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Report of the

Ministerial Roundtable Beyond the Asian Crisis: Sustainable Agricultural Development and Poverty Alleviation in the Next Millennium

14-15 June 1999

Food and Agriculture Organization of the United Nations
Regional Office for Asia and the Pacific
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A. Ministerial Roundtable

Introduction

1. The Asian financial and economic crisis may have ebbed, but the destruction it has wrought on the economic and social fabric of most East Asian countries will take some years to repair. The speed of restoration will depend on the gravity of the impact, the capacity and resolve of individual countries to reform policies and institutional arrangements that inhibit efficiency (and which, in the first place, helped trigger the crisis) and society's response to these reforms. The worst is over, but a recurrence of similar crises in the future cannot be discounted.

2. Numerous studies, reports and commentaries have appeared (and reappeared) since the East Asian financial crisis erupted in mid-1997 offering diagnoses on the origins and consequences of the crisis as well as proposals for reform and recovery. There is now something approaching a consensus as to roots of the crisis: a rapid build-up of short-term foreign-currency debt in weak financial systems leading to an appreciation of real exchange rates, a rapid expansion of bank lending (largely to non-tradable sectors such as in real estate) and an increasing vulnerability to reversals in capital flows. The obvious implication is that emerging economies (their banks, especially) should hereon be discouraged from amassing unhedged short-term foreign debt.

3. For certain, growing imbalances and weaknesses at both the microeconomic and macroeconomic levels had been fundamental factors leading to a rapid growth of short-term external debt and the crisis that ensued. But in some countries in the region, political uncertainty and natural calamities helped to aggravate what was essentially a financial crisis and in the process turn it into a full-blown economic debacle. Restoring prudent macroeconomic management, abandoning regulatory measures that discourage efficiency and building credible and transparent governance structures are thus essential not only to restore growth but also to pave the way for sustainable and equitable development. That is the major challenge for the countries in the region, crisis-torn or not.

4. While it is well known that a large majority of the poor in Asian countries are located in rural areas and remain dependent on agriculture for income and employment, the role of agriculture in supporting recovery and sustainable growth in the 21st century has not been given the prominence it deserves. Regaining recently lost ground in poverty alleviation and winning the war against poverty in the next century demand no less than sustainable agricultural progress and dynamic rural development.

5. The FAO Regional Office initiated the establishment of a regional network of national agricultural policy research centres to serve as a catalyst to strengthen policy analysis and facilitate the exchange of information and practical experiences in agricultural and rural development. Its initial focus was to understand the role and contribution of policies, markets and institutions in the dynamic transformation of agriculture in Asia and the Pacific in the 1980s and 1990s. The goal was to draw lessons and regional perspectives from the varied experiences in the region with regard to macroeconomic policy, structural adjustment, institutional reform and external shocks.

6. To continue its policy and programme advisory assistance to Member States, the FAO Regional Office initiated collaborative work on the theme *"Asian Crisis, Reform Measures and Agriculture Performance"* with a network of leading national agricultural policy institutes and centres in the region. In light of recent developments (i.e. the Asian financial crisis and the El Niño phenomenon), this collaboration focused on updating country assessments and providing cross-country analyses of the effects of

macroeconomic reforms and structural adjustment programmes on the rural sector in general and poverty alleviation in particular. The aim was to draw lessons from experiences with macroeconomic and institutional shocks such as the Asian financial crisis. The collaboration also provided a forum for discussing the agricultural and rural development agenda in the next millennium and for refocusing, if necessary, the policy and research agenda of national policy research centres.

7. The activity had two major elements: a) the preparation of country assessment reports on the theme *"Asian Crisis, Reform Measures and Agriculture Performance"* and b) the holding of two consultative workshops to facilitate an exchange of experiences and draw policy lessons. The first workshop held in January this year in Manila revisited and validated findings and conclusions from earlier policy consultations in light of new evidence and recent development both within and outside the region. Selected policy issues were discussed among leading policy experts and analysts, policy makers and development practitioners. This Ministerial Roundtable and the technical policy workshop are a continuation of this consultation.

8. The **Ministerial Roundtable on Beyond the Asian Crisis: Sustainable Agricultural Development and Poverty Alleviation in the Next Millennium** brought together high-level government officials, including ministers and vice ministers of agriculture and prominent policy experts, professionals and practitioners from key policy institutes and centers in the region.

Objectives

9. The Roundtable was held to synthesize views, experiences and advice of various countries and sub-regions in seeking to meet the major concerns and challenges of sustainable agricultural development and poverty alleviation in the next millennium. Launched at the heels of the Asian crisis, the Roundtable was also meant to serve as a forum for an exchange of experiences and perspectives and for identifying lessons that can be of use in the future, given the history and record of economic progress in the region.

Participants

10. In attendance during the Ministerial Roundtable were six ministers, three vice ministers, two secretaries/directors-general and other high-level government officials from ten Asian countries; 12 experts from 11 key policy institutes/centres (plus the Association of Southeast Asian Nations or ASEAN) representing 10 countries of the region; and resource speakers from the FAO Regional Office. The list of participants is printed in Annex I.

Inaugural Session

Welcome Speech

11. The participants in the Roundtable were welcomed by **Dr. Prem Nath, FAO Assistant Director-General/Regional Representative (ADG/RR)**. After expressing his gratitude to the participants, he narrated how the Ministerial Roundtable had been conceived as a forum for a mutual exchange of views, perspectives and experiences. The objective, he said, was to merge these insights to identify “best practices" as well as major concerns and challenges of sustainable agricultural development and poverty alleviation in the next millennium.

12. He pointed out that as this century comes to a close, it is very important to take stock of the state of agricultural and rural development in the region, assess the implications of the Asian crisis on agriculture and rural sector and confront head on the challenges facing rural Asia and agriculture in the new millenium.

13. Referring to the FAO Director-General's Special Programme for Food Security (SPFS), he stated that the SPFS endeavours to demonstrate how low cost irrigation management and the introduction and diversification of (as well as the removal of policy and institutional barriers to) technology can rapidly increase food production.

14. He expressed his conviction that the Ministerial Roundtable should facilitate a greater understanding of the increasing interdependence of economies in the region and be conducive to evolving common approaches to deal with, mitigate and manage, if not altogether prevent, similar economic crises in future. The full text of the speech is shown in Annex II.

Opening Remarks

15. While referring to the Rome Declaration on World Food Security and World Food Summit Plan of Action adopted at the 1996 World Food Summit, **H.E. Pongpol Adireksarn, the Thai Minister for Agriculture and Cooperatives**, spoke of the global impacts of the Asian financial crisis, primarily the growing number of people living below the poverty line and the drastically increasing rate of unemployment. It is strongly expected—and widely hoped—that agriculture will be instrumental in solving these problems as food, aside from air and water, is most basic to life.

16. Moreover, he stressed that the region can successfully alleviate poverty through an adoption of sustainable agriculture, which do not create a negative impact on the environment while efficently utilizing limited natural resources. He expressed his confidence that close cooperation among member nations would enhance the development of sustainable agriculture in Asia and around the world and alleviate poverty in the next millennium. His opening remarks are printed in Annex III.

Keynote Presentations

17. Keynote presentations on ***Prospects and Challenges for Asian Agriculture in the 21st Century*** are summarized below. Full texts of presentations are given in Annex IV (a-j).

Regional Perspectives

18. Asia, home to over 3.2 billion people, has a rich and diverse history, culture and national heritage, with countries differing not only in aspects such as local tradition, way of government, and religion, but also in population size, natural endowment, economic structure, stage of development, and hence experience and record of economic performance, noted **Dr. Prem Nath, FAO ADG/RR,** in his opening speech. The region's progress, he said, has been generally impressive with sustained growth through the 1970s, 1980s and early 1990s. Gross domestic product (GDP) grew at over 6 percent annually in parts of Southeast Asia although social and political turbulence in some areas hampered the general improvement in economic well being. For Asia as a whole, real GDP increased at rates well above population growth, which had slowed down, completing the favourable pattern.

19. However, the Asian crisis shook the consciousness, if not the confidence, of many policymakers. Macroeconomic fundamentals betrayed no early symptoms of its coming. Its depth surprised most analysts. Indeed, at some stage, it looked as though the Asian crisis would wipe out the success built up through decades of remarkable economic growth and a strong record in poverty alleviation and human development.

20. Dr. Prem Nath emphasized how agricultural and rural development remained central to any strategy that seeks to alleviate poverty and build food security in the next millennium and how increases in agricultural productivity held the key to sustained rural development. Expansion of cultivable area is no longer considered a practical option as the frontiers had been reached in many countries years ago. Raising agricultural productivity, however, requires sustained investment in support services such as agricultural research and development, improved technology information and extension assistance, farm-to-market roads and related infrastructure, and the construction of small-scale, private sector-led and farmer-controlled irrigation technologies. These will give small farmers a range of technology options and enough flexibility to adjust to market conditions. Investment in rural infrastructure would boost efficiency, reduce the "cost of doing business" in rural areas, and promote diversification of agriculture in the rural economy.

Thailand and Transition Economies in the ASEAN

21. **H.E. Pongpol Adireksarn, Minister for Agriculture and Cooperatives of Thailand,** reported how Thailand, like several other countries in Southeast Asia, had suffered immensely from the impact of the economic crisis that swept the region.

22. He said it was expected that agriculture would assist in the alleviation of the economic crisis because of the important role it plays in society. Farming is an age-old way of life for the majority of Thais, 60 percent of whom live in rural areas. Fourty-two percent of the total land mass is used in cultivation.

23. The agricultural sector is seen as a saviour of the current economic crisis and a guiding light in the new millenium. It is hoped that the sector will help improve the economic situation by focusing on the following issues: generating foreign exchange earnings through expanded exports of agricultural products such as rice, cassava, rubber, broilers, prawns, seafood, fresh and canned vegetables and fruits; accelerating domestic production of agricultural products such as maize, soybean, milk and cotton which serve as import substitutes; maintaining healthy food supply levels to stabilize agricultural prices and minimize inflation; and generating jobs to absorb unemployed workers migrating from big cities to rural areas.

24. He concluded his keynote presentation by stating that agriculture in Thailand would continue to play a vital role in ensuring food security for the country. The agricultural sector, he emphasized, provided solid economic and social foundations needed to surmount the recession.

25. **H.E. Maj. Gen. Nyunt Tin, Minister for Agriculture and Irrigation of Myanmar,** reported that his home country enjoyed a steady economic growth rate prior to the onset of the Asian financial crisis, with the GDP growth rate averaging at 7.5 percent in the fiscal years 1992 to 1995. Asia's economic and financial crisis affected Myanmar to a certain extent, he said, especially as contagion effects spread and the crisis deepened, turning into a regional turmoil. Flows of foreign direct investments were reportedly hardest hit by the crisis. It is, however, contemplated that as the Asian economy recovers, investment climates will again turn favourable. In spite of the negative effects of the El Niño phenomenon on local weather, the country managed to grow by 6.4 percent, 5.7 percent

and 5.6 percent, respectively, in the first three years of the current five-year plan covering fiscal years 1996 to 2001.

26. He pointed out certain problems faced by Myanmar in the next millennium such as increasing scarcity of arable land, degradation of cultivated land, depletion of forest resources, diminished water supplies, variability in the global trade of agricultural products and mounting pressure against further environmental damage. The only constant progression has reportedly been in the terms of a population explosion.

27. He stressed that under the circumstances, there is a need for strong political will and bold decisions. It will be necessary to discard or alter past strategies that failed to address growth, poverty alleviation and environmental sustainability. For developing countries in Asia, continued agricultural growth on a sustainable basis has become a necessity for the 21st century and not just an option, he emphasized, which now depends squarely on collective efforts.

28. **H.E. Ngo The Dan, Vice-Minister, Ministry of Agriculture and Rural Development of Viet Nam,** pointed out that in his country, the agricultural and rural sector played an extremely important role as about 80 percent of the population live in rural areas, with the agriculture and rural economy contributing nearly 40 percent of GDP. Therefore, the Vietnamese Government regularly pays attention to development and considers these as the basis for ensuring political and social stabilization in the course of industrialization and modernization.

29. Although not directly affected by the crisis, Vietnamese also suffered from the regional downturn. The growth rate in national output, which hit 8.5 percent in 1997, fell to 5.8 percent in 1998 while a 4 percent drop in GDP is estimated in the first quarter of this year. The devaluation of several currencies in the region coupled with a dip in demand in crisis-stricken countries has made Vietnamese exports less competitive. Export turnover in the first four months of 1999 decreased by 4 percent compared to the corresponding period a year earlier.

30. To cope with the problems, the Vietnamese Government has implemented several programmes on agricultural and rural development. These include the *national programme on food security,* which aims to promote food production, ensure food sufficiency even in emergencies such as natural calamities, and assist poor people and enable them to avail of sufficient food when needed; and the *national programme on hunger elimination and poverty alleviation,* which is mainly designed to assist households in the development of agricultural, forestry and fishery production, promote small industries and encourage resettlement.

31. **Mr. Phouvieng Laddavong, Director General, Office of the Minister for Agriculture and Forestry of the Lao People's Democratic Republic,** said food security and rural poverty issues have long been a source of deep concern for the Lao Government since more than half of the rural population still lives below the poverty line. This presents a huge challenge to local authorities. Most households lack food security because of disparities in income distribution while malnutrition, which threatens the health of many children under five years old (more than 47 percent estimated), remains one of the biggest problems of the country.

32. The agriculture sector accounts for more than half of GDP (52 percent), employs about 80 percent of the local workforce and accounts for 40 percent of export earnings. About 620,000 families depend on agriculture for their livelihood, of which some 492,000 families rely on subsistence farming. The Lao Government has been developing an

integrated plan for agriculture and rural development to cope with the problems of food security and alleviate rural poverty.

33. The recent Asian economic crisis has also affected and reduced economic growth in Lao PDR. The local currency (Kips) has suffered a large depreciation (over 300 percent) since July 1997 and this, in turn, has led to a high rate of inflation. However, the social effects of the crisis have not been as dramatic as in the other afflicted countries (e.g. in terms of unemployment) because of the subsistence nature of most economic activity.

34. He further stated that considering past experiences, the Lao Government is determined to pursue its long term policy development to "free the country from the least developed country status by the year 2020". The agriculture and forestry sectors will remain the leading economic sector of the country and have been identified as the engines to foster socio-economic development up to year 2020 and to gradually lay down the foundations for a planned shift towards industrialization.

The ASEAN

35. **Hon. Edgardo Angara, Secretary for Agriculture of the Philippines,** said the crisis that struck Asia these past two years is now on the wane. The worst is believed to be over although the effects on Asian societies linger and will continue to influence policies, including those pertaining to agriculture and food security. Beyond the things that nations must do individually, he said Southeast Asia should also work together towards a common vision of ensuring adequate nutrition in the region in the new millennium.

36. He pointed out that several lessons must be kept in mind. First, long-term poverty reduction requires sustained economic growth and hence a macroeconomic and political climate conducive to the resumption of high growth should be put in place in Asia. Second, income growth need not be accompanied by deterioration in income distribution. Third, neither rapid urbanization nor permanent declines in the relative importance of agriculture in national income diminishes the comparative importance of agriculture in poverty alleviation. Finally, he noted it is important to remember that farmers respond to incentives even in poor countries and especially so if given a favourable economic and policy environment.

37. Therefore, the effort to raise agricultural productivity should involve reforming incentives in agriculture as well as the rest of the economy, allowing markets to function efficiently and promoting institutional arrangements conducive to long-term growth and development.

38. He expressed confidence the next century could still be a "Pacific Century" wherein the region could fulfil its potentials. He concluded his presentation by stating that it is the moral imperative of life itself to raise the human condition such that growth and productivity are not the only goals but social justice as well. Bureaucrats, activists, workers and entrepreneurs can all serve as agents of this imperative.

39. **H.E. Datuk Amar Dr. Sulaiman Haji Daud, Minister for Agriculture of Malaysia,** reported that his country was not spared the regional contagion effects, compelling the Malaysian Government to undertake a series of stringent measures to ensure continued macroeconomic stability. The National Economic Action Council (NEAC) was established on 7 January 1998, and the National Economic Recovery Plan (NERP) prepared and launched less than six months later. Besides addressing immediate economic problems, the NERP also provided a comprehensive framework to address structural and medium-term issues. Through the concerted efforts of both the private and public sectors, Malaysia

has successfully contained the crisis and avoided potentially damaging effects such as high unemployment, mass poverty and civil unrest.

40. The crisis period has been extremely challenging for Malaysian agriculture. Aside from having to deal with labour shortages and reduced availability of suitable land for agriculture, the sector also faced temporary problems such as those brought on by the *El Niño* and *La Nina* phenomena and the haze. The sector was additionally burdened with higher prices of imported food and inputs following the currency depreciation. As a consequence, stabilizing food prices and tempering inflation have become major challenges.

41. He pointed out that the modernization of the farm sector to enable the country to become a high-value producer and exporter of food and other agro-based products would continue to be the main thrust for agricultural development in Malaysia through the next millennium. In meeting this challenge, agricultural development strategies will continue to be directed at improving productivity and quality and enhancing competitiveness by encouraging greater private sector involvement in large-scale integrated enterprises that house production, processing as well as marketing functions.

42. **H.E. Prof. Soleh Solahuddin, Indonesian Minister of Agriculture**, narrated how Indonesia had been successful in its development record up to the early part of 1997 despite severe setbacks. Twenty-five years ago, he said, Indonesia numbered among the poorest countries in the world with an annual per capita income of only US$50. Since then, it had made great strides, achieving an average GDP growth of almost 7 percent annually and landing in the ranks of the ten fastest growing economies.

43. Indonesia was the last of the so-called Asian tiger countries to be affected by the global economic crisis that started in 1997. Unfortunately the Indonesian economy has been one of the most deeply affected. The government estimates that the poor increased from 11.3 percent in 1996 to 39.1 percent in 1998 (or around 79.4 million people).

44. Agriculture has always been instrumental in supporting Indonesia's economic development. The sector's annual growth rate averaged around 3 percent over a period of 25 years, making it possible to provide relatively cheap food to a population of more than 200 million people and raw materials to support the development of local manufacturing industries.

45. The country's development policies to overcome the turmoil were set up through a Special Session of People Consultative Council (MPR) held in November 1998 as the economic crisis raised the spirit of reform throughout the country. Proposed reforms cover almost all aspects of public life. In agriculture, it implies a total adjustment and reformulation of policies and strategies to promote agricultural development, with Indonesian agriculture envisioned as an increasingly modern, resilient and efficient sector.

China

46. **H.E. Liu Jian, Vice Minister, Ministry of Agriculture of China,** pointed out that the Asian financial crisis impacted negatively on China's agricultural exports and its utilization of foreign investment. A decline in exports, slower output growth and shrinking consumer demand have all led to weaker markets for farm produce, lower prices and smaller hikes in farmers' incomes.

47. With credit to open market reforms implemented over the past 20 years, agriculture and rural economy in China has entered into a new development stage. The supply

situation of agricultural commodities has changed. As a result, the requirements of food and clothing can now be satisfied and the supply and requirements of major farm produce kept at a balance such that the market may even have surpluses in good years.

48. In this new era, however, China's agricultural development faces new problems. These include: (a) serious constraints to natural resources and threats to the environment; (b) increasing market control; (c) the backward state of agricultural infrastructure; (d) agricultural technology levels that are inadequate to meet the requirements of agricultural development; and (e) slower growth of farmers' incomes exacerbating an already discouraging poverty alleviation picture.

49. Now is the critical time for China if it hopes to fully modernize by year 2010. To realize the long-term objective of agricultural development, the Chinese Government says will give top priority to the sector, continue fundamental rural policies, further improve the sector's capacity and readjust and optimize production systems. The country will do its best to improve the agricultural ecosystem and intensify poverty alleviation efforts to achieve sustainable development.

South Asia

50. **H.E. Mian Abdul Sattar Leleka, Minister for Food, Agriculture and Livestock of Pakistan**, said that agriculture was the largest income-generating sector in the country. It contributes 25 percent to GDP, employs 47 percent of the total labour force and supports directly and indirectly nearly 70 percent of the population. The sector also accounts for about 68 percent of export earnings and provides raw material for the Pakistan's major industries. An efficient harnessing of local agricultural resources is therefore vital.

51. The Pakistan Government has initiated a number of direct support programmes to alleviate poverty. These include the allocation of a poverty alleviation fund; development of social action, rural development and rural support programmes; provision of social safety nets and micro-credit; and establishment of district support organizations.

52. Agriculture policies and programmes of the Pakistan Government are formulated within the framework of the National Agriculture Policy, which is based on the national goals of social equity, self reliance, export orientation, sustainable agriculture and enhanced productivity.

53. Agriculture will continue to be a dominant sector of the economy. The aim is to achieve food self-sufficiency, ensure availability of raw materials for industrial use and enhance earnings through higher exports of agricultural products.

