

## **Nutrition and socio-economic development in Southeast Asia**

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There has been a loud cry for ‘adjustment policies with a human face’. This was first advocated by United Nations Children’s Fund (UNICEF), prompted by nutrition and human welfare surveys which indicated deteriorating nutrition situations and living conditions particularly in developing countries of Africa, Latin America and parts of Asia. Wars and famines, increasing debt and the difficult world economy (such as the oil crisis in the early 1980s) have caused development in these nations to turn around after achieving significant gains from the 1960s to the 1970s.

Fortunately, this gloomy picture is not consistent for all countries in Southeast Asia. While some countries of the region such as Laos, Kampuchea, Burma, Vietnam and the Philippines, suffer the consequences of war, debt payments and natural calamities, a few, notably Thailand, Malaysia and Singapore, have made giant steps towards growth and development. Singapore is one of the developed countries of Asia, enjoying a per capita gross national product (GNP) that is comparable with that of developed countries in Europe. Malaysia is self-confident and has a roaring economy after the country embarked in 1971 on an extensive New Economy Policy programme designed to lift all Malaysians out of poverty. Thailand, like Malaysia, has earned recognition as a new industrializing country (NIC) in the region.

The present paper examines the nutrition trends together with the social and economic developments in Southeast Asia with a view towards understanding the nutritional consequences of development.

### POPULATION

Southeast Asia which is composed of Burma (also now called Myanmar), Brunei Darusalam, Dem. Kampuchea, Indonesia, Laos, Thailand, Papua New Guinea, Philippines, Malaysia, Singapore and Vietnam, is home to more than 8% of the world’s population. It had an average annual population growth rate from 1985–90 of 1.9%, behind the 3% for Africa and 2.1% for Latin America.

Indonesia has the fifth largest population in the world, surpassed only by the People’s Republic of China, India, USA and USSR. The population of Vietnam, the Philippines, Thailand and Burma each exceed 40 million (Table 1). Thailand and Singapore have successfully curbed rapid population growth; all other countries in the region registered an average growth rate of not less than 2.0% last year. In other words, we could expect a doubling of the population in these countries in 35 years or less.

### FOOD AVAILABILITY AND CONSUMPTION

While the population of Southeast Asia almost doubled from the 1960s to 1988, food production expanded as well. All countries, except for Singapore which has become industrialized, recorded increases in agricultural production from 1977 to 1989 (Table 2).

Table 1. *Population in 1989 and average annual population growth rates in 1965–80 and 1985–90 in Southeast Asian countries*

Countries	Total population ( $\times 10^6$ ) 1989	Annual population growth rate (%)	
		1965–80	1985–90
Burma (Myanmar)	40.8	2.3	2.0
Dem. Kampuchea	8.1	0.3	2.6
Indonesia	180.8	2.3	2.2
Laos	4.0	0.6	2.5
Malaysia	17.4	2.5	2.6
Papua New Guinea	3.8	2.3	2.2
Philippines	60.9	2.9	2.4
Thailand	54.9	2.7	1.8
Singapore	2.7	1.6	1.1
Vietnam	65.3	—	2.1

Table 2. *General index of agricultural production in Southeast Asian countries (based on 1979 = 100)*

Countries	1977	1980	1983	1986	1989
Burma (Myanmar)	87	99	122	139	144
Dem. Kampuchea	147	113	140	172	186
Indonesia	83	101	114	137	146
Laos	72	101	116	140	149
Malaysia	89	101	108	131	160
Papua New Guinea	91	100	110	111	122
Philippines	88	100	103	106	112
Singapore	119	94	90	97	85
Thailand	87	101	110	113	127
Vietnam	84	102	115	133	143

It should be noted that in all countries, except Singapore and Malaysia, about 50% or more of the respective countries' economically active population are in the agricultural sector. Interestingly, Food and Agriculture Organization Regional Office for Asia and the Pacific (1990) estimates that 15–37% of this group on whom the population depends for food are landless and nutritionally-at-risk farming households.

Examining food supply in terms of energy requirements, Table 3 indicates that in no country in the region is there a food shortage at the national aggregate level and all countries have attained food self sufficiency at least in terms of energy supply.

