports and to abolish price controls on food and other essential consumer goods; (2) liberalization of regulations on foreign investments; financial liberalization including the decontrol of interest rates and more liberal banking regulations; (3) tax policy reforms to minimize inefficiencies and inequities in the tax structure, improve tax administration and raise tax revenues; and (4) privatization to shift resources from the government to the private sectors; and currency devaluation to reduce the deficit in the balance of payments. (Clarete, 1992)

A tariff reform program (TRP) was introduced in 1981 carrying out comprehensive tariff reductions in batches of five years. By the turn of the century, the RP envisions to limit clusters to just 3, 10 and 20 percent with the exception of agricultural products whose QR's have been tariffed. The spread is expected to be further limited to only two categories: 3 and 10 percent by 2003 and 3 and 5 percent by 2004. These goals fall well within, if not well in advance of and beyond, the commitments called for not only by the GATT-UR but also the ASEAN Free Trade Agreement (AFTA) and the Asia Pacific Economic Cooperation (APEC). For example, efforts are now underway to get rice and corn off the exclusion list of the Common Effective Preferential Tariff (CEPT).

It has been said that the GATT-UR binds the Philippine government's liberalization program within an international framework. But it is also clear that the TRP is by far even more ambitious than the treaty.

BOX 1 (cont'd)

Agricultural modernization

The Medium Term Agricultural Development Plan also provides impetus to the accelerated deregulation of the agricultural sector. Part of the incumbent president Fidel Ramos' ballyhooed Philippines 2000 program envisioned to propel the country towards Asian tiger growth rates, MTADP aims to (1) reduce by more than half the land currently cultivated to corn and rice and (2) convert freed up land for diversification to livestock and commercial crops, sectors being propped up for their potentials in the export market. To meet the country's food requirements, unprecedented growths in staple crop yields are being targeted. In corn for instance, the program is targeting tripling productivity rates before the end of the decade. The philosophy is to herd production where it is most efficient.

The failure of the government to address long standing problems in the rural sector in relation to agrarian reform, public investments in infrastructure and research and development render suspect the agricultural sector's ability to meet the productivity targets set by the program. Nowhere is the failure more glaring than in the budgetary allocation government sets aside for agriculture.

Public expenditure

Public expenditures in agriculture went through a brief period of recovery in the late eighties after bearing the brunt of contractionary policies in the seventies. This quickly tapered off in the nineties, with the share of expenditures in agriculture standing at a measly 4.5 percent in 1995. (Table 7) A review of how this budget was allocated shows that a large chunk went to natural resources and environmental management, rehabilitation of forest and fishery resources; as well as to rice price stabilization and agrarian reform program. Irrigation, in which close to 20 percent of total infrastructure budget was allocated from 1974 to 1984, dropped sharply from the mid-eighties into the nineties. Only about 30 to 40 percent of public expenditures have been allocated for productivity-enhancing measures. Agricultural research is severely underfunded, with expenditures representing only 0.3 percent of GVA compared to an average of 1 percent among developing countries. Moreover, public expenditures continue to be disproportionately in favor of the rice sector which accounts for less than 15 percent of the agricultural GVA. (David, 1996)

Public expenditure allocation have not sufficiently focused on long-term productivity enhancing investments in order to reverse the declining competitive advantage of the sector. Without the government amply investing in productivity enhancing measures, the shriveling of agricultural land utilized for cereal production could only translate to the increased role of cereal imports.

proposals coming from the private sector including agricultural and agri-business groups representing the producers of commodities where QRs have been lifted.

Therefore, even if it is argued that the GATT-UR does not substantially open the agricultural market, a tariff reform program that goes beyond the tariffs inscribed by the treaty and an agricultural modernization program that gives premium to cash crops and livestock production seem to augur for the increased role of food imports in the future.

Much of the debate around market-driven agricultural policy is couched in terms of arguing whether market forces are good or bad for the sector. But such a track often leads to casting often emotional diatribes about the sins and virtues of protectionism versus free market. Rather than falling into this ideological trap, this paper seeks to raise three major concerns that a developing country like the Philippines has to address in the face of agricultural trade liberalization.