54. **Dr. R.S. Paroda, Secretary to the Government of India, Department of Agricultural Research & Education, and Director General of the Indian Council of Agricultural Research of the Ministry of Agriculture,** pointed out that the Asian crisis was an eye opener and a warning alarm to countries in the region cautioning them to be prudent in their economic (and particularly, financial) management. From hindsight, India was largely unaffected by the crisis with its financial sector remaining in relatively much better health largely owing to strict monitoring by its central bank. There has been no significant impact of the crisis on exports and imports from the region.

55. By any reckoning, the performance of Indian agriculture since the country became independent in 1947 has been outstanding. However, there are rising concerns about a persistence of malnutrition and poverty and pressures of a growing population in light of degraded and increasingly scarce land and water resources and slow agricultural growth in

the current decade. Other negative features include growing inequality, disparities in access to food and other resources within households, and large scale and indiscriminate damage to the environment.

56. The lessons learned, he said, were that famines are not the result of natural disaster or fate, but of poor policies, technological choices and action. He added that people must have the knowledge, skill and resources to grow the food they need or the income to buy it and that agriculture must be the basis for economic development. To protect the natural resource base, agricultural technologies must be developed and disseminated to produce more food on existing agricultural land and must be coupled with enlightened economic and institutional policy.

57. He concluded that to propel Indian agriculture into the 21st century, the quality, technical skills and management of agricultural manpower must improve in consonance with the rapidly changing needs of society.

Panel Discussions and Open Forum

58. Panel discussions and an open forum followed the keynote presentations. The discussants and their topics were:

- **Dr. Nipon Poangposakorn from the Thailand Development Research Institute (TDRI)** talked about the problems faced by Thailand and ASEAN transitional economies for sustainable agricultural development;

- **Dr. Jikun Huang from the Center for Chinese Agricultural Policy (CCAP)** tackled China's poverty and food security issues in detail;

- **Dr. Suthad Setboonsarng, Deputy Secretary-General of the ASEAN,** discussed the severity of the crisis and its impact on the agriculture and rural sectors in ASEAN countries; and

- **Professor V. S. Vyas from the Policy Research and Action Group (PRAG) of India** dissected four basic topics: the reason why the Asian crisis did not affect some of the countries of the region particularly in South Asia; the strong points that saved South Asia from the crisis; and the new problems that the region now faces.

59. It was noted that poverty, both a cause and an effect of food insecurity, continued to be a major challenge to the region where the bulk (approximately 75 percent) of the poor in developing countries was located. In Asia, as elsewhere in the developing regions of the world, poverty is mainly a rural phenomenon: nearly three-fourths of the poor live in rural areas, with a large majority depend on agriculture for employment and income. Agricultural growth thus offers a potentially enormous boost to poverty reduction, particularly when the development is broadly based.

60. Participants in the open forum expressed their view that the lingering Asian economic crisis heightened the critical role that agriculture, fisheries and forestry play in economic recovery. More than ever, the sector is called upon to absorb unemployed people forced out of the industrial and services sectors as well as new entrants to the labour force unable to find work in urban areas. It is also relied upon to produce more export crops to raise foreign exchange receipts, increase domestic food supply to ease the pressure on wages and prices, and generate domestic sources of investment.

61. However, the crisis has the potential of obscuring lessons from recent decades of experience in Asia with regard to poverty alleviation and economic development. The crisis has given even supporters of the status quo a reason to question the benefits of economic liberalisation and globalisation (i.e. the opening up of goods, labour, capital and services markets to world trade). Indeed, calls for reversal—or at least, a slowdown—of liberalization efforts have intensified in developed and developing countries alike, especially as the East Asian economies that openly welcomed globalisation were the first to tumble in the wake of the regional crisis.

62. Discussants pointed out that beyond the Asian crisis, developing countries in the region would have to confront enormous development problems and policy challenges. Rising population levels, shrinking agricultural lands, increasing demand on limited water resources from an expanding urban and industrial sector, widespread land degradation, and inadequacy of governance infrastructure appear to be more pressing now than ever before. The urgency is more pronounced for crisis-stricken countries mounting efforts to recover lost ground and deepen their integration with the world economy. As recent experience suggests, these issues cannot be divorced from policy matters impinging on poverty and food security.

63. Participants stressed that it was important to assess recent experiences of developing countries in Asia, their policies as well as select issues pertaining to poverty alleviation and food security. This process showed that achieving food security and success in poverty alleviation not only meant opening up to the world economy, but also laying solid foundations for agricultural growth, rural transformation and social development (e.g. basic education, nutrition, health care, land reform, and infrastructure development). The topic of the Roundtable is thus useful and timely as it not only brings out lessons learned and hence lays down country-specific food security policies but also identifies critical issues and measures that can be best carried out at the regional level through the next millennium.

64. Adverse effects of unsustainable agricultural practices and widespread poverty, meanwhile, do not remain confined to the countries where they occur. They spill over boundaries to other countries in the region in various forms such as downstream environmental problems and hazards, cross-border movements of labour (particularly the unemployed) and potentially weaker demand for goods and services produced in relatively prosperous more countries by poorer trading partners. The forum thus recommended that in addition to country-specific actions to combat these problems, regional cooperation and the forming of coalitions to address shared concerns are beneficial.

Closing Remarks

65. **Dr. Prem Nath, ADG/RR**, pointed out that the strong participation and the high quality of keynote presentations by government representatives testified to the importance attached to the issue of sustainable agricultural development and poverty alleviation in the next millennium. The country presentations and panel discussions successfully brought out both the commonality and diversity of the issues, concerns and views. One thing that clearly stood out, however, was that sustainable agriculture and rural development will remain crucial issues in the region in the foreseeable future.

66. The sharing of country experiences and perspectives on the theme provided an opportunity for the countries represented to appreciate each other's problems and analyse and consider diverse approaches to various issues.

Media Coverage

67. The meeting announcement was released by Reuters and by The Nation (Thai newspaper) on 14 June.

68. Twelve correspondents attended the inaugural session on 14 June 1999 comprising five from Thai media, three from regional outlets and four from wire services (AP, Reuters, DPA and Xinhua).

69. The first story was released by the Associated Press. It tackled the main messages from the ADG/RR keynote presentation, supplemented by statements from Thailand, Philippines, Indonesia and China.

70. The AP release was reproduced by a large number of national and regional media outfits and triggered requests for interviews with the ADG/RR from BBC World Service, London and CNN, Hong Kong. The BBC interview was held over the phone on Monday evening 14 June 1999.

71 Radio Thailand External Service broadcast a report on the Roundtable starting 14 June 1999 in the evening news which was repeated until 15 June also in the evening. This report was based mainly on the statement made by the Thai Minister. A second report was broadcast starting with the morning news on 16 June based on RAP press releases.

72. Television interviews with the ADG/RR and the Thai Minister were recorded on 14 June 1999. That same day, Thai television channels 5 and 7 broadcast during their evening news a report on the meeting that included an interview with the Thai Minister.

B. Technical Policy Workshop

1. The country policy papers were presented and discussed by policy institutes/centres on 15 June 1999 as a follow-up to the Ministerial *"Roundtable on Beyond the Asian Crisis: Sustainable Agricultural Development and Poverty Alleviation in the Next Millennium"*. The following are summaries of the country papers.[1]

2. **Thailand and Mekong River Basin Countries: *Prospects and Challenges for Asian Agriculture in the 21st Century, Experience and Perspectives from Thailand and Mekong River Basin Countries*** by Dr. Nipon Poapongsakorn, Vice President, Thailand Development Research Institute (TDRI)

3. In the mid-1980's, the socialist countries in the Mekong River Basin (or the so-called Greater Mekong Sub-region or GMS) embarked upon a process of reform which was intended to transform the controlled or command economic system into a market oriented one. Since then, the economies of Cambodia, Laos, Myanmar and Viet Nam have become increasingly integrated into the world economies, especially their economic interrelations with Thailand, Malaysia and Singapore. They have engaged in a process of greater opening to international trade and foreign investment.

4. The reforms and the increased integration among the GMS countries have brought about substantial economic benefits for the people of the sub-region, particularly, a higher standard of living, a reduction in poverty incidence, and a higher quality of life as indicated by the improved social indicators. However, globalization has made them increasingly vulnerable to international economic forces as evidenced by the contagion effects of the Asian crisis of 1997. The impact of the crisis is now threatening to offset much of the benefits and progress that had been made possible by the decade-long process of market liberalization, reform and improved economic cooperation.

5. The paper briefly summarizes the economic reforms, particularly macroeconomic management and agricultural development polices, and the consequent macroeconomic performance. It, then, analyses the impact of the Asian crisis and the responses of the agricultural sector. Finally, some development challenges in the next millennium and policy implications were discussed.

6. **China** (i): ***Performance, Prospects and Challenges for China's Agriculture*** by Dr. Jikun Huang, Professor and Director, Center for Chinese Agricultural Policy (CCAP), Chinese Academy of Agricultural Sciences (CAAS)

7. International communities have long recognized China's effort to produce enough food to feed its growing population. China's food self-sufficiency is high considering that it feeds over a fifth of the world's population with only one-fifteenth of the world's arable land. China's future food security, however, is a source of growing concern for several reasons. Although China's food production grew over the last several decades, year-to-year fluctuations of food supply and prices are significant. Farmers' incomes in the central and eastern regions of China continue to grow more rapidly than that in the west and southwest areas. Income inequality among regions, between rural and urban areas and within regions continues to grow. In the early 1980s, tremendous progress was made in addressing China's poverty problem due mainly to the government's rural reform program. However, this progress has slowed over the past ten years.

[1] Full text of country papers are available at the Policy Assistance Branch, FAO Regional Office, Bangkok, Thailand.

8. A number of recent studies conducted by both domestic and international organizations have led to a consensus that while the increases in China's grain imports will be marginal and the nation will remain at a high level of food self-sufficiency in the coming decades, China's long term food security is an issue of both national and international significance.

9. China will face greater challenges in feeding its growing population in the next millennium (Huang and Chen, 1999). Food supply availability in China is important not only because it concerns a large proportion of the world's population and increasing demand for agricultural and food products resulting from income growth, but also because rapid industrialization and urbanization will lead to competition for resources between agricultural and non-agricultural sectors. The impacts of trade liberalization and China's access to the WTO on China's domestic agricultural production, price, trade balance and on farmers' income are also becoming a serious concern of both policy makers and farmers.

10. The goal of the paper is to review the performance of the food and agricultural sector; consider the role of agricultural policies in improving the food situation; project food demand, supply and trade for major agricultural commodities in the 21st century; and identify the challenges and key issues related to agricultural development and food security that require further intervention. The paper will also review the macroeconomic and agricultural development of the country and sources of growth in agricultural production, analyse current policies and programmes of government and predict the shape of China's food economy in the early part of 21st century, with focus on the impact of trade liberalization on China's economy and agriculture. Major challenges and constraints to agricultural development in the next millennium, the measures and options towards sustainable agricultural development are also discussed in the paper.

11. **China** (ii): ***China's Agriculture in Transition: Recent Developments, Agricultural Growth, Policy Issues and Impact for Asian Crisis*** by Dr. Feng Lu, Associate Professor in Economics, China Center for Economic Research (CCER), Peking University

12. During the last two decades, an economic and social transformation has unfolded in China, the extent and nature of which could hardly have been anticipated. The transition process is in essence the combination of unprecedented market oriented reforms and industrialization. Growth and structural changes witnessed in the agricultural or rural sector have played a primary role in supporting the dynamic process of transition. Enormous increases in food and agricultural production, rapid income growth for the rural population, structural changes in the agricultural sector as well as the rural economy have made great contributions to the overall economic transformation of China over the last decades.

13. The paper reviews the path and experiences of China's agricultural growth since the 1980s and especially in recent years. It also presents an assessment of the impact of the Asian crisis on Chinese agriculture and includes a review of China's macroeconomic situation in recent years, an overview of growth in China's agricultural sector and rural economy and an analysis of the driving forces behind the growth process. Succeeding sections discuss major policy issues in recent years relating to agricultural market integration, foreign investment in the agricultural sector and grain price and marketing policy as well as recent developments in China-US WTO negotiations and their impact on agriculture.

14. **India:** ***Agricultural Policy Reforms in India: Scope and Limits*** by Dr. Vijay S. Vyas, Chairman, Policy Research and Action Group (PRAG), India

15. Several developing countries in Asia are going through a series of economic reforms known by their generic name, the Structural Adjustment Programme (SAP). The paths taken by these countries vary but basic elements are common. The more important aspects include stabilization of the economy by reducing budgetary deficit as well as gap in balance of payment. These reforms also aim at a change in structure of the economy by emphasizing the role of the market as the major instrument for the allocation of resources and transfer of incomes. Another principle followed is the integration of the country's economy with the global economy. Following these objectives a number of policy measures are taken in areas such as pricing, trade, finance and taxation. The paper is an attempt to examine a few important tenets of the reforms as they impact agriculture, keeping in view the structural and institutional setting of India. It is recognized at the outset that exogenous factors and non-price, endogenous factors are at times more important than the policy interventions.

16. India is a large and poor country with a population of nearly 900 million and a per capita income (GDP) of less than US$500. Agriculture accounts for over 60 percent of employment and contributes nearly a third of national output. Food expenditures claim around half of the income of the households and income elasticity of food is high. On the production side, an important factor to contend with is the closure of the land frontiers. This suggests that agricultural output can be expanded only by improving the productivity of the factors of production, principally land. Employment growth in non-farm sector is sluggish. Above all, nearly 40 percent of population lives below the poverty line. Economic reforms in agriculture have to be viewed against this backdrop.

17. The impact of economic reforms on agriculture in a country like India can be discussed at two levels. First, one may try to understand the impact of the macro policy reforms, especially attempts to remove industry protection and the bias against agriculture, curtail budgetary deficits and realign the value of domestic currency. Second, one may discuss sectoral policies in agriculture generally pursued under SAP. These may include fiscal policies, agricultural price and subsidy policies, trade policies, credit policies and institutional reforms. The paper focuses mainly on the second set of issues, commenting only on the policies pertaining to output prices, input subsidies and trade policy. It comments, however, on the major institutional changes in land relations and delivery systems and discusses the implications of the declining share of public investment in agriculture. The paper concludes by highlighting the critical role of the government in fulfilling the objective of equitable and sustainable agricultural growth.

18. The paper traces the genesis and salient features of the new economic policies in India, provides reasons for a cautionary approach to reform in agricultural sector as well as discusses the experience with policies on agricultural prices and input subsidies and the needed reforms. It also deals with various aspects of globalization and external trade in agriculture and outlines the role of the state in a market-oriented growth strategy and comments on the institutional reforms and public investment in agriculture.

19. **Indonesia:** ***Indonesian Crisis, Agricultural Performances and Reform Measures*** by Dr. Delima H. Azahari Darmawan, Deputy Assistant Minister for Agriculture, Office of the Coordinating Minister for Economy, Finance and Industry

20. The events of 1997-1998 have imposed an unprecedented series of challenges to the Indonesian Government and its people: the worst drought in over 50 years, severe forest fires and a financial crisis that eroded confidence and sent national output to a plunge. Output was forecast to decline by approximately 15 percent in 1998. It was feared that the rate of inflation, which was always kept below 10 percent, would approach 80 percent that year. Purchasing power has dropped while prices of staple commodities have

rocketed. This has created problems in the industrial sector as the market for its products has shrunk. Many companies have gone bankrupt resulting in widespread layoffs. Open unemployment was estimated to reach as much as 20 million persons. The exchange rate devalued by close to 400 percent by July 1998 but started to recover by October that year when the value of the rupiah strengthened to RP7.000 to a dollar although still 60 percent lower than its value before crisis (RP2.400 to a dollar).

21. The combination of the economic crisis, political weakness and drought in crop year 1997-98 has brought into question the ability of Indonesia to adequately feed its population. Food prices have risen dramatically and adequate quantities of food are out of reach for the poorest quarter of the population. While there are selected in which food supplies are inadequate, the main problem is inadequate purchasing power. The economic crisis has devastated the incomes of many Indonesians. It is estimated that as many as 70 million people have an income below the poverty line. A significant share of the poverty is found in per-urban areas where poor laborers have been laid off from their jobs in the construction, manufacturing and service sectors.

22. The events of 1997 and 1998 have propelled agriculture into the spotlight. Historically, agriculture has been the main engine of rural economic growth. In the 1980s, agricultural growth averaged 3.8 percent per annum or approximately 2 percent higher than the rate of rural population growth. Between 1990 and 1995, the rate of agricultural growth slowed to 2.9 percent. During the period 1996 to 1998, agricultural output declined. Indonesia's agriculture is still dominated by food crops as indicated by its 52.8 percent share in 1997 agricultural GDP.

23. Recent economic reforms undertaken in Indonesia have focused more on structural adjustments. Because Indonesia has recognized the importance of economic stabilization, components of the stabilization program had already been undertaken in the distant past. There are at least three important reasons for this. First, inflation distorts the price incentives that are at the core of structural adjustment. Second, crises that abounded in an unstable economy drew the attention of policy makers and economic managers away from the arduous tasks of steering reforms through the political and economic system. Third, many of the features of a stabilization program are also essential for structural adjustment.

24. In July of 1998, the Indonesian Government introduced a targeted food subsidy programme called the special operation's food relief effort. Under this programme, eligible households are allowed to purchase 10 kilograms of rice per month at a price of RP1,000 per kilogram, a price that is approximately 25 percent of the prevailing market price. Poverty estimates provided by the Family Planning Agency are used to identify the numbers of beneficiaries. Local governments use these poverty estimates as starting points and identify needy beneficiaries based on their local understanding of food insecurity. As of September 15 1999, more than 3 million households (representing approximately 15 million people) participated in this food relief program.

25. Restoring growth is now an urgent priority. Efforts to restart production cannot succeed if Indonesia does not restore confidence in its financial system. One lesson that Indonesia has learned from the economic crisis is that a weak financial system greatly increases its vulnerability to economic shocks. Therefore, Indonesia is giving the highest priority to the task of rebuilding its financial system. Given current state of the economy, Indonesia has to rely on exports to restore growth. A number of factors, however, impede a return of rapid export growth.

26. Equally important is Indonesia's commitment to a series of broadly based structural reforms. These reforms are aimed at reducing the degree of government intervention in the

economy, especially in areas where market forces provide greater efficiency. Indonesia, for instance, is in the process of privatizing public enterprises. The reforms also address the issues of corruption and seek to improve governance in both the private and public sectors. The country is introducing laws to make its central banks independent and to ensure fair competition. Although the benefits of these reforms will be felt in the long term, once in place, the structural reforms serve to ensure that growth is sustained and that risks of disruptive changes in investor confidence are reduced. Finally, the political situation is stabilizing with a clear timetable in place for the transition to a democratically elected parliament and the election of the President.

27. Policy reforms in agriculture will help enhance food security and restore agricultural growth and development. However, these reforms must be complemented by a stable macroeconomic environment and by improvements in other sectors. Over time, continued investment in economic infrastructure, human resources and core public sector institutions will be required to foster rural development, increase farm incomes and maintain the agricultural growth momentum.

28. **Republic of Korea:** ***Economic Crisis and its Impact on the Agricultural Sector*** by Dr. Kyeong-Duk Kim, Research Fellow, Korea Rural Economic Institute (KREI)

29. Since the late 1980s, the Korean Government has increased investments in the agricultural sector in order to improve its productivity and efficiency. It has emphasized large-scale farming and established and implemented a programme for restructuring the agriculture and rural sector especially after 1992, which deserves to be recorded as a golden era for agriculture of the country,

30. In 1992, the government set up funds worth 42 trillion won to pursue the above programme within the 7 years (1992-98). In 1995, it also established special funds (15 trillion won) for further improvement of the welfare of the rural people through investments in social infrastructures in rural areas within 10 years (1995-2004). These development programmes have not only improved the productivity of the agriculture and rural sector but also the wellbeing of Koreans.

31. In late 1997, however, the country suffered from the financial crisis, which had spread from Southeast Asian countries. The Korean Government had to seek emergency loans from the International Monetary Fund (IMF). Since the introduction of the IMF bailout programme, there have been a lot of difficulties in the economy such as bankruptcies in private firms and dramatic increases in unemployment that induced the unemployed in urban centres to move to rural areas and impelled them to take jobs in the agricultural sector.

32. In the paper, the recent trends of government expenditure on the agricultural sector and its performance and the impact of the economic crisis on the agriculture sector are analysed. The paper also discusses the direction of growth, budget trends of the central government, the structure of loans and subsidies in the agricultural sector and the performance of the structural adjustment policy in the agricultural sector under the IMF bailout programme. A brief summary of the impact of the economic crisis on the agriculture sector is likewise given.