It should be noted, however, that these food supply figures do not yet take into account food losses between availability and consumption. By subtracting 10% from the availability figures to represent these food losses (Table 3), a deficit of available energy compared with requirements exists only in Dem. Kampuchea, at least during the period 1986–88. Food availability exceeded requirements but did not exceed 110% of the requirements in Papua New Guinea, the Philippines, Thailand and Vietnam. Such a level of availability may be insufficient to offset the variability in distribution. Laos and Burma (Myanmar), with 115 and 118% of requirement respectively, theoretically have more

Table 3. *Daily per capita energy supply compared with requirements in Southeast Asian countries for 1979–81 and 1986–88. (From Food and Agriculture Organization Regional Office for Asia and the Pacific, 1990)*

Country	Total energy supply				Total energy (% requirement*)		Percentage of requirement assuming 10% loss between availability and consumption
	1979–81		1986–88		1979–81	1986–88	
	MJ	kcal	MJ	kcal			
Burma (Myanmar)	10.1	2420	10.6	2546	124.5	131.0	117.9
Dem. Kampuchea		—	9.0	2162	—	103.7	93.3
Indonesia	9.9	2372	11.0	2645	122.0	136.0	122.4
Laos		—	10.1	2615	—	128.1	115.3
Malaysia	10.5	2518	10.5	2518	126.3	133.7	120.3
Papua New Guinea		—	9.3	2227	—	113.2	101.9
Philippines	10.0	2405	9.3	2238	124.7	116.1	104.5
Thailand	9.7	2320	9.6	2288	116.7	114.6	103.2
Vietnam		—	9.3	2217	—	113.6	102.3

\* Based on requirements recommended by Food and Agriculture Organization/World Health Organization/United Nations University (1985).

supply to cushion their population against variability in distribution to ensure better nutrition than the other countries. Indonesia and Malaysia even fared better than these countries during the period with their food availability exceeding 120% of requirements.

In terms of national dietary patterns, which may be reflected by quantities of food groups which are available for consumption, a general improvement in most countries was noted for the periods from 1979–81 to 1986–88. It can be seen from Tables 4 and 5 that the proportion of cereals and roots and tubers decreased while that of pulses and beans, nuts, fruits and vegetables and animal products increased, making the diet more diverse, for most countries where data are available. A note of concern for risk of high incidence of deficiency of fat-soluble nutrients, however, should be raised in countries where consumption of oils and fats may be low (which can only be implied from the values for availability being presented), such as in Dem. Kampuchea, Laos, Thailand and Vietnam. The problem may be compounded by low consumption of animal products.

#### NUTRITIONAL HEALTH

Nutritional progress in Southeast Asia advanced hand in hand with improvement in the food supply situation, and with economic development. The region, according to Dr R. Jolly of UNICEF has 'demonstrated the capacity to implement nationwide efforts to reduce serious malnutrition' (United Nations Children's Fund, 1989).

There has been a significant reduction in infant mortality as well as deaths among children under 5 years of age in all countries in the region in recent years, particularly from 1960 to 1989.

Table 4. Availability of energy from major food groups as a percentage of total energy in Southeast Asian countries for 1979-81\*

Countries	Cereals and plantains	Pulses and beans	Nuts and oilseeds	Fruit and vegetables	Total sweeteners	Alcoholic beverages	Fats and oils†	Animal products‡	Others
Burma (Myanmar)	81.2	2.4	1.6	2.2	2.1	—	5.7	3.4	0.5
Indonesia	68.4	2.8	4.4	0.8	5.9	0.3	6.2	2.1	0.1
Malaysia	51.2	1.0	0.6	2.1	13.5	3.8	10.4	12.4	0.7
Philippines	59.5	0.5	0.7	2.4	9.9	1.2	4.2	8.8	0.8
Thailand	66.1	0.8	2.5	2.9	12.4	0.9	2.5	6.0	1.3

\* No values available for Dem. Kampuchea, Laos, Papua New Guinea and Vietnam.

† Added amounts only.

‡ Does not contain added animal fats such as lard and butter but contains fats in the composition of animal products.