First, what is the actual situation in actual markets, specifically in those that local production stand to compete against? This is to check for the possibility that free market tenets actually do not hold in specific global markets thus rationalizing the placement of national protective measures until international distortions are corrected. For instance, a comparison of total transfer per full time farmer and per capital incomes in South Cotabato, Bukidnon and Cagayan Valley, major yellow corn-producing provinces in the Philippines show how subsidies in the North s pose unfair competition and grossly distort the image of a level-playing field in the agricultural world market. 1994 per capita income in Cagayan Valley (\$350), Bukidnon (\$224) and South Cotabato (\$293), major rice and corn producers in the Philippines represent less than 1 percent of total transfer per full time farmer in the us (\$19,000) and the EU (\$29,000) (OECD, 1995 and UNDP,1995 cited in Watkins, 1996.)

Second, what are the institutional arrangements that underlie the Philippine agricultural sector's ill performance? This is to emphasize that institutional arrangements may be as important, if not more, as free market forces in determining the ability of the sector to compete in the global arena. If non-market bottlenecks in the agricultural sector— like the agrarian reform problem and the inadequacy of investment into rural infrastructure such as farm to market roads and post-harvest facilities and into agricultural research and development that would increase rural productivity— are addressed properly, then the prospect of competing with food imports becomes less fearsome.

For instance, the cost of marketing yellow corn in the Philippines is a major source of the said sector's cost-disadvantage. While the marketing to total cost ratio in Thailand stands at 27 to 32 percent, the same

BOX 1 (cont'd)

falls within the range of 33 to 37 percent in the Philippines. (Setboonsarng and Gonzalez, 1991) The sorry state of transportation infrastructure and storage facilities are the main culprits behind the high cost of marketing in the Philippines. The cost of bringing the produce from farm to user is a high US\$ 60 per ton in the Philippines compared to only US \$12 in Thailand. Given that the yellow corn market is geographically segmented, the high cost of distribution makes it cheaper for the country to import yellow corn from Argentina, Thailand and the US than procure it from the local production point.

Third, what safety nets are in place to alleviate and compensate the vulnerable sectors of food producers? This concern puts to the fore the idea that the distribution of benefits and losses is just as crucial as the projected efficiency gains from a policy of liberalization.

The Philippines' GATT-related adjustment measures are heavily criticized for lack of targetted safety nets. Half of the PhP 30 B went to the infrastructure projects of the Department of Public Works and Highways. The Department of Agriculture and its attached agencies received less than 27 percent of the total appropriation.

The more disturbing criticism is how some capital provisions of the GATT fund were appropriated for glaringly non-GATT adjustments related projects. This goes to show that the fund earmarked for safety

nets was actually just a regular budget item in the General Appropriations Act with the budget title changed. No new appropriations were actually made expressly for adjustment measures. If the "questionable" projects (i.e., those projects that government would have implemented sans the ratification of GATT) were stricken out, only PhP 3B or 10 percent of the figure allotted would be left for the fund (Montemayor, 1994)

If productivity and hectarage of prime agricultural land continue to suffer, food imports appear to be an inevitable supply source in the future. The food sectors in developing countries like the Philippines need not succumb to this development by default. Addressing the above-mentioned concerns will ensure that food producers will enter the global arena equipped.

3.0 Non-market institutional and resource constraints to food security in Developing Asia

As clearly noted in Parts 1 and 2, global food supply meets global food requirement and international trade is an increasing source of food supply for the developing world. It has also been noted that food security hinges on access to the food. This is a major concern in Asia whose share of the world population is 58 percent but whose share in food production is about 40 percent. Developing countries in Asia have achieved consistently increasing trends in food production but they have also been consistent net food importers since 1965.