33. **Malaysia:** ***Sustainable Agricultural Development and Poverty Alleviation in Malaysia: Retrospect and Prospect*** by Dr. Abdul Aziz Abdul Rahman, Professor and Director, Center for Policy Studies (CPS), Universiti Putra Malaysia

34. Poverty eradication and restructuring of society is an important agenda in Malaysia's development plans. The New Economic Policy (NEP) which was introduced in the aftermath of racial disturbances aimed to eradicate poverty irrespective of race as a means to attain national unity and racial harmony. The objective of the First Outline Perspective Plan (OPP1) 1971-90 was to reduce the overall incidence of poverty from 49.3 percent to 16.7 percent. The incidence of rural poverty, meanwhile, was targeted to fall from 58.7 per cent to 23.0 per cent during the period.

35. The National Development Policy (NDP) introduced in 1991 continued to build upon the achievements during the OPP1 to accelerate the poverty alleviation process and hasten the restructuring of society. The Second Outline Perspective Plan (OPP2) covering the period 1991-2000 has also been formulated to provide strategic directions in the area of poverty alleviation. Under the OPP2, the overall incidence of poverty has to be lowered from the 17.1 percent actually achieved in 1990 to 7.2 percent in 2000. In terms of rural poverty, this requires a reduction from 21.8 percent in 1990 to 11.2 percent. This implies that the total number of poor rural households must be pruned from 530,300 in 1990 to 293,600 by 2000.

36. Given the fact that a large proportion of the rural population is depends on agriculture, the thrust of rural poverty alleviation during the tenure of the NEP and the NDP has always been agricultural development. Sustained growth of agriculture is aimed not only at ensuring continued contribution to the national product and industrialization, but also at generating returns to the producers. Agricultural progress will be attained through judicious allocation of operating and development budgets as well as concerted provision of agricultural support services.

37. Six "agricultural poverty groups" have been targeted for poverty alleviation programmes. These are rubber smallholders (with a poverty rate of 65 percent in 1971), paddy farmers (88 percent), plantation workers ((40 percent), fishermen (73 percent), coconut smallholders *(*53 percent) and other agriculturists (89 percent).

38. Agricultural development efforts for alleviating rural poverty have been based on two distinctive approaches. The first is "new" land development while the second involves *in-situ* development. The latter approach in turn comprises four programmes: rubber re-planting, land rehabilitation and consolidation, integrated agriculture development projects (IADPs) and agricultural support services. One prominent strategy employed to alleviate agricultural and rural poverty is commodity diversification. In addition, a number of indirect strategies have also been implemented to alleviate agricultural and rural poverty, mostly in the form of agricultural support services.

39. **Pakistan: *The Asian Crisis, Reform Measures and Agriculture: The Case of Pakistan*** by Dr. Sarfraz Khan Qureshi, Director, Pakistan Institute of Development Economics (PIDE)

40. The crisis in Asia provides a sobering perspective on the importance of good economic governance. Financial capital flows into a well managed had been acknowledged as facilitating factor in most countries. The East Asian crisis, however, has demonstrated that capital outflows can occur rapidly when confidence in economy's governance is shaken.

41. Pakistan was in a position to weather the Asian crisis. The direct impact of the crisis on the local economy was not expected not to be large, as the trade linkage of Pakistan with the East and Southeast Asia was not high. At the worst, a mild adverse impact on trade prospects as well as access to foreign funds to finance the current

account imbalance was predicted for the Pakistan economy. The indirect impact of the crisis on the Pakistan economy depended largely on the domestic policy environment.

41. The paper examines the nature of the changing domestic policy environment facing agricultural sector in Pakistan and what it has meant for agricultural performance. The process of economic liberalization began in the early 1980s with the gradual depreciation in the value of the rupee, relaxation of controls on investment and progressive linkage with the world economy via a liberalization of imports. These reforms were deepened and enlarged in scope beginning in 1988-89. However, these reforms were sidetracked in 1998 in the wake of external shocks. The policy response to the shocks also had a negative impact on agricultural incentives as the rupee became overvalued because of the imposition of a multiple exchange rate system. The growth in the agricultural sector of Pakistan over the past 40 years has been relatively high and has exceeded the equally rapid population growth rate of about 3 percent per year. Growth performance has been erratic, showing large fluctuations over different decades.

42. The overall agricultural sector has grown at a rate of 4.12 percent in the recent decade of reforms. However, growth has come mainly from the livestock sub-sector for which data are not reliable. The major crops have grown at an annual rate of just 1.74 percent. This stagnation is a worrisome phenomenon: Past growth has derived merely from increases in inputs and total factor productivity in the sector has been declining over time. The adjustment package for accelerated agricultural development pursued in Pakistan comprises both economy-wide policies as well as policies tailored specifically for the agricultural sector which, taken together, had reduced the bias against agriculture over time. The implicit taxation of agriculture has been drastically diminished. Prices of some of the agricultural crops that had been kept low by price policies have been allowed to approximate rates in the market. Yet, despite these improvements in agricultural incentives, there has been no commensurate increase in the growth rate of the crop sub-sector. The answer to the policy puzzle is advanced in terms of deterioration in the non-price regime facing agricultural sector during 1990s or, specifically, a falling trend in capital formation in agriculture.

43. Investment in agriculture as a percent of total capital formation in the economy has fallen during the 1990s compared to the 1980s, a reduction that is evident in private and public investment. Agricultural investment as a share of GDP has similarly dropped. As the share of agriculture in total economy falls with time, not much can be read into the declining share of agriculture in total investment. It is worth noting, however, that the share of agriculture in investment has fallen more rapidly than the share of agricultural GDP in total output for the economy. The declining trend in capital formation can traced to lower budgets for development due to fiscal constraints and to a decreasing share of the agriculture sector in total credit due mainly to the linkage of rural credit disbursement to a recovery of past dues of agricultural financial institutions. It seems that the non-price factors so important for growth in agriculture were not given the importance due such policy instruments in the adjustment programmes.

44. At least three policy areas require urgent attention to speed up agricultural growth. First, equitable and enhanced access to credit must be provided without endangering the financial health of the agricultural lending institutions. In restructuring the rural credit market, it is important to ensure the viability of credit institutions. The failings of rural credit institutions in Pakistan have largely been a consequence of subsidized credit and unpaid loan balances, the benefits of which have accrued mostly to prosperous and influential farmers. Cheap credit is at once a cause of non-viability of such institutions and inefficiency in resource allocation. A major casualty of a deteriorating portfolio and indiscriminate loan write-offs is the availability of future credit, the losers being the current as well as

prospective borrowers. Improved viability of credit institutions should be the first item on the policy agenda in the interest of growth, equity and efficiency. Second, the decline in capital formation in agricultural sector needs to be arrested. The improved viability of credit institutions will be helpful in providing greater credit that can increase private investment in agriculture. In addition, public sector development spending for agriculture must also be increased in a cost-effective manner also to boost private investment in agriculture. Lastly, poverty alleviation and environmental protection issues should be suitably highlighted in future policy debates.

45. The experience of Pakistan indicates that instituting direct poverty alleviation programmes and social safety nets for the vulnerable groups in the context of declining public expenditure is difficult if not impossible. The rollback of state spending during the adjustment period in Pakistan implies a current need for non-government initiatives in poverty alleviation and provision of social services. It is also important to emphasize that the government's role in the provision of social and physical infrastructure is crucial. The role of participatory community-based organizations in reducing poverty and improving natural resource management needs also to be emphasized. The policy response to the recent crisis consisted of an adoption of a multiple exchange rate system as well as direct controls on imports. This resembled the system adopted in 1950s, which had resulted in an overvaluation of the rupee and a transfer of resources away from agriculture. The policy choice made in the wake of the 1998 shock only worsened incentives for the export sector including agriculture. This and the declining level of capital formation in agriculture distorted the policy stance against agriculture.

46. **Philippines:** ***Constraints to Food Security: The Philippine Case*** by Dr. Cristina C. David, Research Fellow, Philippine Institute for Development Studies (PIDS)

47. Two years into the Asian financial crisis, fears that economic recession in the region will be prolonged have abated. A recent OECD report now projects a higher growth of the global economy in 1999 than was previously predicted, the US economy continues to surge, the threat of the Asian crisis spilling into Latin America did not materialize, Asian countries' economic growth recovered earlier than expected, and Japan has embarked on an ambitious fiscal stimulus package as reforms in the financial sector are being adopted.

48. Economic indicators for the first quarter of 1999 economic also point to a Philippine recovery. Better than average weather conditions usually expected after a severe drought caused by El Niño has led to the strong performance of the agriculture sector. This was especially the case for rice, corn and other annual crops which benefited from the unusually rainy dry season which raised both yields and cropping intensities. Remittances from abroad accelerated which may indicate greater confidence in the economy. The declining trend of gross value added in manufacturing has slowed to –1 percent from the previous quarter's -3.5 percent. Imports particularly of raw materials and capital equipment rose suggesting that producers were gearing up for domestic economic activities as the exchange rate stabilized at levels below ₱40 to US$ 1. Inflation rates also remained manageable while interest rates have declined.

49. The 1998 economic recession in the Philippines which reduced gross domestic product (GDP) by -0.5 percent (GNP increased by 0.13 percent) was not as severe as those experienced in South Korea (-5.5 percent), Malaysia (-6 percent), Thailand (-8 percent), Indonesia (-13.7 percent) and Hong Kong (-5 percent). The country actually suffered deeper economic recessions in 1984 (-7.4 percent), 1985 (-7.2 percent) and 1991 (-0.6 percent) due to unsustainable imbalances in macroeconomic fundamentals and to the political turmoil leading to the downfall of the Marcos regime in the early 1980's.

50. As in the other East Asian economies, structural weaknesses in the financial sector—including inadequate policies in handling large surges of mainly short-term capital flows—as well as subsequent "contagion" effects in the region have been important factors contributing to the recent Philippine economic recession. Were it not for the severe drought due to the El Niño, gross domestic product could have managed to grow, albeit at a much lower pace than in 1997. Gross value added in agriculture declined by 6.5 percent in 1998, the sharpest fall in the economic performance of the sector on record. Crop production as a whole dropped, especially those of the four leading crops -- rice (-24 percent), corn (-12 percent), coconut (-13 percent), and sugar (-14 percent).

51. Over the past two decades, Philippine economic growth has been erratic and lower than most developing countries in Asia. Indeed, a slowdown of the manufacturing sector was already evident in early 1997 before the Asian financial crisis actually began. The agricultural sector, which continues to account for more than 20 percent of gross domestic product and over 40 percent of employment, has not performed very well since the 1980s. The slower growth of Philippine agriculture compared to other Asian countries suggests that the country has been losing its competitive advantage in the sector. Indeed, the ratio of agricultural imports to agricultural exports have increased from 30 percent to 160 percent by 1996 (i.e. the sector has shifted from being a net earner to a net importer of foreign exchange). The measures of revealed comparative advantage in agriculture as a whole and for all major agricultural exports have also declined sharply.

52. In the late 1980s, serious attempts were made to reform the policy and institutional distortions introduced during the two decades of the Marcos regime. Removed were undesired policies in the form of export taxes, the copra export ban, import controls on fertilizers and government monopoly control over international trade in coconut oil, corn, soybeans, soybean meal as well as the marketing of sugar. All the agriculture-related agencies placed under the Office of the President, such as the National Food Authority (NFA), the National Sugar Trading Authority (NASUTRA) now the Sugar Regulatory Office (SRA) and the Philippine Coconut Authority (PCA), which were responsible for the most destructive policy distortions, were transferred to the Department of Agriculture to facilitate the necessary streamlining of the agricultural bureaucracy. To ensure a more equitable distribution of benefits from agriculture and natural resource development, the Comprehensive Agrarian Reform Program (CARP) was launched encompassing both private and designated public lands. To address the serious threat posed by forest and watershed denudation and dwindling fishery resources on the sustainability of agriculture and ecosystems in general, the government raised forest charges, limited logging and embarked on an aggressive expenditure program for the rehabilitation and improved management of forest and fishery resources.

53. Unfortunately, institutional reforms to raise efficiency of the agricultural bureaucracy proved difficult to fully implement, unintended negative effects resulted in some reform measures and new policy initiatives, and price distortions were exacerbated by efforts to circumvent the spirit of agricultural trade policy reforms under the GATT-UR Agreement. The Congressional Commission on Agricultural Modernization has recently passed or the Agricultural and Fisheries Modernization Act (AFMA) that spells out the necessary policy and institutional reforms and public expenditure program to achieve food security. At the beginning of the Estrada administration in 1998, the attainment of food security was declared as the central program of the new government.

54. Food security is often confused with rice and corn self-sufficiency, forgetting that the goal of food security is for the benefit of all Filipinos, particularly the poor. Also, the production of rice and corn is not the only—and often not even the dominant—source of current and potential income of farm households who grow these crops. It should also be

emphasized that food security as a goal is meaningful only at the household level. This goal aims to ensure that for all households, particularly the rural and urban poor households, food is available at prices that they can afford.

55. Rapid, sustainable, and equitable agricultural growth is a necessary condition for the attainment of food security because a large proportion of the poor are based in the rural sector. Increasing agricultural price protection will not lead to overall food security. High food prices hurt the food security of the large majority of the poor (including fisherfolk, non-rice and corn farmers, landless rural households and urban households who are net buyers of food) and lead to lower agricultural income for the sector as a whole. Instead, appropriate policies are required to address market failures pervasive in the agricultural sector, which arise from instability of domestic and world markets, the public good nature and strong economies of scale of certain inputs and technologies, imperfect information and externalities in agricultural production and consumption.

56. A year after the start of the Estrada Administration and no coherent agenda for action and reforms to address the accumulation of policy and institutional failures have been articulated. Public expenditure for agriculture is supposed to increase, but this will largely go to waste without reforms in trade and financial market policies, improvements in the quality of government programs, reallocation of expenditures across programs, major changes in the budgetary and program planning process, rationalization and streamlining of the bureaucracy, and so forth.

57. With few exceptions, there is little evidence that agricultural policies and institutions are moving in the right direction. To the contrary, a number of major policy actions are definitely in the wrong direction such as the transfer from the Department of Agriculture to the Office of the President of the NFA and NAFC. Attempts to do these also for other agencies and programs such as the NABCOR, SRA and the Competitive Enhancement Fund will only further centralize the distribution of corrupting rents and dispensation of political favours, perpetuate ineffective government programs and prevent the necessary rationalization and streamlining of the agricultural bureaucracy. Plans for the government to invest or provide loan or price guarantees in agricultural joint ventures or build-operate-transfer projects in what are properly private enterprise operations such as agricultural production or processing are very disturbing. This suggests that the current administration does not seem to understand the appropriate role of the public versus the private sector nor learned from the costly mistakes of providing loan guarantees in past industrial ventures.

58. It is therefore imperative that the constraints to attaining food security be properly analysed. The paper examines how trade and price policies, public expenditure programs and structure of property rights have hindered the achievement of a sustainable agricultural development and thus food security for all households.

59. **Indochina and Myanmar:** ***Asian Crisis, Reform Measures and Agriculture Performance: Indochina and Myanmar*** by Dr. Mya Than, Senior Research Fellow & Coordinator, ASEAN Transitional Economics Programme, Institute of Southeast Asian Studies (ISEAS)

60. Much ground has been covered on the causes, impacts, implications and the general lessons of the regional financial crises articulated by academics, politicians, business analysts and journalists. The current regional crisis started with a currency crisis, which later turned into a financial turmoil and now has become a regional dilemma. As a result, some new trends are emerging in political, economic and social spheres. Politically, there is now a rise in nationalism and patriotism, implying growing support protectionism. Campaigns initiated by the governments and some non-government organizations (NGOs) to buy domestic produce can be seen in Thailand, Malaysia and some other nations in the

region due to current account deficits and shortages in foreign exchange. This trend will continue until the economies recover but is unlikely to last in the long term. In short, countries in the region are generally becoming more inward looking.

61. Along with the crises, there has been social and political unrest resulting in a change in political leadership in some states in the region. The unrest is likely to go on as long as present political systems are ineffective in curbing corruption, collusion and nepotism and in enforcing transparency. Furthermore, regional cooperation such as that fostered by the ASEAN has been tested by the crises. It is expected that questions regarding the success of such cooperation will be raised in future regional forums. In short, the financial crisis is a security issue that affects individual well being, national prosperity, regime and system stability and indirectly regional and international relations.

64. Meanwhile, in the economic sphere, it is sad to witness how in less than one year, East Asia has been transformed from the world's fastest growing region into its slowest growing area. In general, economic growth in the region slowed down as a result of stagnation in foreign direct investment and reduction in regional and domestic demand for local products. Even economies such as Singapore and Hong Kong are losing global competitiveness as productivity has not been improving. Recently, however, there has been a rapid improvement in trade positions in East Asia. Foreign exchange markets have stabilized and some currencies have strengthened since the middle of October 1998. Furthermore, according to IMF, the aggregate current account balance of Indonesia, Korea, Malaysia, the Philippines and Thailand is forecast to be US$ 20 billion in surplus for 1998 as a whole compared with deficits of US$27 billion in 1997 and US$54 billion in 1996.

65. Because of the financial turmoil, Asian economies are shrinking. The output of Japan, for example, shrunk by 2.8 percent in 1998; Hong Kong, by 5.1 percent; Malaysia, by 6.7 percent; Korea, by 5.6 percent; Thailand, by 7.8 percent; and Indonesia, by 13.7 percent. Singapore also fell into a recession with a GDP growth rate of only 1.5 percent during that period. Asian economies are bottoming out will take at least 6 months to a year to recover. Even after recovery, they may not be able to catch up with their pre-crises high growth. In short, the region is still not out of the woods.

66. Impacts of the regional crisis on the social sector are more visible than any other sectors. This can be seen in terms of unemployment or retrenchment rates, deterioration in the quality of life (i.e. increase in the number of people under the poverty line), social unrest, ethnic tensions, and a contagious pessimism and lack of confidence in the ability of the state and the capitalist system to deliver the social goods.

66. One unfortunate consequence of the financial turmoil is the management of environmental hazards (e.g. the haze problem in Indonesia). As governments tighten their belts by cutting budgets, environmental protection may be given low priority and this may worsen the already deteriorating environment in the region. To make matters worse, decreases in household income will force the poor to exploit natural resources more intensively.

67. One can also argue that some established social relations are starting to deteriorate in the region. The first is the relationship between employer and employees. In some parts of East Asia, the social contract of lifetime job guarantees from employers and extreme loyalty of employees for their employer is no longer practised due to the crisis such that retrenchments and job-hopping can be witnessed in these states. The second relationship is the unwritten social contract between the ruling regime and the citizens. In some countries, regime legitimacy had been based on the ability to improve people's living

standards, but political authority has been challenged severely because of the economic crisis.

68. Are these social trends likely to continue in the future? Some may and some may not. Reduction in workers' income and wages, for example, will continue for some time. The impact of the crises on social policies in terms of constraints to the capacity of affected nations to implement much needed social reforms, however, will continue to be felt.

69. Unlike their Asian neighbours, transitional economies of Southeast Asia such as Cambodia, Laos, Myanmar and Viet Nam are experiencing only limited effects from the current regional crisis. This is because their currencies are not convertible, they do not have stock markets, the size of capital inflows is small compared to other countries and capital outflow is almost non-existent. Moreover, these countries remain relatively distant from global financial markets—although not from the real economies to which these economies are attached—and host relatively simple domestic financial systems. These provide the countries in Indochina with some degree of cushioning and lead-time in which to prepare for inevitable ripple affects across economies. However, impacts on economic and social sectors to some extent exist although political impacts on these economies are negligible.

70. The objective of the paper is to explore and analyse the impacts of the regional financial crisis on each of the transition countries in Southeast Asia, their agricultural sectors in particular, in terms of development indicators and to draw lessons from their experiences. Overall macroeconomic and agricultural sector performances will be briefly highlighted while general economic reforms and policies specific to agriculture will be explored and analysed. Impacts of the Asian crisis and responses of the agricultural sector are also tackled and are capped by a discussion of the prospects and lessons for agricultural and rural development and the implications on development policy.

Annex I

List of Participants

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H.E. Mr. Pongpol Adireksarn
Minister

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H.E. Dr. Ngo The Dan
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Annex II

Welcome Speech
by
Dr. Prem Nath, ADG/RR

H.E Mr. Pongpol Adireksarn, Minister for Agriculture and Cooperatives, Royal Thai Government;
H.E. Prof. Soleh Solahuddin, Minister for Agriculture, Government of Indonesia;
H.E. Datuk Amar Dr. Sulaiman Haji Daud, Minister for Agriculture, Government of Malaysia;
H.E. Hon. Edgardo Angara, Secretary of Agriculture, Government of Philippines;
H.E. Maj. Gen.Nyunt Tin, Minister for Agriculture, Government of Myanmar;
H.E. Mr. Mian Abdul Sattar Laleka, Minister for Food, Agriculture and Livestock, Government of Pakistan;
H.E. Mr. Liu Jian, Vice Minister for Agriculture, Government of China;
H.E. Dr. Ngo The Dan, Vice Minister for Agriculture and Rural Development, Viet Nam
H.E.Mr. D.F. Panganiban, Under Secretary of Agriculture, Government of Philippines;
Dr. R.S. Paroda, Director General, Indian Council of Agricultural Research, Government of India;
Mr. Phouvieng Laddavong, Director General, Office of the Minister for Agriculture and Forestry, Government of Laos

Distinguished delegates, colleagues from UN agencies and diplomats.