Table 5. Availability of energy from major food groups as a percentage of total energy in Southeast Asian countries for 1986-88

Countries	Cereals and plantains	Pulses and beans	Nuts and oilseeds	Fruit and vegetables	Total sweeteners	Alcoholic beverages	Fats and oils*	Animal products†	Others
Burma (Myanmar)	76.4	3.0	4.4	2.2	2.2	0.1	6.6	4.4	0.5
Dem. Kampuchea	82.7	2.2	1.4	2.2	3.7	—	1.0	3.9	0.4
Indonesia	67.6	4.0	4.7	1.4	5.1	—	6.0	2.7	0.6
Laos	74.8	2.8	—	2.6	0.9	1.5	1.8	9.0	0.7
Malaysia	45.9	1.1	2.5	2.5	14.4	0.3	14.1	13.9	1.0
Papua New Guinea	20.7	0.2	3.1	5.0	3.8	0.8	9.6	9.7	0.7
Philippines	62.1	0.4	0.9	3.2	9.8	1.7	5.0	10.0	0.5
Thailand	61.1	2.5	3.9	3.9	9.7	3.0	2.9	7.6	0.5
Vietnam	72.5	1.4	1.0	2.9	3.2	0.5	2.8	6.1	2.3

\* Added amounts only.

† Does not contain added animal fats such as lard and butter but contains fats in the composition of animal products.

Table 6. *Infant (IMR) and under 5 years (U5MR) mortality rates in Southeast Asian countries for 1960–65. (From United Nations Children's Fund, 1983, 1988, 1989, 1991)*

Countries	IMR (/1000)				U5MR (/1000)		
	1960	1983	1989	1991	1960	1986	1989
Burma (Myanmar)	160	70	67	59	230	89	91
Dem. Kampuchea	150	160	127	116	230	206	91
Indonesia	145	85	73	65	225	122	100
Laos	160	120	106	97	233	166	156
Malaysia	80	30	23	20	105	37	30
Papua New Guinea	175	75	58	53	248	90	83
Philippines	85	50	44	40	134	75	72
Thailand	110	48	27	24	149	53	35
Singapore	41	9	8	8	49	12	12
Vietnam	165	75	61	54	232	95	84

Table 7. *Percentage of low-birth-weight newborns and preschool moderate and severely underweight children in Southeast Asian countries for 1980–89. (From United Nations Children's Fund, 1991)*

Countries	Average annual percentage of low-birth-weight newborns 1980–89	Average annual percentage of moderate and severely underweight 0–4-year-olds 1980–89
Burma (Myanmar)	16	38
Dem. Kampuchea	—	20
Indonesia	14	51
Laos	39	37
Malaysia	10	—
Papua New Guinea	25*	35
Philippines	18	33
Singapore	7	14
Thailand	12	26
Vietnam	18	42

\* For 1979.

The decline in infant mortality rate (IMR) and under 5 years mortality rate (U5MR) was particularly remarkable in Thailand, Malaysia and Indonesia. In Indonesia this decline was helped by the increase in outreach of family health services in the country. At least six of ten countries in the region nevertheless continued to have high to very high IMR until 1989 (Table 6). It should be noted that in countries with the lowest IMR or U5MR, the population had greater access to safe drinking water than in countries with high to very high IMR or U5MR; access to drinking water being an indicator of socio-economic development. These countries were in particular Singapore, Malaysia and Thailand.

With regard to newborns with low birth weight (<2500 g), the highest percentage (39%) among all countries in the region was reported in Laos (Table 7). Except for

Table 8. *Economic and other relevant health indicators for Southeast Asian countries. (From United Nations Children's Fund, 1983, 1989, 1991)*

Countries*	Per capita GNP (US\$) 1988	Average annual GNP growth rate (%)		Per capita GNP (US\$) 1990	Percentage of households with access to drinking water 1985-88	Percentage of fully immunized 1-year-olds†
		1965-80	1980-88			
Burma (Myanmar)	220	1.6	—	278	27	50
Dem. Kampuchea	—	—	—	110	3	22
Indonesia	430	5.2	1.7	545	38	75
Laos	180	—	—	180	21	21
Malaysia	1870	4.7	1.3	2305	84	72
Papua New Guinea	770	—	-0.1	980	27	53
Philippines	630	3.2	-2.4	727	52	79
Singapore	9100	8.3	5.8	12 718	100	90
Thailand	1000	4.4	3.8	1418	64	84
Vietnam	—	—	—	200	46	68

\* Countries are listed from highest to lowest under-5-year-old and infant mortality rates, and prevalence of 0-4-year-old moderate and severe underweight.