Part 3 of this paper focuses on the issue of food security in the domestic front for developing countries in Asia. Common to these countries is pervasive poverty among the rural populace whose livelihood is dependent on agriculture and related fields. They are food producers but, ironically, food-insecure. Why is this so? What would enable them to achieve household food security? Can market be a major factor to draw them out of food insecurity? Answers are elucidated by examining the nature of poverty, the institutional constraints to access and the resource-related constraints to food production in developing Asia.

RURAL POVERTY

The bulk of the world's population lives in Asia— as with the bulk of the world's poor (73 percent). High population growth and widespread poverty and illiteracy characterize the social landscape of the lower income countries of Asia. Only a good reading of the complexity and enormity of the situation can lead each government to policies and programs that ensure food security, development and growth that promotes people's welfare.

Asia is afflicted by both urban and rural poverty but rural poverty accounts for three-fourths of the total. The rural poor has less or no access to basic services compared to their urban counterpart. Of the rural poor, majority depends on agriculture for employment and income; hence, the poorest of the poor are the landless farm workers. This sector constitutes 45 percent of the rural poor in India and 40 percent in Bangladesh.

Illiteracy

Across Asia poverty has a twin none other than illiteracy. It is most pronounced as a social burden in South Asia. As late as 1990, illiteracy in the region still exceeded 50 percent with women bearing the brunt. More than 70 percent of women 25 years or older are illiterate (Bardman, 1996). This is also the region that has 40 percent of the world's poor and persistently high annual population growth (2 to 2.8 percent). A notable exception is Sri Lanka with a population

growth of 1.5 percent and illiteracy of only 12 percent. East Asia and Southeast Asia have better record of literacy but is it a comfortable basis of complacency?

Simple literacy test (read and write) have served well as a convention in the world' s campaign to eradicate this social malignancy. With today' s global concerns in economy and environment (Uruguay Round, WTO, Earth Summit, Agenda 21) simple literacy should be replaced by functional literacy (read, write, compute, and comprehend). Functional literacy data are not readily available; hence, a focus on the Philippines scenario is given in Box 2.

BOX 2. FUNCTIONAL LITERACY IN THE PHILIPPINES

In 1994, the Philippines recorded a high simple literacy of 95 percent of the total population with ages 10 to 64 years. Behind this impressive record however, is the reality of a huge work force confined to jobs of low productivity because of functional illiteracy. Of the 1994 population of 48 million (10 to 64 years old), average functional literacy was 83.8 percent; average for women was 85.9 percent and for men, 81.7 percent (NSO, 1994). The more relevant information with respect to food security and sustainability is rural functional literacy (RFL) from which rural functional illiteracy (RFI) is calculated as $RFI \text{ in percent} = 100 - RFL \text{ in percent}$. On the average RFI yielded a distressing figure of 42 percent. Across 14 regions in the country, RFI gave a wide range of 31.8 to 60 percent. Thus, even the lower FRI means that one of every three persons in rural communities is functionally illiterate.

The environmental stress: the pressures of landlessness and poverty

Poverty and illiteracy drove masses of migrants to subsist on resources in upland areas and forestlands where there is minimal access to basic services. A large portion of these migrants consists of the landless and near-landless (tillers of less than 0.5 ha). For perspective setting, two countries are taken as examples – Philippines and India.

The Philippine rural scenario displays a complex mix of problems; i.e., landlessness, poverty, and rapid growth of labor force that lacks skills for non-farm jobs. Social vent came in the form of migration. One portion went to urban centers and further swelled the urban poor, a second portion went to sugar and coconut farms where wages are below subsistence, and third portion went to the upland areas with slopes greater than 18 percent slope.

The magnitude of upland migration is reflected by the hectareage of cropped upland. It increased more than sixfold from 0.58 million hectares in 1960 to 3.92 million hectares in 1987 (Cruz, 1992). In 1991, less than 3 percent of the total number of farm owners accounted for more than 30 percent of total farmland.