Ladies and Gentlemen,

A pleasant good morning to all of you.

First of all, allow me to convey the warm greetings and best wishes of FAO Director-General, Dr. Jacques Diouf. He and the rest of us at FAO are greatly honoured and privileged to have your Excellencies, ladies and gentlemen on this occasion at our regional office. On his behalf, I would like to welcome you to this Ministerial Roundtable on Beyond the Asian Crisis: Sustainable Agricultural Development and Poverty Alleviation in the Next Millennium.

Excellencies and senior delegates of the Government, your presence here in spite of pressing engagements at home is a testimony to your unflinching commitment to the cause of agriculture and rural development. It is no wonder that one sees in Asia some of the most dominating milestones in the agriculture sector.

Thus, I take it as my proud privilege to thank you sincerely and profoundly for your participation. Rest assured, Excellencies, the sharp perspectives you will share with us today will guide us in strengthening our technical services and programmes, in better serving our member countries in Asia towards sustainable agricultural development and poverty alleviation, and in assisting them in carrying out the plan of action agreed on at the World Food Summit in Rome during 1996.

I also wish to acknowledge with thanks the attendance at this Roundtable of policy professionals from the ASEAN (Association of Southeast Asian Nations) and ten leading national policy institutes and centres in Asia, which have closely collaborated for many years in macro-economic and sector policy analysis and advice, capacity building and information exchange. These institutes and centres represent valuable resources, as they provide their respective countries the pool of highly trained and experienced capabilities and knowledge so necessary for looking at the intricate and complex issues affecting the agriculture sector. I would like to congratulate you for the excellent work you have done, your enthusiasm in doing so and your professional dedication to agricultural and rural development and poverty alleviation.

I very much welcome the attendance of Japan as an observer represented by Mr. Masao Matsumoto, First Secretary and Deputy Permanent Representative of Japan to ESCAP.

This Ministerial Roundtable has been conceived as a forum for mutual exchange of experiences, views and perspectives. The objective is to synthesize these insights in order to identify the "best practices", which can inform us as we seek to meet in our respective roles the major concerns and challenges of sustainable agricultural development and poverty alleviation in the next Millennium.

The idea of a Roundtable was initiated at the heels of the Asian crisis. I am glad it is taking place at a time when the crisis can be viewed as a hump or a trough in the path of this region's development. It is my fervent hope that the Roundtable will lead us to the practical lessons from the history and record of economic progress in this region—in order to achieve more in the next millennium.

As this century comes to a close and a new millennium begins, it is very important to take stock of the state of agricultural and rural development in the region, assess the implications of the Asian crisis on agriculture and rural sector, and confront head-on the challenges facing rural Asia and agriculture in the 21st century.

Not too long ago, it looked as though the Asian economic crisis would wipe out the gains from recent years of economic growth, poverty alleviation and human development in many developing Asian countries. Evidently, it significantly affected the capacity of many Asian countries —once considered the global community's bastion of economic growth—to keep a sizeable proportion of their populations from falling back to poverty and severe food deprivation. The worst is over, but a similar crisis cannot be discounted to recur in the future just as suddenly as the Asian crisis did. What could have been done, but was not done, to prevent the crisis? The same answers hold the key to avoiding the recurrence of such crisis.

As you are well aware, in pursuance of the goal of "food security for all," our Director-General has launched the Special Programme for Food Security, which is FAO's most important activity. You are of course well versed with the Special Programme, either from implementing it, or from generously providing expertise and assistance to other developing countries under the Special Programme's South-South Cooperation. This special programme endeavours to demonstrate how low cost irrigation management, technology introduction, diversification and removal of policy and institutional barriers can rapidly increase food production. In this regard, the valuable insights we would gain from the Roundtable will be useful in identifying and dealing with policy and institutional constraints to sustainable food security and poverty alleviation. Your presence here, Excellencies, as vanguards of agricultural and rural development, will enrich our analytical and technical assistance work in these fields.

I am convinced that the Ministerial Roundtable shall facilitate a greater understanding of the increasing interdependence of economies in the region and shall be conducive to evolving common approaches to deal with, mitigate and manage, if not altogether prevent, similar economic crises in future.

Finally, may I take this opportunity to express heartfelt appreciation to the Royal Thai Government, through His Excellency Pongpol Adireksarn, Minister for Agriculture and Cooperatives, for kind collaboration and support. The facilities and hospitality extended to our distinguished participants and guests are greatly appreciated.

Thank you.

May I now call on His Excellency Pongpol Adireksarn, Minister for Agriculture and Cooperatives, Royal Thai Government for his Opening Remarks.

Annex III

Opening Remarks
by
H.E. Pongpol Adireksarn
Thai Minister for Agriculture and Cooperatives

Your Excellencies,
Dr. Prem Nath, Assistant Director General and Regional Representative of FAO,
Distinguished Delegates,
Ladies and Gentlemen,

It is indeed a great pleasure for me to have the privilege of marking the opening ceremony on the occasion of the Ministerial Roundtable on beyond the Asian Crisis: Sustainable Agricultural Development and Poverty Alleviation in the Next Millennium.

May I take this opportunity to express my gratitude to FAO as a UN agency for the assistance provided on food and agriculture to the world since the end of the Second World War. I am also thankful to FAO for the technical assistance provided to the Ministry of Agriculture and Cooperatives, in particular, the Telefood and the technical cooperation programs. I hope that FAO will continue to strengthen the cooperation programs in Thailand and in Asia and the Pacific.

In November 1996 the Rome Declaration and the Food Security Program was endorsed by FAO member countries to provide food for 800 million people who were still undernourished. The world population will be 6 billion by the turn of the next millennium. The financial crisis in Asia which occurred in 1997 has had global impacts. The population under the poverty line and unemployment have been drastically increasing. It is of great expectation that agriculture is the main instrument in solving those problems since food is the basic of life, besides air and water. Moreover, I strongly believe that sustainable agriculture will make us achieve poverty alleviation in the next millennium by utilizing the limited natural resources and causing no negative impacts on the environment.

Asia is the most amazing continent being the largest in area, the biggest in population, the hottest, the coldest and the richest in natural resources. Moreover, Asia is the world's largest food producer. I believe that our close cooperation will enhance the development of both Asian and global sustainable agriculture and alleviate the poverty in the next millennium.

Your Excellencies,
Dr. Prem Nath,
Distinguished Delegates,
Ladies and Gentlemen,

I would like to wish you a pleasant stay in Thailand, as well as a fruitful meeting and successful deliberations in sustainable agricultural development and poverty alleviation. At this auspicious moment, I declare the Ministerial Roundtable on beyond the Asian Crisis: Sustainable Agricultural Development and Poverty Alleviation in the next Millennium open.

Thank you very much.

Key Note Presentation
Prospects and Challenges for Asian Agriculture in the 21st Millennium
by
Prem Nath, ADG/RR

Introduction

Asia, home to over 3.2 billion people, has a rich and diverse history, culture and national heritage. Countries in the region differ not only in aspects such as local tradition, way of government, and religion, but also in population size, natural endowment, economic structure, stage of development, and hence experience and record of economic performance. The region's progress has been generally impressive with sustained growth through the 1970s, 1980s and early 1990s. Gross domestic product (GDP) grew at over 6 percent annually in parts of Southeast Asia although social and political turbulence in some areas hampered the general improvement in economic well being. For Asia as a whole, real GDP increased at rates well above population growth, which had slowed down, completing the favourable pattern.

Recent Decades of Agriculture Performance: An Overview

A*gricultural production*. Periods of tight food supply in the 1960s and early 1970s focused attention on the agriculture sector. Widespread concern over food adequacy made agriculture a priority in resource allocation. Along with historically high world prices, agricultural programmes stimulated food output. Gross agricultural production (including forestry and fisheries) grew at 3-5 percent per year from 1971 to 1980. This notable progress underpinned the robust expansion of economies in the region.

A collapse in world commodity prices in the early 1980s and the subsequent adoption of stabilization measures in many countries were coupled by cutbacks in public sector investment in irrigation, rural infrastructure and agricultural support services. While these factors moderated growth in the following decade, the upward trend in aggregate agricultural production remained. The overall production index for Southeast Asia, for example, rose to 168 in 1994 relative to the base in 1980. Output expansion had been quite pronounced in relatively open economies (e.g. Malaysia, Indonesia) as well as in countries where reforms were carried out in transition from centrally planned to more market-based economies (China, Viet Nam, and Laos). Performance, however, was often sluggish in places with adjustment difficulties, structural bottlenecks or poor weather.

Components of Gross Agricultural Production. Patterns in food, livestock, fisheries and forestry production mirrored the progress in gross agricultural output. Food production recorded an unmistakably positive trend, exceeding the rate of expansion in gross agricultural output as well as population growth. A rapid rise in disposable incomes, together with an attendant change in diet, stimulated the demand for meat and meat products which in turn led to greater livestock production.

Output of the fisheries sector similarly grew in 1983 to 1992 at rates ranging from 1.5 to over 5 percent in various countries. However, after the mid-1980s, this growth began to taper off. In forestry, as in fisheries, the increase in round-wood production has decelerated in recent years.

Diversification. Crop diversification received emphasis as a means to optimize use of available land, labour, water and inputs, and to stabilize farm incomes. Diversification and a shift from subsistence to commercial agriculture brought stability to agricultural production, boosting food security as well as export earnings from the sector.

Based on area statistics at the national level, there has been increased diversification in varying degrees over time.[2] Greater diversity arose from heightened efforts to widen the agricultural export base by promoting the cultivation of fruit trees, vegetables and other high value crops and advocating the use of inter-cropping techniques to improve resource productivity.

Sources of Growth. In many Asian countries, total cropped area declined slightly or at best stagnated throughout the 1980s and the early 1990s. There were large productivity gains in rice, wheat, maize and pulses across the region. Rice yield, however, tended to stagnate in rapidly industrializing economies (e.g. Malaysia and Thailand) presumably since structural changes made labour and capital relatively costly and scarce, reducing the competitiveness and profitability of rice production. Preference given to specific rice varieties intended for niche export markets was also a factor behind stabilized yields. With respect to maize and pulses, positive yield changes were associated with the expansion in the livestock sub-sector as pointed out earlier.

Role of Technology. From the patterns in production, area, and crop yield, it is logical to infer that technology has been the strategic cornerstone of agricultural progress, particularly for countries already at cultivated land frontiers. Aside from genetic and crop breeding advances, soil fertility improvement from biological nitrogen fixation and micro-nutrient management, integrated pest management, irrigation and dryland water management contributed to increased productivity. Technology was efficiently harnessed to intensify production in rice, maize, pulses, sugarcane, oil crops, rubber and horticultural crops. New technologies in post-harvest handling and processing of palm oil, cocoa beans and natural rubber were also developed and widely adopted.

Biotechnology has yet to be fully harnessed in Asia although some applications can already be seen in the alteration of plants, animals and microbes. For example, biotechnology of anther culture has been used to produce haploids for conventional as well as hybrid rice breeding programmes. *In vitro* culture for micro-propagation of elite plant materials and freeing infected materials of viruses and viroids were particularly successful in promoting cut flower, vegetable and fruit production. Private companies have since employed the science of biotechnology, particularly *in vitro* culture, for large-scale production of orchids, flowering plants and bananas.

Similar developments have also taken place in the livestock and fisheries (and to some extent forestry) sectors. Cross breeding of adaptable indigenous cattle with productive exotic breeds increased animal production, particularly those used in the dairy industry. Selection and development of new forage crop varieties and cropping systems constituted important programmes in several countries. Low-cost treatment of straw and other agricultural by-products were increasingly practised even by small farmers.

Vaccines and diagnostics designed through the application of biotechnology were widely used in the region. Some countries, for instance, honed methods for embryo transfer and the biotechnological manipulation of rumen fauna, feeds, growth hormones, and quality of meat and dairy products. With new and better vaccines and vaccine banks, animal health care, even in rural areas, were continuously strengthened.

In fisheries, techniques were likewise developed for fish and brackish water prawn culture, backyard hatchery, breeding of freshwater fish under captivity, cage cultures and integrated crop-livestock-fish systems. The new techniques were widely adopted by both the small fisherfolk and the farming community in general.

Agricultural Development and Poverty Alleviation

[2] Based on ***index of diversity*** so constructed that higher values reflect greater diversity where specific crops dominate the sector by a lesser degree. In other words, the index increases as more crops enter the cropping mix and/or as crop hectarage shares become more equitably distributed. Lower values, in contrast, imply that the total planted area is dedicated to fewer crops.

Domestic Cereal Production. As aggregate production increased, food volumes improved considerably in Asia. The level of average dietary supplies (DES) per capita has exhibited a positive trend since the 1970s. The variability in cereal production measured in terms of standard deviations from trend values, however, showed no significant improvement over time. Deviations in year-to-year output generally stayed below 10 percent of trend values. Estimates suggest that countries at the margin of self-sufficiency can still expect shortfalls in domestic output (vis-à-vis consumption requirements) from time to time. In order to secure domestic food supplies, they would thus have to maintain an adequate amount of national stocks or to develop the capacity to plan and pay for imports.

Food and Agriculture Trade. The high rate of growth in food and agricultural trade has continued through the 1990s albeit at a more moderate pace than in the late 1980s. The trade sector has been typically weak in sluggish economies, in cases of inadequately diversified production base, or where there were infrastructure problems.

Export Earnings. In the mid-1980s, agriculture contributed over 25 percent of total export earnings in many countries. Agricultural exports became increasingly diversified, a result partly of the diminishing importance of raw materials vis-à-vis processed agricultural products in total exports (i.e. vertical diversification), and partly of the increasing range of products exported (i.e. horizontal diversification). Shifts to high-value agricultural exports (as well as horizontal diversification in agricultural exports) contributed to greater stability in export earnings.

By the early 1990s, agriculture's share of exports declined in most countries to about 10-15 percent of the total largely because of the increasing importance of processed agro-products and manufactures. In this regard, it must be emphasized that the net foreign exchange contribution of the sector, in value-added terms, may in reality be higher than what its reduced share implies since industrial exports generally contain substantial imported components.

Food Importation. The amount of annual food imports per capita went up in most countries in the 1990s, compared to the early 1970s and 1980s. The value of food imports per person varied across countries in direct proportion to the average GDP per capita. Low levels in the least developed countries (LDCs) trace to their weak capacity to pay for imports. Effectively, this meant that such countries had limited access to the world market and were less equipped to stabilize local food supplies. In advanced economies, total merchandise exports grew faster than either food or total merchandise imports. Food imports per capita declined relatively, easing the foreign exchange burden, while capacity to pay improved.

Real Price of Food. In the past, we have seen the policy responses to pressing food problems given a rapidly rising population and to the need for resources to finance the industrial sector. Agriculture sector programmes were put in place: namely, public investments in irrigation, fertilizer-seed technology and support services, along with subsidies, price policies, and other market interventions. These stimulated agricultural production, provided support to vigorous industrial growth, and brought about a reasonable degree of food security. Agriculture performance contributed to economic prosperity by moderating food price increases and inflation-induced wage demands. The true benefit from agricultural development in the past decades may hence be summarised by the secular decline in the real price of food.

Poverty Incidence. Agriculture grew despite the overall disincentives and indirect taxation arising particularly from misaligned foreign exchange, trade and other domestic macro policies. The sector showed remarkable resiliency in the face of a rapidly changing environment in the 1980s and early 1990s with the collapse of prices and crisis in world agriculture, followed by major macroeconomic changes, institutional and structural reforms and industrial restructuring in many countries.

The reduction of distortions in inter-sectoral prices and allocation of resources, which had been biased against agriculture, provided an impetus to agricultural expansion. Economic growth achieved with substantial help from agriculture facilitated the macroeconomic and sectoral reforms

aimed at structural changes that enhanced competitiveness and facilitated sustainable growth, including that of agriculture.

The essential question then is how did growth impact on poverty? Did the recent episodes of growth in Asian countries benefit the poor? Contrary to popular claims, recent episodes of growth *did not bypass the poor*. Table 1 below tells the whole story clearly. Poverty, it can be seen, responded quite strongly to overall (per capita) economic growth.

Table 1. Response of poverty indicators to per capita GNP

		Percentage Point Reduction in Poverty	Average growth of GNP per capita
East Asia & the Pacific (excluding China)	1987-93	1.6	6.9
China	1987-94	0.7	7.8

Source*: FAO, Food Security and Poverty Alleviation in Asia: Lessons and Challenges*, 1999

The second table summarizes the global experience of 88 countries with episodes of growth and seven countries in a period of decline. Economic growth at the very least had been neutral to the rich and the poor. During the period of expansion, a slightly greater number of countries recorded greater equality (45 cases) compared with those that showed worsened inequality (43 cases). An overwhelming majority (77 cases) showed that income of the poor improved during the period of growth. But when the economy stagnated or contracted, the poor bore the greater burden with proportionate declines in their income being greater than those of the rich. Note in Table 2 that in a period of economic contraction, 5 out of 7 cases showed a deterioration of both income inequality and income of the poor.

Table 2. Changes in the degree of income inequality and income of the poor under changing economic conditions.

	Period of Growth (88 countries)		Period of Decline (7 countries)	
Indicator	Improved	Worsened	Improved	Worsened
Inequality	45	43	2	5
Income of Poor	77	11	2	5

Source*: Deininger & Squire (1997).*

The Asian Crisis and Beyond

As we gather here, the Asian crisis almost behind us, we can restate with confidence that it will be remembered in economic history as just a hump or a blip in the development path of countries in the region. We dare assert with self-assurance that it is now timely and fitting to take a prospective or forward-looking stance and to focus our minds beyond the Asian crisis.

Lessons and reflections should be drawn from this experience as well as from other internal and external shocks in recent years. These will guide us and help us chart a suitable 21st Century strategy for sustained, "good-quality" growth, and to identify the fundamental elements of a modern, responsive, and sustainable agricultural development and poverty alleviation.

The Asian crisis shook the consciousness, if not the confidence, of many policymakers. Macroeconomic fundamentals betrayed no early symptoms of its coming. Its depth surprised most analysts. Indeed, at some stage, it looked as though the Asian crisis would wipe out the success built up through decades of remarkable economic growth, poverty alleviation and human development.

Origins. The origins of the crisis have now become quite clear. The most salient factor—a weak financial and regulatory system—manifested itself in the private sector's high debt-equity ratios and in an excessive reliance on short-term loans to finance investment, but other factors hastened the crisis as well. An exodus of investors, the recent opening up (though only partially for most countries) of the current account of the balance-of-payments (BOP), and technological advances in global finance

influenced the depth of economic contraction and the speed at which the instability spread. Structural difficulties allowed the problem to fester. Lack of innovation and indigenous capacity to be flexible and adjust to the changing conditions—or conversely, undue external dependence on technology- and management-based ability—contributed to its lingering impact.

Some countries faced other contemporaneous problems: political uncertainty and natural calamities (e.g. El Niño-induced drought and forest fires). It could be argued, however, that these factors only served to hasten the crisis, which was bound to come eventually. Note, for example, that the El Niño is a recurring phenomenon. Other countries similarly exposed to the disturbance did not see their food security as badly threatened. And even in those nations affected by the calamity, drought had been severe only in a few pockets in the rural areas. Hunger amid adequate food supplies for the nation as a whole can only be surmised to be an outcome of past failure to invest in, among other things, an efficient distribution and marketing system.

Defending an "expensive" domestic currency also lay at the core of the problem. Such a policy proved too costly, effectively draining precious foreign exchange reserves—a sure recipe for massive speculation—and rendered the domestic economy extremely vulnerable to shocks. Overvaluation of the currency crippled efficient resource allocation and hampered the growth of high-productivity employment opportunities, hurt agriculture and exports, and engendered privately profitable but socially unproductive rent-seeking activities. All these eventually retarded industrialization and overall growth. At the same time, governance, especially of the financial regulatory system, seriously lagged behind the demands of an increasingly open, market-oriented economy.

It is sometimes said that the rapid pace of globalization or economic liberalization does not always pay off as it may hold the seeds of an economic crisis. This concern is misplaced. As noted earlier, the problems resulted from unsustainable monetary and fiscal policies, as well as the conditions which led the cost of borrowed capital, along with the relative ease of access, to be so discounted as to allow speculative, if not reckless, economic activity. At this stage, there is danger in reverting to inward-looking policies. To turn away from market-friendly measures in favour of protecting and insulating the agricultural and rural sector in ways that distort domestic prices, would be counterproductive. It would merely make the sector less resilient and more vulnerable to economic and external shocks, events that can recur in the future and just as suddenly as it had during the recent financial crisis.