† Diphtheria, poliomyelitis and tetanus.

Singapore, Thailand and Malaysia, the prevalences in the other countries were in the same range as those reported in Africa and South Asia.

Among the 0-4-year-old children in the region, approximately one-third, on average, were moderately or severely underweight in 1980-89. The picture was about the same in the African regions (United Nations Children's Fund, 1991). Indonesia, Vietnam, Burma and Laos had the highest prevalence of undernutrition, with more than just one-third of 0-4-year-old children being moderately and severely underweight.

The prevalence of undernutrition in the region is nevertheless falling, the improvement being most remarkable in Thailand and in Indonesia. The rate of improvement in Thailand, it has been said, is about the fastest seen anywhere and if the rate continues, the virtual elimination of severe malnutrition may be seen in this decade (United Nations, 1987, 1990).

It is also easily discernible that countries with the highest U5MR and IMR, and prevalence of underweight 0-4-year-old children, have the lowest per capita GNP, in addition to having least access to safe drinking water and a lower proportion of fully-immunized 1-year-old children (Table 8), indicating the relationship between health, nutrition and income as well as sanitation and environmental conditions.

The improvement in nutrition in Thailand came about side by side with sustained rapid economic growth. During the past decade, Thailand's agricultural as well as manufacturing industries expanded rapidly towards prosperity. The country recorded an average annual GNP growth rate of almost 4% from 1980 to 1988 and has kept debt service to a minimum of 11% of exports of goods and services. By comparison, the Philippines, Indonesia, Laos and Burma (Kampuchea and Vietnam have no data) have each allocated more than 20% for debt service.

Table 9. *Annual average inflation rates in selected Southeast Asian countries. (From United Nations Children's Fund, 1989, 1991)*

Countries	Annual average inflation rate (%)	
	1980-88	1990-91
Burma	3	17.5
Dem. Kampuchea	—	10.0
Indonesia	9	9.1
Laos	57*	18.6
Papua New Guinea	5	7.0
Philippines	16	14.9
Vietnam	—	90.0

\* 1980-85.

In most countries in the region, the poorer 40% of respective populations on average get only 15% of the household income, while the most economically advantaged 20% have the biggest slice of the pie at 40-50% of national household incomes. The nutritional well-being of the poorer sector is further aggravated by rising food prices and inflation rates (Table 9). Thailand successfully kept its inflation rate to an annual average of 3% from 1980 to 1988. The Philippines, on the other hand, has had an inflation rate of 16%, on average, from 1980 to 1988 and a rising prevalence of underweight children. In 1990-91, the inflation rate in the other nutritionally worst-off countries in the region ranged from 7.0 to 90%.

#### THE PHILIPPINE EXPERIENCE

The Philippine economy has fluctuated widely from the 1980s to the present. Political uncertainty, a mounting debt service burden and structural defects in the economy during the first half of the decade caused GNP growth rate to plummet, reaching negative figures for two consecutive years from 1984 to 1985 (Fig. 1). The changing character of economic growth in the country is reflected in real per capita income (Fig. 2) and the unemployment rate for the same period (Fig. 3).

The change of government in 1986 brought wide optimism among the people as well as the international community. Economic improvements were noted, inflation rate was reduced to 0.8% in 1986.

While the economy seemed optimistic, the heavy debt burden inherited by the present government called for the re-allocation of a larger proportion of government resources, up to 38.1% in 1989, for debt service. The country's Adjustment Program called for a reduction in government expenditure, severely constraining the capabilities of government to finance urgent development priorities. The proportion allocated to social services in particular suffered the biggest reduction. Support for grassroot nutrition volunteers could not be sustained, hampering service delivery.

In addition, calamities, both man-made and natural, have troubled the country from 1988 up to the present, slowing down the country's economic recovery and causing continued hardship on the poor and nutritionally vulnerable groups. The recent Mount

Pinatubo eruption, for example, has caused economic displacement for thousands of farming families whose farm lands have been covered with debris from the volcano. Agricultural output is expected to be affected and, consequently, may cause the inflation rate to rise.



Fig. 1. Growth rate (%) in gross national product in the Philippines between 1970 and 1990.