Indigenous peoples in upland and forested areas have their native way of ecologically working with nature, although at subsistence level. In contrast the migrants tilled the soil like they did the flatlands and caused extensive soil erosion. Meanwhile scarcity of fuelwood drove the farmer to cut down trees and shrubs within reach. Magnify the scenario a million times and visualize the extent of eroded lands, loss of biodiversity, and accelerated deforestation. The scarred land snuffs the hope of the millions of upland children for better life. The Department of Environment and Natural Resources has well-meaning programs on reforestation, rehabilitation of watersheds, and innovative management of

protected areas but it is constrained by inefficiency and pace of implementation. Some NGOs have productive work with the migrants but they are like few grains in a bucket of sand.

The Indian rural scenario is dominated by the same mix of problems: landlessness, poverty and unskilled labor force but at higher intensity. Landless farm workers make up 45 percent of the rural poor. Migration to the forestlands also became a natural vent for these people. About 300 million rural poor depended on forest resources for livelihood (Poffenberger, 1990). Forest cover was estimated to be 63.9 million hectares (MEF, 1991). The unecological impact of converting forestland into farmlots by millions of inhabitants is aggravated by their huge daily requirement of fuelwood for cooking and fodder for livestock. About 100 million livestock grazed on forestland with carrying capacity of only 31 million (WCU, 1991).

Forestland degradation is indeed an immense problem but India has been fairly successful in pursuing innovative approaches to forest management. Implementation of partnership between inhabitants and forestry departments facilitated by NGOs is a recognized feat that arose after many years of conflict.

Poverty alleviation

Poverty reduction causes equivalent rise in food security at household level. Hence, governments across developing Asia gave priority attention to programs on poverty alleviation. Based on their performance up to the early nineties, Balisacan (1996) observed impressive annual rural poverty reduction (RPR) (1.38 to 2.19 percent) for China, Indonesia, Malaysia, Thailand, Bangladesh and India. Much lower annual RPR values (0.25 to 0.61 percent) characterized Nepal, Pakistan and Philippines. Among countries in the first group, only China and Indonesia had annual RPR that slightly exceeded annual population growth (0.39 and 0.26, respectively). All the rest gave negative values but the most negative were attributed to Nepal (-2.34 percent), Pakistan (-2.19 percent), and Philippines (-2.05 percent). Negative value indicates net increase in the number of rural poor inspite of an often cited achievement in poverty reduction.

In great contrast to snail-paced RPR of the above-mentioned countries, is the remarkable success of South Korea in handling its rural poverty. As early as 1970, South Korea has reduced rural poverty to 23.5 percent but strived further to reduce it to 6.5 percent in 1988. Their determination to succeed was undaunted by the fact that 62 percent of the farms were less than one hectare.

The above consideration gave priority role to the social and economic constraints to food security. Their role has always been masked by the dominant image of science and technology. Food producers who have been freed from social and

economic shackles are better equipped to face biophysical and institutional constraints to food security.

BIOPHYSICAL CONSTRAINTS

Food producers also have to contend with biophysical constraints to food production. Extension workers are useful agents but the farmers are the stakeholders. Biophysical constraints refer to the limiting effects of soil and water resources and agroclimatic conditions. Assessment and mapping of these constraints over agricultural lands in a geographic unit serve as practical basis of policies, guidelines, and programs for integrated management that may overturn constraints into production assets. This is a perspective viewpoint on how relevant institutions perform their role in facilitating food production.

On a large scale, biophysical constraints are addressed by government and corrective measures are implemented otherwise food security is compromised. Typical examples of such programs are infrastructure projects (big and small) to provide irrigation water to croplands over widespread drought areas and to drain excess water in some waterlogged areas. In arid regions desertification is one of the toughest problems that confronts government and public sectors. Practically speaking, it cannot be corrected by massive infrastructure investment but by painstaking and slow process of establishing tree lines.

In contrast to those biophysical constraints that are mitigated by government action, the soil constraints prevailing on farm lands are dealt with by farmers themselves. Resource-rich farmers are capable of overcoming constraints but poor families usually opt for subsistence farming by ignoring the situation. The latter option is a disastrous one on fragile lands.