Agriculture and the Poor. The instability posed a number of challenges to the agriculture, fisheries and forestry sector. More than ever, it was left to absorb displaced labour, contribute foreign exchange, increase domestic food supply to mitigate upward pressure in wages and prices and generate resources for domestic investment. The initial policy response to the crisis was largely reminiscent of the structural adjustment programs of the 1980s and early 1990s. A common concern was that while these measures might benefit the poor in the long run, they inevitably reduce command over basic goods and services, including food, in the short term. Past experience suggests that there is *not necessarily a systematic tendency* for adjustment policy akin to the present ones to be biased against the poor nor to hurt the poor even in the short term. Where it hurt the poor, the reason was often not adjustment per se but the *composition* of policy instrument chosen to achieve the adjustment. How public expenditures, for example, are cut influences the poverty outcomes of adjustment.

Currency depreciation helped the agricultural sector as increased domestic prices of tradable goods enhanced farm production and revenues. Since most factors of agricultural production are essentially home goods, agriculture could continue to contribute foreign exchange earnings and hence to economic recovery.

The credit squeeze and high interest rates, however, narrowed access to operating capital, especially for essential inputs (e.g. seeds, fertilizer), marketing, and distribution of agricultural produce, including export and import activities. As the contagion spread and national currencies depreciated in domino fashion, substantive gains in relative export competitiveness would have

accrued only to the more efficient producers. Finally, restraint on government spending could have reduced the provision of public goods.

Where the supply response lagged, consumption fell for some groups in society, especially wherever prices of basic consumer goods and services rose sharply and rapidly following a devaluation. Structural rigidities in poor areas hampered rapid production responses. The experience from earlier adjustment programmes suggest that the supply response is high or low, depending on the conditions in rural areas (e.g. quality of infrastructure, human capital, and institutions) as well as the credibility of reforms and quality of governance.

The welfare outcome for the various poor groups depends on the price effects of adjustment on their consumption bundle, their trading position in food markets, and the speed of wage responses to adjustments. For the poor, food staples usually represent the largest component in total household expenditure; these are generally tradable goods (prices for which, in some cases, rose following a sharp currency devaluation). Due to its labour intensity, agriculture expansion could cushion some adverse effects of the reverse flow of labour on rural wages.

A net fall in rural wages arising from a sluggish supply response (owing to, say, structural rigidities) produces an immediate negative welfare impact on the poor. In rural areas where most of the poor depend on agriculture for incomes, the poorest tend to be net buyers of food staples. Thus, the sharp rise in food prices in crisis-affected countries is a serious threat to household food security and to the gains in poverty alleviation in the last quarter of this century.

The 21st Millennium: Perspectives and Issues for Agriculture and Rural Development

Agricultural and rural development is central to any strategy aimed at alleviating poverty and food insecurity. Poverty in virtually all developing countries in Asia is (still) a rural phenomenon. Three-fourths of the poor live in rural areas; a large majority of them are dependent on agriculture and agriculture-related industries for employment and income. Even urban poverty is partly an indirect effect of rural poverty.

Rapid agricultural growth, as we have seen from the recent decades of agriculture performance, facilitates industrialization and economic development. Productivity increases in agriculture enhance rural income growth and industrialization through its employment and income multiplier effects. It is evident from past record that LDCs with relatively high growth rates of agricultural output tend to have also comparatively high GDP growth rates. This is not surprising. Agriculture and agriculture-dependent manufacturing in a typical LDC represents a large fraction of the economy.

Increases in agricultural productivity hold the key to sustained rural development. Expansion of cultivable area is no longer a practical option as the frontiers had been reached in many countries years ago. Raising agricultural productivity requires sustained investment in support services such as agricultural research and development with sufficient depth and breadth, improved technology information and extension, farm-to-market roads and related infrastructure, and small-scale, private sector-led, farmer-controlled, and cost-effective irrigation technologies. These will give small farmers a range of technology options and enough flexibility to adjust to market conditions. Investment in rural infrastructure would engender efficient market functions, reduce the “cost of doing business” in rural areas and promote diversification of agriculture and the rural economy.

On the Macro-economic Setting & Linkages of the Agriculture and Rural Sector

The agriculture and rural sector surely faces strategic tasks in the 21st millennium against a vastly changing landscape. Macroeconomic and structural adjustment brings both challenges and opportunities to agriculture. Macroeconomic stabilization requires fiscal restraints, withdrawal of subsidies to essential inputs like fertilizer, and tight budgets for rural infrastructure and support services. In the same vein, macroeconomic reforms reduce the indirect taxation of and distortionary biases against agriculture.

The new economic paradigm increasingly leads governments to rely more on market mechanisms, focus on efficient delivery of public goods and services and limit state intervention to correcting market failures and imperfections. The lessons of the past from advanced economies underscore the high cost and inherent lack of sustainability of cross-sectoral subsidies and protective measures in maintaining income parity and growth in the agriculture sector. Clearly, finding the right strategy for sustaining agriculture in a setting of rapid economic growth requires vision, forward-looking policy measures and innovative approaches. A necessary step in this direction begins with the recognition of the complexity and urgency of the strategic tasks and renewed commitment, at the highest levels, to agriculture and rural development.

Rapid structural transformation can widen the gap between urban and rural wages, as well as inter-sectoral incomes. We have seen how agriculture grew at rapid rates yet lagged behind the overall growth in GDP in rapidly industrializing economies. This pattern is bound to persist as countries develop. But issues of income disparity cannot be resolved within the agricultural sector alone. Gains in total factor productivity in the industrial sector bids capital, land and labour away from the sector. Rising domestic demand in response to an income change, meanwhile, does not necessarily translate into a commensurate rise in output prices in an open trade regime.

The agricultural and rural sector is caught in a bind, with higher costs of labour and capital, but relatively stagnating if not falling output prices. Moreover, industrialization draws the younger, better-educated, and more productive members of labour force out of agriculture. Agricultural productivity can not be sustained without technical change, additional investments and accelerated human resource development in rural areas. In addition, economic policies that reduce the cost of doing business and that encourage broad-based, decentralized development of economic activities in rural areas also appear as fundamental ingredients in the push to improve and diversify sources of income and to create employment opportunities for the rural population.

° Food Security

Lack of growth in income lies at the core of food insecurity. Asia's remarkable progress in previous decades shows the crucial importance to poverty alleviation of consistent and broadly based income growth.

Securing Domestic Food Supply through Trade. The World Trade Organization (WTO) framework for negotiations enhances trade as an option to secure domestic food supply. Though the share of food imports in domestic consumption has shrunk over time, trade dependence can increase in countries with a capacity to pay for imports, especially for the purchase of wheat and coarse grains. Rising incomes, a changing diet and stagnating production would heighten dependence on cereal import requirements: rice in high-cost producing countries, and maize in countries with fast growing livestock sub-sector. With coefficients of variation in real world prices estimated at about 40 percent for rice and over 30 percent for maize in the previous decades, the major challenge continues to be how to deal (or learn to live?) with instability.

Urbanization. Urbanization and rising incomes drive greater diversity in consumption and greater demand for quality grains. Will this exacerbate the scarcity in supply as farmers switch to high quality but generally lower yielding varieties? How far and how quickly appropriate research and induced technical change will alleviate or make up for the potential supply reduction owing to the switch remains unclear.

Meat consumption has been observed to increase at per capita incomes exceeding $500. For example, meat consumption in China has been estimated to have doubled to about 20 kg/capita since economic liberalization, or a sevenfold increase in terms of livestock grain consumption. Livestock population is therefore seen as a major influence in the future state of food security. Policymakers will need to think about how cities might be supplied their food in the 21st century when more than half the world will live in urban areas.

Natural Disasters. Asia has been a site of 60 percent of reported natural disasters and 8 out of 10 of the worst ones. Floods and drought have caused damage to food and agricultural systems.

Natural hazards such as earthquakes, landslides, volcanic eruptions and forest fires have also plagued the region. Disasters have in fact caused food insecurity among vulnerable population groups, with large and devastating impact in terms of price upswings and instability of food access by the poor. Rising population densities, migration to vulnerable areas, and ensuing environmental degradation magnify the effects of such natural disasters. In terms of population size, Asia is responsible for a lion's share of the annual increase in the developing world's population. For comfort, fertility rate must go down and fast.

° Scarcity of Land and Water Resources

Population pressure and competition from non-agriculture land use have severely limited the expansion of cultivable areas. Estimates indicate that water availability per capita in Asia fell by half in 30 years ending 1980 and would fall by another 35 percent by year 2000. Dwindling per capita resources encourage a more intensive use of resources and encroachment of fragile areas that lead, in turn, to greater impoverishment.

The pace of land degradation and water scarcity, needless to say, imperil agriculture sector growth. Deforestation, soil erosion, loss of biodiversity and agro-chemical pollution often accompany agricultural intensification, threatening the sustainability of the natural resource base. Mismanagement of arable land has caused physical and chemical degradation. In some instances, high-yielding varieties of maize and cassava have been planted even in forests and sloping lands, leading to serious soil erosion and forest loss. Persistent and uncontrolled use of pesticides in intensive rice farming strengthened the resistance of the brown plant-hopper population to insecticides aside from causing water and land pollution.

A good part of cropped lands in the region can be found in fragile, rainfed, semi-arid areas, with steep slopes and/or poor soils, where environmental degradation and rural poverty present problems. How to develop modern sustainable agriculture in ecologically fragile and economically unfavourable upland areas presents a big challenge. The challenge is not how traditional agriculture can sustain productivity at low levels for future generations. Rather, it is how to transform traditional agriculture into a modern sustainable system, capable of meeting the demands for adequate supply of food and raw materials and of opening income and employment opportunities in the rural areas.

° Agricultural Research and Development

Technology has proven to be instrumental in accelerating agricultural production and national economic development in the region. Improvement in yields is the primary source of future growth. Investment in agricultural research has been estimated to post returns of as high as 30 to 40 percent. Even so, national and international support to agricultural research and development and to the diffusion of technology has been on a decline. This is a matter of great urgency as the decline comes at a time when the issues to address (e.g. sustainability, improving rainfed agriculture and productivity of small farms) are quite complex and increasingly crucial. The waning trend must be reversed by concerted efforts to reinvigorate flagging institutional support to agricultural research and development.

Intensive use of land and current inputs in the face of growing population and declining land-to-man ratio is questionable as a sustainable means of increasing production. Intensive agricultural systems exert pressure on forests and marginal lands as well as encourage the use of unbalanced and damaging levels of chemical inputs, which adversely affect food quality, agricultural land, forests and fisheries. Indeed, environmental degradation is a major limiting factor to sustainable agriculture. Further investment in agricultural research and technology and judicious application of biotechnology for yield increases are a compelling public policy focus, along with the development of supporting institutions, particularly if the level at which diminishing returns to scarce land and water resources set in is to be raised.

As we enter the threshold of the Next Millennium, we hark to how the revolution in information technology took place at amazing speed and how it changed the way of life and conduct of business of farms even in rural areas. If experience is any guide, and if the prognosis of the coming of age of the

revolution in biotechnology materialises in the first decades of the 21st Century, we all have to act and re-tool now.

Knowledge-intensive agriculture of the future will either be a boon or bane to the farmers and the cause of agricultural and rural development or degradation depending on how well we anticipate and prepare for rapid changes. Partnerships with the private sector and civil society in managing the advent of frontier technologies (that is, of increasing returns to scale) and putting in place efficient and transparent mechanisms for the application of biotechnology for common social benefit are essential. More than in any other time in recent history, human resource development targeting stakeholders in the agriculture and rural sector will require commitments of the highest order.

Key Note Presentation
Experience and Perspectives of Thailand and ASEAN Transition Economies
by
H.E. Pongpol Adireksarn
Minister of Agriculture and Cooperatives, Thailand

It gives me great pleasure to address you on the auspicious occasion of the Roundtable discussion on the future of sustainable agriculture and its role in poverty alleviation. As you are aware, Thailand is one of the countries in Southeast Asia that have suffered immensely from the impact of the economic crisis sweeping the region.

Over the past two decades, Thailand has made significant progress in economic growth, with an average performance of 9.8 percent annually. However, in July 1997, the positive direction in which Thailand was heading changed drastically. The recession has had a deep impact on both private and public sectors in matters of social security, political stability and economic hardship.

The main points of the crisis can be summarized as follows:

- The country faced widely fluctuating foreign exchange rates, ranging from as low as 25 baht to one US dollar to as high as 56 baht to one US dollar. This instability led to the depletion of foreign reserves.
- The fall of the financial sector led to an increased dependence on the JMF whose conditions included an increase of the VAT which in turn led to a dramatic reduction in consumer purchases.
- Unemployment has increased from 0.3 million people in 1997 to 1.7 million in 1999.
- The industrial, financial, business and service sectors faced significant closures.

The above highlights have resulted in tight liquidity and high interest rates which led to the reduction of domestic production and investment while unemployment rose. The consumer price index remains high as does the inflation rate. Agriculture was the only sector in Thailand that still demonstrated positive growth at 1.4 percent in the first year of the economic crisis. As a result, the agricultural sector has been targeted to show effective development in order to provide a solid base on which the economic stability enjoyed by Thailand prior to 1997 will be regained.

It is expected that agriculture will assist in the alleviation of the economic crisis due to the important role it plays in both economic and social aspects. Farming is an age-old life style for the majority of Thais, 60 percent of whom live in the rural area. Forty-two percent of the total landmass is used in cultivation.

The agricultural sector is seen as a saviour of the current economic crisis and can contribute to the improvement of the situation by focusing on the following issues:

- generating foreign exchange earning by increasing the export of agricultural products such as rice, cassava, rubber, broilers, prawns, seafood, fresh and canned vegetables and fruits;
- accelerating domestic production of agricultural products as import substitutes such as maize, soybean, milk and cotton;
- maintaining the food supply in order to create stable price levels for agricultural products and to reduce inflation and the impact on the national financial situation; and
- generating jobs to absorb unemployed workers who have migrated from big cities to the rural areas.

In summary, the agricultural sector in Thailand plays an instrumental role in the recovery of the Thai economy. It provides food security and generates foreign exchange.

Under the 8th National Social and Economic Development Plan (1997-2001), the Ministry of Agriculture and Cooperatives is committed to improve the competitiveness of Thai agricultural products through the implementation of new policies, programs and projects. These will focus on increased sustainability in agriculture through the management and conservation of natural resources, the introduction of improved technologies and the combination of those technologies with indigenous knowledge and human resource development to increase the capability of all players to adapt to a globalized agricultural sector.

Several urgent policies and measures have been adopted by the Ministry of Agriculture and Cooperatives to solve immediate problems and to lay groundwork for sustainable agriculture as follows:

The Food for Life Project

This project is designed to assist those who are unemployed from the industrial, business, and service sectors so that they will have enough food for subsistence living while waiting for the economy to revive. The Ministry of Agriculture and Cooperatives supplies each unemployed family who has a small plot of land with a fish pond a hundred fish to raise, thirty ducks and hens to provide eggs and essential vegetable seeds to plant. To date, 122,000 unemployed persons throughout the country have participated in the introductory stage of the project. An additional 100,000 persons have already applied to participate in the next stage of the project. An indirect benefit of this project is that this unemployed workforce may become a new generation of farmers in the future.

The King's New Theory Project

This initiative was designed by His Majesty the King of Thailand to serve as an integrated approach to small scale farming by introducing sustainable farming practices to encourage self-reliance. The principle of this project is to focus on the optimal use of land and water resources by dividing the land of an individual farmer into four main sections comprising a fish pond, a rice field, a poultry and livestock pen and a resident area which includes a fruit orchard and vegetable plots. Each farmer will be self-sufficient in food production and can earn income from selling the surplus of his produces. Five thousand pilot projects will be implemented in all 76 provinces of the country.

The New Agricultural Zoning

This measure aims to maximize the usage of land by reorganizing agricultural zones. Many areas of the existing agricultural zones have been turned into industrial sites, housing estates and shopping centers, wasting the infrastructure designed for agriculture. Besides, there are increasing needs for large plantations of sugar, pineapple, maize, rubber and large fruit orchards to ensure continuous supplies of raw materials for food processing industry.

Recognizing that soil is a basic factor of agricultural zoning, the Department of Land Development within the Ministry has undertaken the task of soil classification for the entire country. The outcome of this classification can assist policy makers, government officials and farmers in planning and determining which crops are most suitable to grow in any given soil area. This will significantly reduce the amount of crops that may fail due to incompatible soil composition.

Other important policies and measures to achieve sustainable agriculture include the production and distribution of quality seeds to meet farmers' needs, the emphasis on research and development, the transfer of technology to improve the quality of farm produces and the improvement of post harvest management emphasizing on proper methods of transporting, storing, processing and marketing agricultural products.

In conclusion, agriculture in Thailand continues to play a vital role in ensuring food security for the country. It is an important source of income and foreign exchange and must be taken into consideration when seeking solutions to the current financial crisis. The agricultural sector can provide solid economic and social bases needed to surmount the recession. The Ministry of Agriculture and Cooperatives continues to increase its role in supporting and facilitating farmers' networks and

organizations to improve the quality and productivity which in turn will increase the standard of living for the general population.

Thank you very much for your attention.

Key Note Presentation
Experience and Perspectives of ASEAN Transition Economies
by
H.E. Maj. Gen. Nyunt Tin
Minister for Agriculture and Irrigation
Myanmar

We are on the threshold of the next millennium and the present "Ministerial Roundtable Meeting on Sustainable Agriculture' held as a prelude to it remains highly commendable. I deem it an honour having been given the opportunity to exchange views in this distinguished gathering.

Just over a year ago at the World Food Summit in Rome, representatives from 186 countries committed themselves to a declaration and a plan of action and set a target to reduce the number of undernourished people to half their present level of more than 800 million people by the year 2015. Since then, concrete actions to achieve this target were initiated. The past decades did witness quite a number of developing countries attaining substantial growth rates in agriculture. Regretfully, however, hunger and in particular, malnutrition persist in many regions. The message is for us to brace ourselves further.

Many Asian nations have not completely recovered from the recent Asian economic crisis. In some countries, the nature of the economic woes had also affected the social, political and daily life of the people. Recent trends, however, indicate the worst of the crisis may soon be over since financial despatches have come to refer to Asia as an Asia in recovery rather than an Asia in crisis. The encouraging facts and figures that have began to surface are also reasons for confidence and optimism as we enter into the next millennium. At the same time, global trade has also enhanced the role of market forces, and many agrarian economies in cognizance of the comparative advantages have moved from closed nationally focused markets to open global markets. Similarly, agriculture in developing countries as a food and agro-industrial system has emerged as the leading sector of the economy.

Agriculture, however, faces many challenges as it steps into the next century. High on the list is the population explosion. The population of the developing countries has doubled since 1965 and now stands at 4.8 billion. The United Nations estimate it to reach 6.5 billion by 2020, of which 4.6 billion will be living in Asia which is, incidentally, home to nearly two-thirds of the chronically undernourished in the world. The supply of food in developing countries, especially grains, will have to increase by around 70 percent by 2020 to secure food for people who are expected to be living there. Secondly, the scope for expanding agriculture has become limited as the availability of arable land diminishes. It has been learnt that land scarcities remain acute in some countries. Similarly, the problems of land degradation remain enormous. Worldwide land degradation totals to about 1.2 billion hectares, of which about 450 million hectares are in Asia. Again, concerns for the environment have recently been in the forefront of agricultural developments.

And yet, as the world today continues to face the challenge of global food production and poverty alleviation, assistance for agriculture development has dropped sharply, particularly during the last decade. Despite the pressing and mounting needs in agriculture, official external assistance to the sector has fallen from some US$16 billion in 1988 to under US$10 billion in 1995. It is clear that further assistance and investment for agricultural development remains crucial. It is essential in meeting the needs of the 700 million people now suffering from lack of food, to stop further degradation of our environment, and to enable the poor to satisfy their daily food needs. If not, future food production will only come to nought.

Against such a background, kindly allow me to give a brief overview of the challenges and prospects facing Myanmar. With a land area of over 660,000 square kilometers and a population of less than 50 million, Myanmar still possesses an equitable land to population ratio. And more

importantly, the fertile valleys and highlands and rich water resources not only ensure national food sufficiency, but also generate surplus for regional food security.

Nevertheless, even within Myanmar, food supply availability for all administrative regions or geographical areas may at times be irregular due to lack of infrastructure development, accessibility to the markets or adverse climatic conditions.

Geographically, Myanmar provides the bridge linking Southeast to South Asia as well as China. It remains as the heart of the most populous and economically dynamic region of the world, the region that will account for about one half of the world's malnourished population by 2010, according to FAO estimates. Myanmar is willing and has always endeavoured to make a meaningful contribution towards peace, stability and progress in the region. In the national arena, the government has for the first time since gaining Independence in 1948, successfully restored peace and stability in the nation with the introduction of its policy of national re-consolidation.