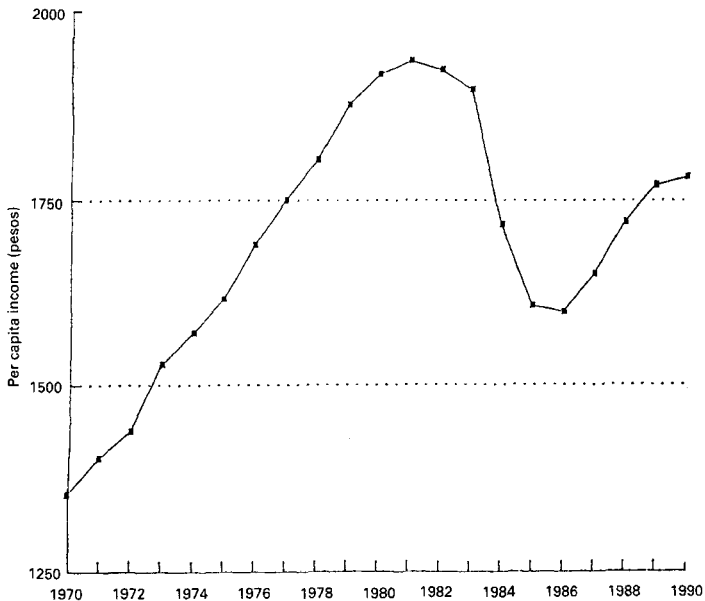


Fig. 2. Real per capita income in the Philippines between 1970 and 1990.





Fig. 3. Unemployment rate in the Philippines between 1978 and 1988.

The results of food consumption surveys conducted in the country in 1978, 1982 and 1987 give indications of how Filipino households in general responded to economic developments (Table 10). The consumption of fish, meat and poultry, sugar and syrups and milk products, among others, increased in 1982, but subsequently when real per capita income declined, there were more decreases in consumption levels in various commodities such as milk products, starchy roots and tubers and maize. Mean daily per capita intakes for energy, protein and other nutrients were significantly lower in 1987 than in 1982 and percentage adequacy levels for energy and all other nutrients remained below 100% except for niacin (Table 11).

The effect of food consumption was evident in the nutritional status of preschool children. The decline in prevalence of underweight preschool children from 21.9% in 1978 to 17.2% in 1982 was related to the improvement in household diets, while a negative change from 1982 to 1987 of 17.7% was registered when diets deteriorated (Table 12).

However, results of the regional anthropometric survey conducted in 1989–90 revealed an overall improvement in nutritional status, with the incidence of underweight 0–6-year-old children declining from 17.7% in 1987 to 14% in 1989–90, and the incidence of severe chronic malnutrition was reduced from 2.1 to 1.4% between 1987 and 1990 (based on Philippine weight standards; Food and Nutrition Research Institute, 1971). The positive pattern in the nutritional status of children was reported to have been the probable effect of the improved economic situation within the country, especially in 1988 and 1989, as indicated by the GNP and personal consumption expenditures. These developments generated high investments and increased employment and income opportunities for the people which in turn improved their access or capacity to purchase adequate food for consumption.

Table 10. Mean daily per capita food consumption for the Philippines in 1978, 1982, 1987 based on data from National Nutrition Surveys conducted by Food and Nutrition Research Institute. (From Food and Nutrition Research Institute, 1978, 1982, 1987)

Food group	Food consumption (g/d) (as purchased)			Change in consumption (%)	
	1978	1982	1987	1978-82	1982-87
Cereals and cereal products	367	356	345	-3.0*	-3.1*
Rice products	308	304	303	-1.3	-0.3
Maize and maize products	38	34	24	-10.5*	-29.4*
Cereal products	21	18	18	-14.3*	—
Starchy roots and tubers	37	42	22	13.5*	-47.6*
Sugars and syrups	19	22	24	15.8*	9.1*
Fats and oils	13	14	14	7.7	—
Fish, meat and poultry	133	154	157	15.8*	1.9
Fish and fish products	102	113	111	10.8*	-1.8
Meat and meat products	23	32	37	39.1*	15.6
Poultry	7	10	9	42.8*	-10.0
Eggs	8	9	10	12.5	11.1
Milk and milk products	42	44	43	4.8	-2.3
Whole milk	31	30	36	-3.2	20.0*
Milk products	11	14	7	27.2*	-50.0*
Dried beans, nuts and seeds	8	10	10	25.0*	—
Vegetables	145	130	111	-10.3*	-14.6*
Green leafy and yellow	34	37	29	8.8	-21.6*
Other vegetables	111	93	82	-16.2*	-11.8*
Fruits	104	102	107	-1.9	4.9
Vitamin C-rich fruits	30	18	24	-40.0*	33.3*
Other fruits	74	84	83	-13.5*	-1.2
Miscellaneous	21	32	26	52.4*	-18.7*
Beverages	8	16	12	100.0*	-25.0*
Condiments and others	12	15	14	25.0*	-6.7

\* Mean values were significant.