For a cursory look at the extent of soil constraints in Southeast Asia (Indonesia, Cambodia, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam), the summary in Table 6 would be useful. In over 380 million hectares, only 14 percent of the land has no serious limitations. These are the prime agricultural lands. Serious limitations due to excess water (swamps, marshes, peats, etc.), shallow depth (thin soil layers over bedrocks usually on steep slopes), and drought (sandy areas under arid climate) are uneconomical to reclaim with current technologies.

Table 1. Extent of major limitations for agriculture of soil resources in Southeast Asia

Soil-related constraint	Percent of land area	Area (in million ha.)
No serious limitation	14	53.2
Mineral stress ^a	59	224.2
Excess water	19	72.2
Shallow depth	6	22.8
Drought	2	7.6

^a Nutritional deficiencies or toxicities related to chemical composition or mode of origin.

Source: Dent, 1980

The largest group of limitations (59 percent) consists of various forms of mineral stress on plants primarily due to soil nutrient deficiencies, nutrient imbalance, and toxicities of elements and substances. Some of these problems may be too severe to warrant reclamation but other problems can be corrected by technologies that have long been developed by agricultural researchers. The bottleneck is in their adoption and proper use by farmers. Again, poverty and functional illiteracy come to focus. They are the bottlenecks that can only be relieved substantially by an institutional framework designed to address social, economic, and technical needs/problems in their holistic occurrence and natural setting.

INSTITUTIONAL CONSTRAINTS

The issues of agriculture and food security are vital concerns to every agricultural country. Thereby, a wide array of institutions have long been established with wide-ranging functions such as agrarian reform, agricultural production and processing, credit, trade, education, research, extension, irrigation, rural development. These institutions have long standing bureaucracies but development priorities are often set by incumbent officials of the state. Beyond political dependence however the institution has, through the years, fortified its framework primarily geared to the preservation of its functioning (existence) rather than its functional objectives. Adjunct to its preservation, the institution does not formulate and pursue policies not in consonance to the interest of ruling political and business elite.

Some institutions may have undergone re-orientation in some functions or even change in name, but still preservation of its existence is paramount. The newfound objectives are often used to endear the institution to the people instead of striving hard to make people benefit from the institution.

Economic prosperity has long been the aspiration of poor nations. For the past many decades however, the aspiring nations have not recognized the path-dependence nature of development and the culture-dependence of this path. An outstanding example is education and research. In spite of burgeoning poverty and illiteracy among their people, governments of poor nations relentlessly invested huge resources to higher education up to postgraduate degrees following the narrowly specialized fields of the agricultural sciences. Meanwhile, the huge masses of poor and functionally illiterate farmers have been merely treated as passive recipients of technology. Contrary to this, NGOs have shown that there are alternative and innovative ways and means of harnessing the rural poor as active partners in development.

4.0 Conclusion: Coping with Food Insecurity

The past three sections have pointed out that the issue of food security goes beyond the question of supply and of food balances. Although ample domestic production and possibly, even international trade plays an important part in the

food security agenda, it is clear that ensuring that food is actually distributed equitably within nations takes precedence.

This paper forwards the following as key elements of a food security agenda for developing countries. These elements are those that markets by itself cannot be expected to address.

EDUCATION AND THE ROLE OF SMALL FARMERS

In the past, developing countries and assisting international organizations primarily focused on science and technology and infrastructure needs of agriculture and food production. Since the 1970s science and technology have demonstrated high yield potentials of continually increasing number of new breeds of plants and animals and new production technologies. Crop and livestock yields did increase but there have been wide gaps between experimental plots and farmers' fields. Such yield gaps have been narrowed down by governments (like South Korea, Taiwan and Japan) that gave equal attention to institutional, agrarian, and social reforms. Similar purposive reforms have not been pursued by most other countries in Asia. These are the countries whose yield gaps between experiment stations and farmers' fields remained wide. The few exceptions observed in recent years were achieved by governments that pumped in subsidies for production inputs.