It has also introduced a multi-party political system with a shift towards market-oriented economic policies. The major strategies and measures that are being pursued have been:

- to assign agriculture as the economic base in developing other sectors;
- to ensure a proper evolution towards a market-oriented economy;
- to invite capital and technology from abroad and within the country;
- to let the full initiative of the people to come into play in developing the economy; and
- to implement necessary economic, financial and legal reforms.

Myanmar enjoyed a steady economic growth rate prior to the onset of the Asian financial crisis. Its GDP growth rate averaged 7.5 per cent for the fiscal years 1992 to 1995. Lately, however, the financial crisis set in motion unfavourable economic and investment climates in the region. Yet in spite of this and El Niño related weather conditions, Myanmar managed to achieve 6.4 per cent, 5.7 per cent and 5.6 per cent respectively in the first three years of the current five year plan covering the fiscal years 1996 to 2001. Asia's currency and financial crisis also affected Myanmar to a certain extent. But as the crisis deepened and turned into economic turmoil, Myanmar was further impacted by the contagion effect. The sector most adversely affected was the foreign direct investment component. It is however contemplated that as the Asian economy recovers, investment climates are bound to turn favourable again.

Meanwhile agricultural development in Myanmar has not slackened. In fact it is being given more emphasis, with a view to counter prevailing adverse economic environments. Some of the measures taken were:

- to increase the present 12 million acres of monsoon paddy and 2 million acres of summer paddy (totalling 14 million acres) to 18 million acres comprising 14 million rainfed and 4 million summer through expansion and intensification;
- to gradually bring the existing 22 million acres of culturable wasteland by incorporating private sector commercial scale farming systems (Altogether, 83 private companies and associations have come forward to bring 1.15 million acres under paddy, pulses, oilseeds, rubber and palm oil.);
- to step up irrigation facilities for successful agriculture as well as intensive cropping in order to circumvent the vagaries of the weather and, in particular, benefit the small farmers, who constitute the mainstay of Myanmar's agriculture;
- to enhance the current irrigated area, which stands at 17.5 percent of the total sown area and represents only 6 percent of the country's total water resources of 870 million acre feet per annum, with the implementation of further irrigation facilities, utilizing river and ground water resources (During the past decade, altogether 98 irrigation projects have been completed, adding over 1 million acres of irrigable land.); and
- to increase the yields of paddy from current 2.58 metric tons per hectare to 5.16 metric tons per hectare.

The aforesaid measures may remain central under Myanmar's present conditions but admittedly are not a complete package for enhanced production. They still need to be effectively supplemented and supported by increasing investments in research and development (R&D), institutional reforms and rural infrastructure. In combination, they hold the key to sustained agriculture and rural development in Myanmar. Farmers' response to economic incentives, research and development and improvements to rural infrastructure will be identical everywhere. There is a compelling need for more investment in these aspects, but unfortunately agrarian economies have been forced to face trade-offs with other priorities.

Again, the global process underway remains complex and is compounded by limited experiences related to economic transformation. Economic systems in the next millennium need to be more responsive to national, regional and international markets. In other words, it needs to be more demand-driven then ever before. Myanmar in its transition to a market economy has given greater attention to private sector and agriculture's integration with the broader economy.

I trust this brief appraisal of our national efforts will serve as an affirmation of our determination and commitment towards regional food security and poverty alleviation in the next millennium. Myanmar's experiences may not be directly relevant to other developing Asian economies, as there are significant differences in economic and institutional structures and agro-ecological conditions. But general lessons from experiences of each of these countries may prove to be useful in policy considerations and choices.

All the same, I hope most of you will agree that broadly based agricultural and rural growth anchored on technological progress remains the key to sustainable agricultural development and poverty alleviation in the region, where poverty is mostly a rural phenomenon. Research and development will remain as very significant components of strategies for raising agricultural productivity. And given the gravity of poverty and environmental problems in marginal lands, especially in the agrarian economies of the region with low base of physical infrastructure and human capital, emphasis should be given to agricultural research and development in rainfed areas and fragile agro-ecosystems.

One of the most promising among the areas of collaborative regional action is in agricultural research. All countries in the region can benefit by strengthening and developing National Agricultural Research Systems (NARS), with specialization in major crops and resource use. There is also an urgent need to further strengthen the existing international organizations in the region such as the International Rice Research Institute (IRRI), ICRISAT, IML CIRDAP. NARS should take maximum advantage of the research capabilities of these institutions through better coordination and collaboration programmes.

It has fallen on us to help chart a course for a more sustainable Asian agriculture in the 21st Century. The yawning gap between the rich and poor continues to widen, with the substantial majority of the world's estimated 1 billion poor living in developing countries. Rapid agriculture and rural development has become essential. Compatible natural resource management practices need to be adopted to enhance sustainability while maximizing regional well being.

In summary, agriculture in the next century will be required to accomplish simultaneous contributions to growth, poverty alleviation and increased food security in ways that do not degrade the environment. It could be achieved only through the proper application of appropriate government policies and investments, institutional development and agriculture research.

As the world prepares for the new millennium, all countries in the region are making necessary adjustments to changing needs that are taking place in the global marketplace, which itself is still fluid and volatile. The Uruguay Round Agreement and the establishment of the World Trade Organization (WTO) brought discipline to agricultural trade. Greater affinity and more meaningful regional cooperation should be sought to collectively watch over the interests of developing agrarian economies in the region. It will be necessary to stand united against gains in tariff liberalization being offset by non-tariff barriers or the bringing up of extraneous political issues such as environmental concerns and child labour in trade negotiations.

The 20th century is nearing to end. Policy makers and agriculturists had traversed the passed century in seeking to bring food security and to divest the world of hunger and malnutrition. Significant progress was achieved, but the goal still remains elusive.

Soon, we will be entering the next millennium with renewed efforts and dedication. Conditions have, however, changed or altered significantly. Arable land has become scarce, land under cultivation has become degraded, forest resources have been depleted, water availability has diminished, global trade in agricultural products has been variable and pressure against further environmental damage continues to gather momentum. The only constant progression has been the population explosion.

Under the circumstances, our future path is quite formidable. There will be a need for strong political will and bold decisions. It will be necessary to discard or alter past strategies that failed to address growth, poverty alleviation and environmental sustainability. For developing countries in Asia, continued agricultural growth on a sustainable basis has become a necessity for the 21st century and not just an option.

Beyond the Asian crisis, amid a time when we enter into next millennium, we surely will have to face enormous policy challenges both at the regional as well as national levels. Gathered in this assembly are statesmen, personalities and institutions who affirm a commitment to agricultural development and to the alleviation of poverty in the region. Our primary mission must be to tackle these substantive problems with solidarity. And in these aspects, I would like to place on record our appreciation to Dr. Prem Nath, Assistant Director-General and Regional Representative, and all the capable panel of experts and the staff of FAO Regional Office for Asia and the Pacific who laboured to organize this ministerial roundtable at this very crucial moment.

The scourge of poverty, hunger and malnutrition continues to linger in spite of other human advances of the 20th century. It still remains an intolerable human indignity on the eve of our new millennium—and is one that needs to be totally alleviated. How far and how soon can that be achieved? It now depends squarely on our collective efforts. It will be necessary for strong political as well as goodwill at the national, regional and international levels. The poor and needy are waiting.

Thank you.

Key Note Presentation
Experience and Perspectives of ASEAN Transition Economies
by
Prof. Ngo The Dan
Vice-Minister of Agriculture and Rural Development, Viet Nam

First of all, allow me this opportunity to thank FAO for organizing this Ministerial Roundtable and giving me the chance to participate. In this event, I would like to present some ideas on sustainable agricultural development and poverty alleviation in Viet Nam.

In Viet Nam, agriculture plays an extremely important role. About 80 percent of the population live in rural areas while agriculture and the rural economy contribute nearly 40 percent to GDP. Therefore, the government has regularly paid attention to agricultural and rural development, and considers agricultural and rural development as the basis for ensuring political and social stabilization in the course of national industrialization and modernization. Since the early eighties, Viet Nam has started its renovation in agriculture, creating a new motive force for better exploiting all available resources and thus achieving outstanding progress especially in food production. With a growth rate of 4.5 percent per annum in agriculture, food security has been stabilized, foreign currency earnings have increased, more employment has been generated and poverty considerably alleviated.

By applying a system of integrated practices, food production has increased by more than one million metric tons or 5 percent per year during the last ten years, faster than the increase of population. It did not only meet the domestic demand but also made Viet Nam the second largest rice exporter in the world. In 1998, food production reached a record of 31.85 million metric tons, with an increase of 1.2 million metric tons compared to 1997. In the winter-spring crop of this year, food production was higher than that of last year. Under the strong impact of the recent regional crisis, Viet Nam with its under-developed economy Viet Nam could not stabilize and develop its economy and social situation without stabilization and development of agriculture and rural areas.

Agriculture is also a very important source of foreign currency for the national economy. At present, except for some commodities that have to be imported such as milk powder, cooking oil, cotton and tobacco, almost all agricultural-forestry products domestically produced have met the demand of domestic consumption and even had a surplus for exports. Various important commodities exported from Viet Nam have been confirmed their position in the world market such as rice, coffee, cashew nut, rubber, tea, black pepper, fruits and vegetables. During the period of 1990 to1997 the total export turnover earned from exported agricultural-forestry products increased by approximately 20 percent on average per year. In 1998, the increase slowed down, but the export turnover earned from agricultural-forestry-fishery products contributed about 40 percent of the national total.

With regard to employment creation, agriculture plays also an important role. Actually, more than 80 percent of the population and more than 70 percent of workers live in the rural areas and work in the agricultural sector. Although the growth rate of GDP in agricultural sector is less than that of in industrial sector, agriculture has created an additional of 2.9 million of jobs compared to 200,000 new jobs in the industrial sector.

Hunger elimination and poverty alleviation are always the focal target of the Government. In this regard, agriculture and rural economy play a determining role, since 90 percent of poor people live in rural area. In Viet Nam, every year 150,000 to 200,000 of poor households have been reduced (about 780,000 to 1,000,000 people). The proportion of poor households has reduced from 30 percent in 1992 to 17 percent in 1998. It is evident that, when the economy is facing with difficulty, thus agricultural production and agricultural economy become very important.

Although not directly affected by the as other countries in the region, the Vietnamese economy is bearing a strong impact from this crisis and showing a slowdown in economic growth. The

GDP growth, which rate in 1997 was 8.5 percent, reduced to 5.8 percent in 1998, and a decrease of 4 percent in the first quarter of this year has been estimated.

The devaluation of several currencies in the region and the decrease in demand of the countries in crisis have made Vietnamese exports less competitive. Export turnover in the first four months of 1999 decreased by 4 percent compared to the corresponding period of 1998. The world market in recent times continues to cause disadvantages to countries exporting agricultural commodities including Viet Nam. Moreover, the buying power of the domestic market has declined causing a surplus of agricultural commodities and price reductions.

Foreign direct investment in 1998 decreased by 8 percent compared to 1997, a decrease of 64 percent in the first four months of 1999 compared to the corresponding period of 1998, and tends to continue going down.

Unemployment rose and the ratio of labour involving permanent economic activities dipped by 0.7 percent in urban area and 0.9 percent in rural area in 1998 compared to 1997. The number of jobless labourers in urban areas has increased and there is a lack of jobs in rural areas.

Under these above mentioned circumstances, the Government of Viet Nam has considered that agricultural and rural development must be paid much more attention being the strategic solution for the whole country at present and for the long term. The government has been implementing several programs on agricultural and rural development, in which two main ones have been focused:

1. *The national program on food security with two main targets*. First, to promote food production to ensure sufficient food to meet the domestic demand even in emergency circumstances caused by calamities. Second, to assist poor people and enable them to have sufficient food when needed.

2. *The national program on hunger elimination and poverty alleviation*. This is mainly aimed at assisting households to develop agricultural, forestry, fishery production, promote small industries and promote resettlement. Recently, the government has been focusing on efforts to assist 1,000 poorest communes in remote areas.

In order to successfully implement the above mentioned programs, the Vietnamese Government has targeted an investment increase of 58 percent compared to 1998 for agriculture and rural area, representing nearly 20 percent of the total investment and development funds for national economy. These investments are mainly used for construction of irrigation works and rural infrastructure, for improving crop seed and animal breed, for expanding agriculture-forestry-fishery extension services and for promoting agricultural-forestry product processing. The Government has reserved all the land use taxes collected for reinvestment in agriculture and rural areas. At the same time, the plan is to increase the credit provision to farmers and enterprises.

In rural infrastructure, the government gives priority to the upgrading of existing irrigation works; the reinforcement of inter-district, inter-commune and inter-field canal systems; the development of rural transport; the completion of electricity nets; the improvement of provision of sanitary water; and the continued development of rural infrastructure to enhance production, cultural and social welfare.

The state has stipulated a variety of new policies to create new motive force to promote production. The Vietnamese national assembly has adopted the Revised Land Law reconfirming the land use right of farmers. Several new policies encouraging exports and foreign investment have been stipulated. Farmers are encouraged to participate in various forms of economic cooperation and to renovate in order to assist in providing more effectively services for better production and living conditions. Enterprises have been in the course of renovation to contribute actively to the agricultural and rural development cause.

The success and achievement of the agricultural sector contributes an important role in stabilizing the Vietnamese economy against challenges of the regional crisis. In our great cause, we

would like to express our sincere gratitude to FAO and other international organizations for their kind and effective assistance and we wish to develop cooperation among countries, particularly countries in the region. We consider that cooperation among countries in agriculture and rural development could help us to solve problems raised within each country and to overcome difficulties from the crisis.

Thank you Mr. Chairman,

Thank you all Participants.

Annex IV (5)

Key Note Presentation
Experience and Perspectives of ASEAN Transition Economies
by

Dr. Phouvieng Laddavong
Director General, Office of the Minister for Agriculture and Forestry,
Lao People's Democratic Republic

Mr. Chairman,
Honorable Ministers,
Distinguished Delegates,
Ladies and Gentlemen,

It is a great honour for me to be given this opportunity to participate in such an important Ministerial Roundtable on Beyond Asian Crisis: Sustainable Agricultural Development and Poverty Alleviation in the Next Millennium.

As a delegate from the Lao Government, Ministry of Agriculture and Forestry, I would like to express my most sincere appreciation to Dr. Prem Nath, Assistant Director-General of FAO for taking an appropriate initiative in organizing such a privileged forum.

Taking this opportunity, I would like to highlight some issues with regard to agricultural development and poverty alleviation in Laos in the past as well as for the next decades.

The food security and rural poverty issue has been the subject of severe concern and poses a big challenge facing the Lao Government as more than 50 percent of the rural population are still living under the poverty line. The majority of households lack food security due to a disparity of income distribution. Malnutrition is one of big problems as it threatens the health of children under five years old (more than 47 percent). Infant and maternal mortality rate is estimated at 140 and 650 per 100,000 life births, respectively. The adult literacy is estimated at 56 percent for men and 35 percent for women. Net primary schools enrolment is about 55 percent in rural areas compared to 79 percent in the urban one. Till now, the rural population has yet to be provided basic requirements for appropriate living conditions and adequate social services such as shelter, secure food and safe drinking water, education, public sanitation and health, communication and transport.

Agriculture sector with the predominance of subsistence farming accounts for more than half of GDP (52 percent), employing about 80 percent of the national work force and 40 percent of export earnings. There are about 620,000 families dependent on agriculture, of which some 492,000 families are reliant on subsistence agriculture.

Moreover, in the mountainous region, the nature of subsistence crop cultivation is still dominated by the practices of shifting cultivation (slash and burn) farm systems. Shifting cultivators do not produce enough rice for their year-round consumption and are classified as extremely poor.

The challenge of stabilizing cultivation and conserving the environment in upland areas cannot be met unless the issues of poverty reduction, provision of alternative sources of livelihood, food security, and security of land tenure are addressed simultaneously.

Keeping this in view, the Lao Government since 1990 has been developing an integrated agriculture and rural development in coping with the problems of food security, shifting cultivation stabilization and rural poverty alleviation. In 1996, the Government launched a Comprehensive National Socio-Economic Programme (five year plan 1996-2000) to pursue an overall decentralized development policy which aims for sustained growth with equity for all citizens and to emphasize the dual objectives of resource conservation and achievement of improved livelihood systems. Eight priority programmes have been implemented, of which some five programmes directly involve the Ministry of

Agriculture and Forestry such as the food production programme, commodity production programme, shifting cultivation stabilization programme, rural development programme and human resource development programme.

In the execution of these programmes, some performances have been achieved with an average economic growth of 7 percent and 4 percent for agriculture sector. The recent Asian economic crisis has affected and reduced economic growth in Lao DR. The value of Kips has suffered a large depreciation (over 300 percent) since July 1997 and in turn led to high level of inflation. However, the social effects of the crisis have not been as dramatic as in the other countries (unemployment), largely because of the agriculture subsistence nature of much of the economy.

Fortunately, during this period, rice production has increased from 1.4 million tons in 1995 to 1.67 million tons in 1998. Thanks to rapid expansion of the irrigated areas in the six main plains, as a result of decentralized community based development, the dry season paddy production has increased 400 percent between 1995-1998 (50,500 tons in 1995; 210,000 tons in 1998). The credit with subsidized interest rate has also augmented threefold. The output of dry season rice paddy for 1999 is expected to reach 300,000 tons. With this pace, it is expected that by the year 2000 the total rice production would reach its target of 2 million tons which will be sufficient for the whole population of 5 millions. On the other hand, about 329,680 ha of land and forestland have been allocated to some 25,000 households in 1,176 villages. A total of shifting cultivation areas has been gradually reduced down from 192,000 ha in 1995 to about 148,000 ha in 1998. This figure has been achieved though the focussing measure on integrated and decentralized package programme interventions, such as: rural infrastructure, cash crop production, fruit tree and tree plantation in combination with cattle raising and other alternative income generation activities.

In the field of rural development, a total of 87 “focal sites” have been identified and implemented which cover a population of 450,000 people. By focal site, we understand an area-base livelihood system approach is important for integrated rural development in taking consideration for better harmonization of resources allocations and concerned ministerial intervention. Such an area-based approach is geared toward promoting locally owned “Centers for Change and Learning." The essence of focal site is to increase food and commodity production, to create employment opportunities, rural infrastructure and the conditions for improved living standards. Through the implementation of these focal site projects some positive impact has been recorded in the physical quality of live among the rural people (nationwide rural development assessment conference held in the beginning of 1999).

Mr. Chairman, Ladies and Gentlemen,

In consideration of the past experiences, the Government of Lao PDR is determined with strong commitment to pursue its long term policy development so as to “free the country from the least developed country status by the year 2020”. Agriculture and Forestry is recognized to remain the leading economic sector of the country and the engine to foster socio-economic up to year 2020, gradually laying down the foundation for the shift to the industrial sector. (This is the move into the processing industry for the agricultural products).

Towards the vision, the Lao agriculture and forestry sector is to play an important role as a contributor to food security within the ASEAN region as well as to the maintenance of a sound environment base in the region.

To this end, the on-going programmes should be continued with emphasis to be put on specific areas accordingly with the master plan of the agriculture and forestry sector:

- The programme for food and commodity production with an emphasis on intensification and diversification of agriculture products oriented to the agro-processing development will be encouraged in lowland areas.
- Rural development and shifting cultivation stabilization programme within the framework of focal site approach and in prevalence of agro-forestry activities will have to concentrate in uplands/mountainous regions.

In support of these programmes, irrigation network development, particularly the small scheme is becoming necessary for both in lowlands and highlands (expectation of 50 percent of irrigated area for a total of 800,000 hectares of agriculture land by 2020):

- Researches and extension services along with human resources development are considered as decisive factors and need to be further developed and strengthened.
- Lao PDR is very in need close cooperation and have to learn more experiences from its neighbouring countries in the fields of techniques and technology or new approaches for a sustainable agricultural development and poverty alleviation.

Thank you.

Key Note Presentation
Experience and Perspectives of the ASEAN
by
Secretary Edgardo J. Angara
Department of Agriculture, Philippines

I am deeply honoured to be among you today in this beautiful and ancient city to share with you some ideas regarding a matter of timeless concern: food.

The charms of Bangkok inspire a holiday mood and one can only envy the carefree tourist. But such are the demands of public office. Still, I promise the next few minutes to be as painless and as free of bureaucratic jargon as possible.

Despite the strides that our various economies have made in the past decades, we know that food security is the one issue that we can never be complacent about. Rapid urbanization and environmental degradation may yet threaten food supply for our region's still expanding population.

The crisis that struck Asia these past two years is on the wane. The worse is over, but its effects on our societies will linger and will no doubt impact upon our future policies, including those on agriculture and food security.

I believe, that beyond doing the things that we must do as individual nations, we in Southeast Asia must also work together towards achieving a common vision of ensuring adequate nutrition for our peoples in the coming millennium.

I shall be brief in my presentation to allow more time for discussion among those present.

Agriculture and Poverty Alleviation: Lessons Learned

First, let me point out some of the major lessons that the experiences of developing nations, especially the newly industrializing economies of Asia, have taught us. I know these ideas are not new to you, still, I bring them up as context for further discussion.