#### SUMMARY AND CONCLUSION

While most Third World countries, particularly in Africa and Latin America, have experienced a deterioration in child welfare as a result of the severe economic downturn in the 1980s, Southeast Asia in general managed to sustain improvements in the situation of its children because it has maintained satisfactory rates of economic growth. However, there were exceptions within Southeast Asia. The Philippines, Vietnam, Dem. Kampuchea and Laos had unsatisfactory growth rates and, consequently, unsustainable nutritional gains from the 1970s through the 1980s.

Economic factors exerted a big impact on the Philippine nutrition situation, particularly on the dietary status of the households and the nutritional status of children. As a result of the economic dislocation occurring in the country, the nutritional gains of 1978-82 were not maintained in succeeding years. Unlike the case of Thailand, it has been estimated that the solution to nutritional problems in the Philippines is far from being achieved in the immediate future (Villavieja *et al.* 1989).

Table 11. *Mean daily per capita nutrient intake and percentage adequacy for the Philippines in 1978, 1982, 1987 based on data from National Nutrition Surveys conducted by Food and Nutrition Research Institute. (From Food and Nutrition Research Institute, 1978, 1982, 1987)*

Nutrient	1978	1982	1987	Change in intake (%)	
				1978-82	1982-87
Energy					
Intake: MJ	7.5	7.6	7.3		
kcal	1804	1808	1753	0.2	-3.0*
% Adequacy	88.6	89.0	87.1		
Protein					
Intake (g)	48.0	50.6	49.7	5.4*	-1.8*
% Adequacy	93.2	99.6	98.2		
Iron					
Intake (mg)	10.6	0.45	10.7	1.9	-0.9
% Adequacy	88.3	80.4	91.5		
Calcium					
Intake (g)	0.44	0.74	0.42	2.3	-6.7*
% Adequacy	78.6	71.8	75.0		
Thiamin					
Intake (mg)	0.73	0.68	0.68	1.4	-8.1*
% Adequacy	70.7	66.7	66.7		
Riboflavin					
Intake (mg)	0.53	0.58	0.56	9.4*	-3.4*
% Adequacy	50.9	56.3	54.4		
Niacin					
Intake (mg)	15.3	16.4	16.3	7.2	-0.6
% Adequacy	115.5	119.7	119.9		
Ascorbic acid					
Intake (mg)	66.8	61.6	53.6	-7.8*	-13.0*
% Adequacy	99.2	91.1	80.0		
Fats					
Intake (g)	28	30	30	7.1*	—
Carbohydrates					
Intake (g)	332	313	313	-1.5	-4.3*

\* Mean values were significant.

Table 12. *Prevalence of malnutrition in the Philippines in 1978, 1982, 1987 and 1989-90\**

Nutritional status (0-6-year-olds)	1978	1982	1987	1989-90	Actual change (%)		
					1978-82	1982-87	1987-89-90
Underweight ( $\leq$ 75% of standard weight-for-age)	21.9	17.2	17.7	13.9	-4.7	0.5	-3.8
Wasted ( $\leq$ 85% of standard weight-for-height)	13.8	9.5	12.7	9.0	-4.3	3.2	-3.7

\* Based on Philippine weight standard (Food and Nutrition Research Institute, 1971).

On the other hand, the nutrition improvements in Thailand have been as remarkable as the economic growth over the last decade. Long-term investments in health, nutrition and other social services in Thailand (as well as in Indonesia) have paid off according to the assessment by the United Nations (1990).

It appears, therefore, that the nutrition situation in developing countries is highly dependent on the economic situation, globally and nationally (Cornia *et al.* 1987), as well as on investment in social services. Adjustment policies should, therefore, consider their implications on distribution and poverty in order that they could positively contribute to the improvement of the nutrition of the people.

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