However, in the framework of this paper's analysis, technology advances are not enough. One useful strategy would be to ensure that advances in science and technology are in the hands of farmers. Social and institutional reforms should now build up knowledge and skills and productive capacity of food producers. The educational process requires innovative strategies and methodologies designed to cover tens or hundreds of millions of the rural populace. Non-farm skills should be apportioned to rural workers who are beyond the absorptive capacity of the agricultural labor force.

The educational process could be painstakingly slow due to low literacy, dominating culture of passivity and apparent hopelessness beyond subsistence. To follow traditional method of nonformal education could defeat a noble purpose even at its initial stage. The educational process should explore creative, stimulating and dynamic approaches; it should explore innovative strategies. The methodology should be participatory and evolutionary. Build up of knowledge and skills should be relevant to prevailing resources and conditions in the locality; i.e., biophysical, social cultural and economic.

The education of small farmers is a key component of a broader strategy to ensure that agricultural and economic growth are linked to increases in household income. The baseline objective is to avoid growth-centric approaches that can result in immiserizing growth. For instance, while the technology package brought about by Green Revolution did bring about unprecedented

production increases in Asia, evidence also point to the fact that greater access to credit and fertilizer subsidies to larger farms shifted benefits to larger growers. This illustrates that in achieving food security, patterns of growth must be influenced by state intervention and cannot be left to the market. (Gershman, 1998)

PUBLIC INVESTMENTS LEADING TO MARKET PARTICIPATION

The sincerity of the state in embarking on a massive educational program could be ascertained by carrying out simultaneously infrastructure projects such as farm to market roads, irrigation or water-impounding facilities, and drainage systems. These are part and parcel of the state' s overall development program for the sustainability of agriculture and food production.

Granting that infrastructure projects and educational programs are already in place, there is still that one overriding and motivating force that could accelerate the people' s quest for knowledge and skills. This is a visible access to a market system that provides fair prices and decent income to farm households. The motivating force of market opportunities on farmers' education has been a long standing observation in Taiwan and Japan during the formative years of their agricultural development. Government-sponsored training courses were deemed inadequate by farmers who have been motivated by good market prices. They have to pay and enroll in certain specialized training courses that gave them additional skills and sharpen their edge of competitiveness.

On the same vein, it has long been a practice among farmers in rich countries to donate private funds for research and development on commodities of their choices. Such varying levels of quest for new knowledge and technical skills are practically motivated by profit. At the present time however profit motive shares its prominence with sustainability concerns for the resource base that produces the food.

LINKING DOMESTIC AND INTERNATIONAL ARENAS

While free market rhetorics are being used to fashion out international free trade agreements, this paper has shown that some elements go against the spirit of genuine free market reforms. Developing countries in Asia should play a more active role in calling for steeper cuts in both explicit and implicit subsidies to agricultural exports from the OECD countries, principally the EU and US. They must also be aggressive in invoking provisions of the GATT-UR to defend small holder production. Japan and Korea have been able to convincingly utilize sanitary and phytosanitary considerations against the influx of chemically treated imported fruits and vegetables and in the process assisting their own fruit and vegetable growers. (Bello, 1997) The scheduled WTO review on the agricultural

accord in 1999 offers an excellent opportunity for developing Asia to ventilate its agenda. Cairns Group, a group that emerged during the Uruguay Round negotiations composed of the Philippines, Australia, New Zealand, Argentina and other medium-sized agricultural exporting countries is also a potential avenue for the articulation of the same.

It has been observed that in poor countries that have achieved food security, the strategies “seem to be based upon creating the political, social and economic conditions under which ambitious programmes of public support are undertaken with determination and effectiveness” (Dreze and Sen, 1989 in Gershman, 1998). This paper outlined some such conditions which are by no means complete. In the final analysis, food insecurity is as much a political concern as an economic one which market-related reforms in trade and fiscal policies alone cannot comprehensively address.

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