The foremost lesson we have learned is that *poverty reduction in the long term requires sustained economic growth.* Therefore, we must put in place a macro-economic environment and political climate conducive to the resumption of high growth in Asia. Only sustained growth can wipe out absolute poverty in South Asia, Indochina and Southeast Asia.

Not surprisingly, poverty reduction in the past decades tended to be fastest in sub-regions and countries where growth was most rapid and sustained over a considerably long period. Growth was also accompanied by rapid improvements in health, education and longevity.

In many East Asian nations, rapid growth was associated as well with improvement in income distribution. In other countries, rising growth led to growing inequality. In general, over-all growth offset the negative effects of inequality.

The second lesson we have learned is that *income growth need not be accompanied by a deterioration in income distribution.*

However, high inequality, if not tempered, may cripple sustained growth. Concentration of wealth may lead to policies that protect sectarian interests and obstruct growth. It also fuels social discontent and instability. The poor are often prevented from investing in human capital and productivity-enhancing technologies. Such investments are confined to owners of initial wealth.

Rising inequality can be checked by public investment in basic social services. Countries giving high priority to human resource development—basic schooling, health care, nutrition—see improving income distribution and higher average incomes over the long term.

Behind the success stories in East Asia was the revolution in their agricultural sectors prior to industrialization. Such revolution involved high productivity fuelled by rapid diffusion of high-yielding modern varieties and complementary inputs, farm diversification and investment in rural linkages.

Such growth enabled these countries to provide basic goods and services to consumers and raw materials for industry, earn foreign exchange for importation of capital goods, release labor and capital to the non-farm sector without causing food prices and industrial wages to rise. The purchasing power of the rural population for consumer goods and services expanded and they served as the broad domestic base for industrialization.

The third lesson we may deduce is that *neither rapid urbanization nor permanent declines in the relative importance of agriculture in national income diminishes the comparative importance of agriculture in poverty alleviation.*

The past three decades show a strong link between agricultural growth and poverty alleviation. Even today, poverty in developing countries in Asia remains a largely rural phenomenon. Three-fourths of the poor in the region live in rural areas. The large majority of them depend mainly on agriculture for income. Food insecurity is the direct result of low rural income. The landless poor migrate to cities and worsen urban congestion.

Rapid growth, fuelled by technological progress in agriculture, is imperative if we are to alleviate poverty.

The long-term impact of agricultural growth on poverty depends on the extent to which such growth could lead to further growth in the rural non-farm economy. The *initial distribution of wealth, especially in land,* significantly influences this impact. The more unequal is this distribution, the less employment and income opportunities are created for the majority.

Agrarian reform is, therefore, vital to poverty alleviation.

Aside from such reform, rural infrastructure and human capital are crucial to rural industrialization.

Infrastructure attracts industries that target export markets while better educated farmers adapt more readily to new technologies as shown by the Green Revolution experience.

The availability of rural entrepreneurs is also critical to the growth of rural industries.

We cannot also overlook the importance of macro-economic and industrial policy regime in shaping agricultural and rural incentives. Through the past few decades, many countries in the region maintained highly over-valued currencies through exchange controls and trade restrictions. This policy depressed the profitability of agriculture and labor-intensive manufactured exports relative to non-tradable goods, including real estate, thereby luring resources away from agriculture and export sectors. The premature shift of resources away from agriculture dampened the growth of employment and output in rural areas.

Another important lesson that has been learned is that *farmers, even in poor countries, respond to incentives, but even more so if the economic and policy environment is favorable.* Therefore, the effort to raise agricultural productivity should involve reforming incentives in agriculture, as well as the rest of the economy, allowing markets to function efficiently, and promoting institutional arrangements conducive to long term growth and development.

In summing up the lessons of the past three decades, we see that increased production is not enough to defeat rural poverty. We must aim for broadly based rural growth, anchored on technology.

This type of growth requires economic and institutional conditions more favorable to rural areas. Again, it requires:

- macroeconomic and political stability;
- improvement in access to land and technology among the rural population;
- investment in rural infrastructure and human resources;
- removal of public-spending biases favoring large farmers and agribusinesses to the detriment of small farmers; and
- adoption of commercial policies supportive of small-and-medium scale enterprises.

The Philippine Situation in Brief

Now, permit me to describe briefly the situation in my country. Admittedly, growth in the Philippines, through the past decade, has not been as robust as that in some of our neighbors. Our average annual growth of 1.4 percent in agriculture between 1980 and 1997 pales in comparison with China's 5.3 percent, Pakistan's 4.1 percent, Thailand's 3.8 percent, Indonesia's 3.1 percent, and Malaysia's 3 percent.

To be candid, we are laggards in food production. Food is more expensive to produce in our country than in many parts of Southeast Asia, and only last year, parts of Mindanao were threatened by hunger. Despite recent improvements in production, we are aware that much remains to be done.

The Estrada Administration came to office on a pro-poor platform. The attainment of food security and poverty alleviation through Agricultural Modernization is our centerpiece program. We intend to turn Mindanao, our largest and best-endowed island, into the country's food basket. And God willing, we will accomplish this task within the next five years.

Our program is based on the lessons we have learned, as I have earlier discussed. And is geared towards the private sector as the engine of growth.

In the past, we have not invested enough in rural infrastructure, research and development. There was no adequate credit support to small and medium scale farmers. In a bid to hasten industrialization, successive administrations devoted resources to industry at the expense of agriculture.

On the other hand, protection from competition made our farmers complacent, they failed to innovate and improve efficiency while our neighbors surged ahead.

Our farming and fisheries sectors suffer from lack of vital production and post-harvest requirements. Post-harvest losses in our agriculture and fisheries are estimated to range from 10 to 30 percent. The most critical post-harvest problem our farmers face is the lack of drying facilities for rice and corn harvested during the rainy season.

The present administration is committed to creating an environment favourable to the growth and diversification of the rural economy.

AFMA

Our over-all strategy for achieving this goal is embodied in the Agriculture and Fisheries Modernization Act, or AFMA, which our Congress drafted and passed into law. AFMA is based on the findings of a bicameral Agriculture Modernization Commission which I had the honor of heading.

AFMA intends to transform our agriculture and fisheries into a technology-based sector spurred by agribusiness and industries. Such industries will enhance the sector's global competitiveness even as it ensures equitable participation among farmers, fisherfolk, entrepreneurs and employees.

We would like everyone involved in the production process to be a shareholder who benefits from growth and who protects the sustainability of natural resources.

We seek to achieve this goal through two main strategies:

First, the planning and implementation of programs involving all shareholders from the bottom-up under the guidance of the Local Government Units.

Second, operationalizing the "Strategic Agriculture and Fisheries Development Zones," concept also known as the "Food Baskets" approach. Under this scheme, we will identify the most productive agricultural areas and most viable products and production systems for rural growth.

Based on these twin strategies, government shall focus on creating the requisites for productive agriculture and agribusiness.

Irrigation is among the priorities. While protecting watersheds, government will build small, medium and large-scale irrigation systems to irrigate an additional 600,000 hectares by the year 2004. This would increase our total irrigated farmlands to two million hectares.

We plan to construct more farm-to-market roads, post-harvest facilities, public markets and abattoirs, fish ports, and cold storage facilities.

The credit system will be rationalized by consolidating various credit and guarantee funds. We intend to "level the playing field" for agriculture in terms of access to finance.

To cushion our farmers from the impact of liberalization, AFMA allows the tariff-exempt importation of all agriculture and fisheries inputs until the year 2003.

Marketing systems are being improved through a nationwide network of marketing cooperatives. Extension services are being coordinated so that appropriate technology developed in research centers can be brought to the farms and fish ponds as soon as possible.

The technology research and development system will also be rationalized to be more responsive to needs and potentials of our producers and entrepreneurs.

AFMA also stresses long-term human resource development through the National Agriculture and Fisheries Education System and the system of national centers of excellence.

The Food Baskets

The so-called Food Baskets, on the other hand, will be the testing ground and pilot areas for these efforts. Through these Food Baskets we plan to identify priority areas best suited for combinations of complementing crops and agricultural activities based on climate, markets, infrastructure, potential for value-added processing and other factors.

Key to the success of these Food Baskets is their integration through "convergence zones," a cluster of contiguous land and water areas that have similar and complementing growth potentials.

People Empowerment

Personally, I believe that AFMA's most revolutionary contribution to the concept of rural development is the realization of "People Empowerment" in the rural areas. I believe that grass-roots democracy as much as technology is necessary for development and poverty alleviation as we enter the new age. We must learn not only from the past, but also from those whose lives we purport to improve.

Our Department of Agriculture now employs three empowerment strategies which include:

First, the participatory approach involving all shareholders in planning and executing projects.

Second, assigning to the Local Government Units the lead role in formulating and executing policy and programs.

Third involves “counterparting." Under this scheme, the Department of Agriculture, the Local Governments Units through the Department of Interior and Local Governments, private business and farmers enter into Memoranda of Agreements that require counterpart funds from each party.

If there is one lesson that past development models teach us, it is that government cannot do it alone. Government cannot simply enforce its will on those who do not share its vision. Agricultural and rural modernization requires farmers, fisherfolk, entrepreneurs and government to cooperate as equals. We must mobilize not only individuals but also entire communities.

A Moral Vision for the Future

This, friends and colleagues, is a brief description of the Philippine situation and our on-going attempts at rural modernization. I know we, in our part of the world, face many common problems and anxieties.

Globalization is upon us, and though it may cause short-term problems, I am convinced, that as long as we do our homework and strengthen our agricultural sectors, we will benefit from the opportunities opened up by new technologies and markets.

While each nation must look out for its own interest, I believe there is much we can do as a region to improve our individual and collective chances for success in the new age.

We can share technologies and experiences. We may consider creating a buffer stock to staple grains and food stuffs to aid distressed communities around the region during emergencies, especially in this period of transition.

And it is important also that we evolve a common stand, or at least continually discuss the issue of biotechnology as this affects our agricultural sectors. Though we must be open to new technologies we must see to it that certain practices do not eventually wreak havoc on our ecosystems. We must make sure that our peoples are not subject to sophisticated and subtle means of commercial exploitation by advanced economies.

I greet the new millennium with guarded optimism. I am confident that the next century can still be a "Pacific century" wherein our region can fulfill its potential. But let me say too that growth must not be an end in itself. Not only production, not only productivity, but social justice must be our goal.

I believe we have seen the limits of developmentalism—that is, development strategies imposed from above. We must hear the voices from the past. Again and again, we have seen how material development which does not respect the natural environment and the integrity of cultures lays the seed of its own material and psychic destruction.

We cannot afford to be inspired merely by a desire for endless growth and consumption. We require a moral vision. Despite our varied religious and cultural traditions, I believe we are all agreed that it is the moral imperative in life itself to raise the human condition. And we, as bureaucrats, activists, workers, entrepreneurs are all agents of this imperative.

In gathering here to talk about food we talk no less than about our future, for without food we have no future.

Key Note Presentation
Experience and Perspectives of the ASEAN
by
Datuk Amar Dr. Sulaiman Haji Daud
Minister of Agriculture, Malaysia

For most of us gathered here today, the last four years of the 20th century will be remembered as a time when the national economies of most Asian countries faced serious challenges arising from the economic and financial crisis which began in 1997. The period will also be remembered for the unprecedented measures taken by these countries and their willingness to adopt appropriate policy adjustments for economic recovery.

The crisis that affected the East Asian region was triggered by speculative activities of hedge funds, which made huge profits through massive short-term capital flows, and in the process, seriously destabilized a number of East Asian currencies. Malaysia was not spared the regional contagion effects and these compelled the Malaysian Government to undertake a series of strong measures to ensure the continued stability of the country. The National Economic Action Council (NEAC) was established on 7 January 1998, and the National Economic Recovery Plan (NERP) prepared and launched less than six months later. Besides addressing the immediate economic problems, the NERP also provided a comprehensive framework to address structural and medium-term issues. These measures are pragmatic and include measures to restore investors' confidence, revive economic activities, and accelerate human resource development as well as address falling productivity, low capital efficiency and inflationary pressures, while identifying new sources of growth. The Plan provides for the private sector, consumers and each and every Malaysian citizen, to play their respective roles to boost domestic demand, increase competitiveness, expand exports and reduce imports. Recognizing the importance of human resources in the push for productivity-led economic growth, measures were also taken to increase the supply of skilled manpower, improve the access to education and training facilities and strengthen labour market mechanisms.

Through the concerted efforts of both the private and public sectors, Malaysia has successfully contained the crisis and thus avoided the potentially damaging effects of the crisis such as high unemployment, mass poverty and civil unrest. Signs of economic recovery have now emerged and are becoming more and more visible. Nevertheless, Malaysia remained vulnerable to external developments in the region and globally. Having learnt from past experience, Malaysia will continue to cooperate and work towards reforms in the international financial architecture so as to ensure the economic crisis is not repeated. In the medium term, the focus of our development plan is to accelerate the process of economic recovery and restore economic growth to a level consistent with our potential output. This is to ensure the achievement of the objective of balanced development and the aspiration to become a developed country by the year 2020. In this respect, the thrust will be to further strengthen economic fundamentals to enhance the resilience of the economy to external developments. The attainment of socio-economic objectives, particularly with respect to further reducing the incidence of poverty, narrowing inequalities and improving the quality of life will continue to be pursued.

The crisis period was extremely challenging for Malaysian agriculture. Besides having to deal with labour shortages and reduced availability of suitable land for agriculture, the sector also faced temporary adverse circumstances such as the *El Niño* and *La Nina* and problems caused by the haze. In addition, the sector was burdened with higher imported food and input prices following the currency depreciation. Efforts to stabilize food prices and bring down inflation rate became a major challenge. Fortunately, during the period, international prices of palm oil and rubber were high. Although the value of agricultural exports in term of domestic currency increased, structural problems continued to hold down production.

Let me now focus on Malaysia's plan for sustainable agricultural development and poverty alleviation in the next millennium. The modernization of the agriculture sector so as to become a high-

value added producer and exporter of agro-based and food products will remain the main thrust for agricultural development in Malaysia. In meeting this challenge, agricultural development strategies will continue to be directed at improving productivity, quality and enhancing competitiveness by encouraging greater private sector involvement in large-scale integrated agricultural production-processing-marketing enterprises. Under this broad policy framework, the role of the public sector will focus on supporting the private sector through extension services, research and development, and regulatory services to promote good farming, manufacturing and marketing practices, sustainable forestry and marine resource management and food safety. In addition, specific measures identified under the NERP to increase domestic food production in order to reduce imports and combat inflation also formed an integral part of the development effort. Although prices generally remained stable during 1996-1997, inflation became a concern in 1998 as a result of the sharp depreciation of the ringgit, which led to higher producer and consumer prices. The rate of increase in the Consumer Price Index (GPI) declined to 2.7 per cent in 1997 compared with 3.5 per cent in 1996, but increased to 5.3 per cent in 1998. All categories of consumer items recorded price increases, the most significant being food, accounting for 63 per cent of the increase in the overall price index. These increases affected the poor households most. Measures were therefore taken to combat inflation, including on the supply-side such as the provision of land leases to the private sector for food production and the accelerated development of direct marketing channels to ensure fair prices of agricultural products to both producers and consumers.

During the first decade of the new millennium, agricultural development in Malaysia will be guided by the Third National Agricultural Policy (NAP3), which was adopted by the Malaysian Government on 23 December 1998. The NAP3, which was prepared 'in house' by our own officials, is considered an important milestone in the history of Malaysia's economic development as it sets out to accord a new image for Malaysian agriculture -- from one that is largely subsistence-based to an industry. This Policy seeks to address the various challenges and constraints faced by the sector, including labour, land, and water shortages. It sets out a new phase of development with the objective of transforming the agriculture sector from being input-driven to one, which is premised on productivity, quality and sustainable management practices.

The NAP3 sets the maximization of income as the underlying objective of agricultural development. This objective is to be realized through two major approaches, a broader agricultural base under an agro-forestry approach and a more focused development under a product-based approach. The agro-forestry approach emphasizes the integration of agriculture with forestry to enable wider crop-mix possibilities in order to increase the value of agricultural resources and income. The product-based approach provided for the development of agricultural activities that are consistent with the integrated production, manufacturing and marketing clusters identified under the industrialization master plan. The development of the agricultural sector under this approach is to strengthen the critical linkages and clusters to meet specific niche markets.

The transformation from input-driven commodity-based to productivity and quality-driven product-based development in agriculture requires an increasing reliance on knowledge and information. The present scenario indicates critical situations in human resource availability at the operational or workforce level to enhance productivity and quality, at the entrepreneurial and managerial level to exploit innovations and commercialization of new opportunities, and at the R&D level for breaking new frontiers in product and process development. It must be reiterated here that in Malaysia, like in most Asian countries, the potential to expand agricultural and food production into frontier areas is limited. Consequently, increased production will have to come mainly from intensification of land use. At the same time, environmental degradation must be controlled, efficiency of resources utilization increased, and genetic diversity conserved and fully exploited. Different agro-ecological areas will call for different mechanisms or combinations of mechanisms, for intensification. These will require distinct technological requirements and will create a large demand for a broad range of technologies appropriate for diverse environmental conditions. Therefore human resources development for intensification of agricultural production represents a major challenge. Intensification requires more intense level of management and quality workforce. In addition, human resource development has to be geared towards the supply of skilled manpower for new and emerging areas in biotechnology, mechanization and automation and the provision of regulatory services on sanitary and phytosanitary measures, standards and grades, resource conservation, and good farming practices. In

this regard, there is a need for more effective regional cooperation to address the shortage in the skilled manpower through formal and non-formal training.

Let me now address the issue of poverty. The economic and financial crisis highlighted the vulnerability of food security and poverty to globalization of capital and investment, in particular the speculative activities and short -term capital flows of the international financial market. In Malaysia, the crisis had wide-ranging effects including the efforts to achieve socio-economic targets with the incidence of poverty increasing in 1998 after a sustained period of decline. The incidence of poverty among Malaysians was reduced from 8.9 per cent in 1995 to 6.1 per cent in 1997 and the number of poor households declined by 20 per cent from 370,200 in 1995 to 294,400 in 1997. In 1998 the incidence of poverty was increased to 7.0 per cent while the number of poor households grew to 342,500. The success achieved in reducing poverty during 1996-1997 can be attributed to the expansion of the economy, which grew at a rate of 8.2 per annually and created 781,200 new jobs as well as a broad range of business opportunities. In addition, specific programmes to generate growth increase productivity and accessibility of basic amenities, particularly in the rural areas where the poverty incidence was relatively higher, also contributed to the reduction of poverty and improvement in living standards. Programmes that were implemented included modernization and commercialization of the smallholder sub-sector, consolidation and rehabilitation of land, expansion of rural-based industries and the provision of basic services such as education, health, water and electricity. These programmes contributed to an increase in the mean monthly household income of agricultural workers from RM 1,048 in 1995 to RM 1,233 in 1997.

Let me highlight some of the special programmes that Malaysia implemented to reduce the incidence of hardcore poverty. Under the Program Pembangunan Rakyat Termiskin or Hardcore-Poor Development Programme, the Government provided grant to hardcore-poor households for income-generating projects including cash crop cultivation, livestock rearing, aquaculture, petty trading and cottage industries as well as for training and basic amenities, including building and upgrading of houses. Interest-free loans were also provided to enable hardcore poor to participate in Government approved unit trusts so that the poor can receive annual dividends and bonuses. In addition, the programmes of non-governmental organizations (NGOs), in particular Amanah Ikhtiar Malaysia or AIM also contributed towards increasing the income of hardcore-poor households through the provision of interest-free loans to enable them to venture into agricultural activities and small businesses. The implementation of the above programmes has contributed to the eradication of hardcore poverty. The incidence of hardcore poverty among Malaysians was reduced from 2.1 per cent in 1995 to 1.4 per cent in 1997, while the number of hardcore-poor households declined by about 24 per cent from 88,400 to 67,000. However, the recessionary effects of the economic slowdown in 1998 also negatively affected the progress made in eradicating hardcore poverty. As a result, there was an increase in the overall incidence of hardcore poverty among Malaysians to 1.6 per cent and the number of hardcore-poor households to 78,100. The Malaysian Government will continue with the programmes to eradicate poverty through the creation of the right environment for the poor to utilize their own economic potential in order to develop a self-reliant community. In line with this, the Government will continue to take measures to ensure livelihood security of the poor, with emphasis on measures to reduce vulnerability and manage variability and risk as key components of sustainable income generating activities of the poor. From the experience of the economic and financial crisis, the macro-economic management of shocks to ensure stability of income at all times for an active healthy life has become an important component of our poverty eradication programmes and measures are needed to reduce transitory livelihood insecurity of the poor. In this regards, the Government will continue to provide basic amenities, skills training, micro-credit facilities and support the effort of non government organizations and other private initiatives, such as the credit scheme by AIM designed to provide sustainable income-earning opportunities for the poor.

Let me conclude by reiterating that with globalization of capital and investment, the management of shocks affecting the vulnerability and variability of income from agriculture and livelihood of farmers, in particular the livelihood security of the poor will become a major challenge in the next millennium. A new dimension in macro-economic planning for sustainable agricultural development and poverty alleviation will have to be the effective and skillful management of external shocks' to ensure national food security and the improved livelihood of the population at large.

Key Note Presentation
Experience and Perspectives of the ASEAN
by
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Introduction

Up to early 1997, Indonesia had posted a success story in its development record despite a series of severe external setbacks. Twenty-five years ago, Indonesia was one of the poorest countries in the world, with an annual per capita income of only US$50. Since then, it has made great strides, achieving an average GDP (Gross Domestic Products) growth of almost 7 percent per annum, a growth performance that ranks among the ten fastest in the world, and is on a par with that of the dynamic East Asian economies. During this period, Indonesia has moved from being a low-income country to being a middle-income one. Indonesia's per capita income rose by 4.5 percent each year to reach more than US$ 1000 in early 1997. In real terms, this per capita income level is three times higher than that of 30 years ago, implying a substantial improvement in the living standards of the Indonesian population and poverty alleviation.

Indonesia was the last of the country so called Asian tigers to be affected by the global economic crisis started in 1997, but unfortunately the Indonesian economy has been one of the most deeply affected. In 1998 GDP fell by 13.6 percent, inflation soared to nearly 78 percent after decades of stable prices, interest rates climbed to over 62 percent, and the exchange rate was very unstable and depreciated by as much as 84 percent. The government predicted that the poor increased from 11.3 percent in 1996 to 39.1 percent in 1998, which was around 79.4 million people.

Although the economy had been viewed as fundamentally sound by numerous experts domestic and foreign even in the early stages of the crisis, it proved to be vulnerable because of balance of payment (BOP) reliance on foreign capital flows, large amounts of foreign denominated debt; and the resulting fragility of the banking system.

The crisis did not affect all sectors of the economy equally. The industrial, financial and construction sectors were affected most deeply, but the agricultural sector proved remarkably resilient. This paper presents the role of agriculture in historical perspectives and future direction of agricultural development facing the challenges and prospects in the 21st century. Adjustment policies on rice also discussed since rice plays an important role in Indonesian economy.

The Role of Agriculture in Historical Perspectives

Agriculture has always been instrumental in supporting Indonesia's economic development. The sector annual growth rate averaged around 3 percent over 25 years, making it possible to provide relatively cheap food for more than 200 million population; and support the development of manufacturing industries by providing raw materials. Indonesia thus far has managed to cope with its food problems, because of the wealth of natural resources available, with hard working farmers and supported by effective government policies.

The share of agriculture in the country GDP has declined from 43 percent in 1969 to 17 percent in early 1997. During the same period, the agricultural sector grew by 3.4 percent per annum. The value of agricultural exports in 1996 was around 20 percent of the total non-oil exports. Palm oil, coffee, tea, cocoa, shrimp and tuna fish were the major agricultural export commodities.

A worrying fact is that the decline in employment in the agricultural sectors has been much slower than the decline in its share of the GDP. The proportion of agricultural workers in the total workforce fell from 55 percent in 1985 to 53 percent in 1990 and an estimated 44 percent in early

1997. At the same time, the absolute number of agricultural workers has been continuously increasing. In 1997, approximately 35 million people were employed in agriculture. This indicates that the sector remains a major economic activity for employment generation, although one with low labour productivity. All this evidence suggests the critical importance of promoting agricultural mechanization and improved agricultural technologies to increase labour productivity and efficiency, and to achieve more balance of the country economic structure.

Agriculture also plays an important role in reducing poverty and inequality in rural areas. The number of poor people fell from 54.2 million or 40 percent of the population in early 1976, to about 27.2 million or 15 percent of the total population by 1990. In early 1997, out of every 100 Indonesians, fewer than 12 persons were still living below the poverty line.

Started in the second half of 1997, however, El Niño hit the country causing the worst drought in the last 50 years and leading to temporary decline of agricultural (food) production capacity of the country. Moreover, the occurrence of economic crisis, which was reaching its peak in the first half of 1998, was causing real income of farmers declined whilst the price of agro-inputs increased. These led to the decline of farmers' capacity to apply recommended technology. Consequently, in general agriculture production especially food crops, in 1997 and 1998 were lower than that of 1996.

The country's development policies to overcome the turmoil has been set up through a Special Session of People Consultative Council (MPR) held in November 1998. The more important of those economic development policies which are related to agriculture are as follows:

i) Provide adequate supply of nine basic commodities at affordable prices, through both domestic production and imports.

ii) Improve production processes, especially small scale and medium enterprises, and export oriented activities as a foundation for the development of a strong economic fundamental.

iii) Explore economic potential of natural resources, marine in particular, to increase export earnings.

iv) Deregulate impediments on investment, production, distribution and trade.

In line with those policies, the Ministry of Agriculture has set three main focuses in its development goals. They are: (i) sustaining food security for the whole population, (ii) empowering small and medium enterprises and (iii) increasing export earnings.

Considering that the process of agricultural development is not merely related to large scale enterprises, but mostly involved millions of small scale farmers, agricultural extension should be revitalized in the effort to increase farmers' willingness in implementing recommended technology. For that reason, started in 1998 the Ministry of Agriculture has been launching a self-reliance campaign in order to increase agricultural production through empowering farmers' willingness, ability and capacity in production processes. In Indonesian term, the program is called *Gema (Gerakan Mandiri*). There are three Gemas, namely *Gema Palagung* (*padi, kedelai dan jagung*) for rice, soybean and corn; *Gema Hortina* for tropical fruits, and *Gema Proteina* for livestock products which are mainly poultry, cattle beef and dairy.

Despite the effects of the 1997 drought in most parts of the country and tremendous dislocations caused by the crisis, the agriculture sector demonstrated tremendous strength in coping with the economic crisis. Although the national economy experienced a contraction of 13.6 percent in 1998, the agriculture sector posted a positive growth of 0.26 percent, while other sectors experienced negative growth. Through the *Gema Palagung* program, rice production can be increased as much as 2 million, so that total rice production in 1998 was 48.5 million tons unhusked paddy and corn production 10,1 million tons dry kernel or increased by 14.7 percent from previous year.

The important role of agriculture as a safety belt during such crisis period as Indonesia currently faced has been widely recognized, and of course will put a high expectation to agricultural sector to revive immediately. Indonesia is aware of it, and considered agriculture as a vital sector in turning the country's economic wheel and recovery.

The economic crisis appears to have "bottomed out" about few months ago. Since January 1999 the exchange rate of rupiah has strengthened considerably, inflation is moving back into single digit levels, interest rates is declining and approaching a normal rate, and growth for 1999 may even be positive. Indonesia has held a free election on June 7 and will begin the second millennium with a democratically elected government with a mandate to complete the reform process. Much has been done already and much more is yet to be done.

Future Direction of Indonesian Agriculture

Basically, reorientation of agricultural development approach has been started before the occurrence of economic crisis. This was led by the dynamic changes in the world market situation and also took into account the fact that Indonesia's condition was significantly different from that of more than 30 years ago, when the country started to build its economy. In the mid 1990's, the shift in the paradigm of Indonesia's agricultural development was introduced, which consists of:

i) Shifting from centralized to decentralized planning. in order to ensure people participation, to optimize the use of diverse natural resources, and to achieve a more equitable development of different regions.

ii) Shifting from orientation of higher production to meet domestic demand to improving income and welfare of farmers.

iii) Shifting from the production of primary commodities to agribusiness in rural areas, in order to create added value and retain it for rural ho use holds.

iv) Shifting from labor-intensive technology to create more employment opportunities, to capital-intensive technology and agricultural mechanization in selected activities and areas, as a means of increasing productivity and efficiency.

v) Shifting from a strategy of development led by agricultural import substitution to one led by agricultural export promotion in response to world trade liberalization.

vi) Shifting from a dominant government role in economic development activities to more participation of private sector.

The economic crisis has raised the reform spirit throughout the country, and the reform covers almost all aspects of public life. In line with this trend, a number of significant steps have been taken in economic as well as political reforms. In the economic aspect, the reform is directed toward more liberalization, restructuring of the economy to increase private sector participation, and supporting small and medium scale enterprises to take an important role in the national economy. These are done by creating incentives, removing barriers, and promoting decentralization of economic activities and regional economic centers.

In agriculture, this implies a total adjustment and reformation of policies and strategies to promote agricultural development in the future. Along this line the vision of Indonesian agriculture is to create a modern, resilient, and efficient agriculture. With this vision, it is expected that farmers will be efficient in utilizing resources, which enable them to compete strongly in global economy and will be highly flexible in responding to the dynamic changes of commodity markets, both domestic and international. Strategy to visualize the vision and mission of agriculture are: (i) optimizing the use of domestic resources such as land, water, germ plasm, labour, capital and technology; (ii) broadening the spectrum of agricultural development through diversification of technology, resources, production and consumption; (iii) implementing a dynamic locally specific agricultural technology; and (iv) increasing efficiency in agricultural development by using agribusiness approach to produce competitive goods, which would bring welfare to both producers and consumers.

In line with the reforms in all sectors, the Ministry of Agriculture has set eight agriculture agendas of reforms, which is nothing but the shifting of paradigm into the one which will enable agriculture to play a central role in the national economic recovery. Focus of the agenda of reforms is

repositioning agriculture as an engine of economic growth and empowering farmers to articulate their aspiration and interest effectively. The eight agendas of reforms are:

i) Repositioning agriculture as a leading sector and prime mover of the national economy, through improvement of productivity, efficiency and quality;

ii) Empowering farmers' capacity and improving their self-reliance to improve their incomes and welfare;

iii) Focusing agricultural development missions and targets to improve efficiency, since in earlier time agricultural sector was loaded with broad-based missions of development;

iv) Improving the linkage of agricultural production with other sub-systems (i.e. inputs and infrastructures, processing, marketing and distribution) within the framework of agribusiness development approach;

v) Empowering farmers and farmer group institutions to be able to articulate their aspiration and interest effectively;

vi) Revitalizing agriculture staff (civil servants) including extension workers in giving assistance and guidance;

vii) Sharpening direction and orientation of commodity development in line with market dynamics, leading commodities with high competitiveness, environmental friendly, and integrated with other sectors; and

viii) Supporting the process of democracy through revitalizing agricultural institutions and apparatus, and accelerating the implementation of autonomy to the regions in the process of development planning.

Adjustment Policy on Rice

Rice is the main commodity in Indonesian agriculture, and plays a very important role in the economy. It is the staple food for about 97 percent of the Indonesian population. It contributes around 60 percent of total energy (calorie) consumption and around 50 percent of total protein intake. Apart from being a staple food, rice farming is a major source of income and employment, especially in rural areas. Besides rice has an important economic role, it also has significant political, social and cultural values. Availability for the whole population at affordable price and stability of rice price has significant influence on Indonesia’s political stability.

For the last three decades, the government policies on food focuses on rice self-sufficiency based on the following principles: (i) encouraging farmers to produce adequate cheap rice for all Indonesian; and (ii) ensuring distribution of rice to all regions and stabilizing price all time. Those policies implemented through: (a) subsidizing production inputs, namely fertilizers, pesticides, and certified high yield variety of seeds; (b) subsidizing working capital in the form of farm credit with low interest rate in order to facilitate farmers to implement recommended package of technologies; (c) setting floor price of rice and providing cooperatives with credits for rice procurement, especially at harvesting time in order to ensure a profitable price of rice for farmers; (d) conducting stock management by BULOG (State/National Logistic Agency) through domestic purchase from cooperatives and local traders at floor price and import; and (e) conducting market operation whenever consumer price of rice reaching its ceiling price.

The above financial policies were also supported by the following non-price policies: (i) investment in the construction, maintenance and rehabilitation of irrigation; (ii) construction and rehabilitation of rural economic infrastructures such as farm roads and other transportation systems; (iii) conducting applied researches to produce high yield variety of rice and locally designed technology on efficient farming systems; and (iv) intensive extension activities to encourage farmer implementing new technologies.

The implementation of the above policies has successfully increased domestic rice supply and even self-sufficiency in 1984, price stabilization, and providing adequate cheap rice. This was also creating conducive conditions for industries to grow as it led to cheap labour. However, those policies

also had negative impacts. They were: (i) lowering incentive for farmers to grow rice; and (ii) huge amount of subsidies which did not only give heavy burden on government budgets but also affected negatively on allocative efficiency of resources.

Considering the above negative impacts, combined with strong pressures from global market and growing domestic demand for liberalization in all aspects, the cheap rice policy has been gradually eliminated and moving toward market mechanism. However, as rice is one of the strategic commodities, the role of government is still required and maintained to ensure adequate supply and affordable by all segments of population, including the poor. At the same time, production incentives in the form of input subsidies were eliminated and replaced by non-price incentive to empower and make farmers to be self-reliant.

The implementation the above policies are expressed by steps taken by government, as follows:

i) Demonopolization of rice market previously held by BULOG and importation of rice can be done by any firm.

ii) Implementation of floor price policy based on regional economic.

iii) Distribution of cheap rice is targeted to poor segment of population only (laid-off family and people under poverty line).

iv) Elimination of fertilizers subsidy. Along with pesticides and other agro-chemicals, its prices are determined by market mechanism.

v) Demonopolization of fertilizer distribution previously held by PT. PUSRI, a state owned firm. Now any firm can import and distribute fertilizers at market prices. However, for specific remote areas, distribution cost subsidy is still provided.

vi) Subsidized farm credit is widened in its scope, amount of maximum credit per hectare is increased and farmers' accessibility improved. Total ceiling of credit fund allocated by government was increased dramatically from only Rp 150 billions in 1997 to Rp 3.5 trillions in 1998, and to Rp 6.5 trillions in 1999.

Implementation of the above re-oriented policies in rice economy is anticipated to have the following impacts: (i) rice price will be more fluctuating, following domestic harvest fluctuation and exchange rate movement; (ii) relative price of rice will be maintained a little bit higher than that during BULOG-price stabilization era due to complete elimination of input subsidies; (iii) non-price policy will increase efficiency and give incentives to farmers, and at the same time reduce costs of production; (iv) as rice price increases, per capita rice consumption is expected to decline and food diversification is expected to accelerate, which mean per capita rice consumption will drop significantly; and (v) reduce burden on government budget for input subsidies and market operation expenditures.

The government has not and will not change its basic policy concerning the pursuant of rice self-sufficiency. The basic strategy for rice economy in Indonesia should be to maintain balanced growth in domestic production and demand at long-term world prices. Any pronounced shortfall may carry a large cost, because Indonesia with its huge population, is one of the major actors in the world rice market. Thus, investment in higher rice productivity, particularly in improving irrigation, research and extension, can be seen as part of a stabilization strategy as well as part of strategy for growth with equity.

Challenges and Prospects

The world is facing a serious food problem: hunger, malnutrition and poverty prevail in many developing countries. Part of the reason is because food production has not keep up with the population growth in these countries; the resources for food production are continually depleted. This serious food problem cannot be seen as solely the problem of individual countries, but must be seen as an issue for the Asian region as well as the entire world. All countries, the developed as well as the developing must take action to remedy this problem. It is imperative, therefore, that agriculture and food remain as priority issues on the international agenda.

The problems of hunger and malnutrition, the gap between the north and south, and the de-stabilizing effects of deep economic crisis in the developing countries cannot be isolated from the developed countries. Stagnant and declining economies in the Third World results in illegal migration, social unrest, political instability and environmental degradation. If you are not sure where your next meal is coming from, then you tend to not worry about things such as forest degradation, land erosion and pollution in rivers and streams. It is only people that have achieved a basic level of food security, that concern themselves with preserving the basis of that security. On the other hand, growth increases our capacity to import, to buy things from developed countries. It is expected that the developed countries will open up their market as much as possible for the agriculture products from developing countries, only then the developing countries can benefit fully from the world free trade system.

The agricultural sector in the economy today has to be progressive and dynamic. Just recently Indonesia are opening up both our input markets and commodity markets as never before. This will greatly enhance the role of trade and global markets in the welfare of our farmers, consumers and agribusiness industries. All of these changes are a tremendous challenge for farmers in Indonesia.

For the last three decades we have provided security for producers and consumers by controlling trade, and affecting floor and ceiling prices with subsidies as needed. This system worked fairly well for us but became unsustainable with the massive devaluation and resultant inflation of the rupiah. We are now committed to a more open market oriented system. At the same time, we may need to support our farmers if the international price of rice drops sharply. Policy options in this regard are more limited since agriculture is a much larger share of our national income. One need to look at other methods of providing farmers in developing countries with more stable price expectations within the context of open flexible markets.

The developing countries' agriculture is being left behind when it comes to research. Funding for National Agricultural Research (NARs) has never been adequate. The private sector now plays the major role in research in the developed countries; this is not yet the case in Indonesia and other developing countries that still follow the model of publicly funded agricultural research and extension. Indonesia wants to make greater use of the capacity and results of the research from privates and international institution. We are currently reviewing our legal and institutional system for seeds with the objective of making it attractive for the private sector, including such things as protecting intellectual property rights and re-defining the role of the government.

Developing countries in general are being also left behind in biotechnology research in the field of agriculture. The emphasis of biotechnology research in tropical countries is on funding gene banks rather than applying biotechnology to tropical crops. In terms of biotechnology, one has to be realistic that the conventional technology does not have the capability to push agriculture productivity in such a way that will enable the world to satisfy its ever-increasing food need. Asian countries need, therefore, to continually look for new technology that will further promote agriculture productivity. In this respect, biotechnology currently is promising, even though there are a lot of questions still remaining to be answered. We believe that biotechnology should be used in scientific and responsible manner for the welfare of mankind.

Concluding Remarks

There is evidence that macroeconomic policies (fiscal, monetary and exchange rate policies) are important policy instruments to achieve sustainable growth. However, experience suggests that these policies need to be used in a coordinated fashion to keep the economy growing. The policy objectives for agriculture are unavoidably interwoven with the objectives of Indonesia's overall national policy, because of the relative economic importance of agriculture.

The agricultural sector has been a main sector of the economy for the last three decades and will continue playing the same role in this reform era. In view of the importance of agriculture on GDP, labor absorption and the domestic food supply, this sector has been the primary concern of the Indonesian government. There have been significant shifts in policy with a much greater emphasis on

market orientation with a greater role of the private sector. Through this new policy framework, it is expected that the agricultural sector can provide food and industrial raw materials needed by the growing nation, make both producers and consumers better off, competitive on global markets as well as being a dynamic and resilient part of the economy.

With the above mentioned policy reforms, the future direction of agriculture development, especially on food, will be maintaining food security and self-sufficiency on trend of rice, and integration of agriculture with processing industries in the framework of agribusiness. The utilization of advanced technologies and machineries in agriculture will be accelerated as efficiency and commodity competitiveness become key issues in agriculture development. In line with this direction, private sector will play a major role in agricultural research and development, especially on agricultural technology adaptable to Indonesia s natural resource diversity.

Key Note Presentation
Experience and Perspectives of China
by
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The Asian financial crisis has caused serious damage to the economy of Southeast Asian countries and the surrounding regions and a certain degree of negative impact on China' s economy and agricultural development as well. Since the second half of 1997, we have overcome various difficulties and carried out reform and opening up policies and adopted a series of policy measures. By doing so, we have maintained the stability of exchange rates of the Chinese currency, the Ren Min Bi (RMB); alleviated the negative impacts of the crisis; promoted the sustained growth of national economy; and achieved successive good harvests of grain production.

China's Agricultural Situation in the Wake of the Asian Financial Crisis

The Asian financial crisis has brought the following four negative impacts on China' s agriculture:

1. *Negative impact on agricultural exports*. The Southeast Asia is the major export market of the Chinese agricultural commodities. In 1998, the export value of China' s agricultural commodities to eight countries and regions in the Southeast Asia went down by US$ 1.1 billion, a decline of 11 percent compared with the previous year.

2. *Negative impact on the export of products from China' s township enterprises*. In 1998, the township enterprises earned 685.4 billion yuan (RMB) of export value on delivery, an increase of 2.5 percent over the year before. However, its growth rate went down by 14 percentage points.

3. *Negative impact on the utilization of foreign investment*. Township enterprises in coastal provinces like Shandong, Guangdong, Zhejiang and Fujian found some decline of the total inflow of foreign capital and an obvious reduction especially from Japan and Korea.

4. *Negative impact on incomes*. The declined export of agricultural commodities, slowed growth rate of national economy and shrinking consumer demand have led to insufficient market demand for farm produce, declined prices and reduced growth rate of farmers' income.

Confronted with these negative impacts of the Asian financial crisis, we have applied a key measure of strengthening agriculture and promoting the development of rural economy to stimulate domestic demand and offset impacts of the crisis. To this end, we have asked governments at different levels to attach a greater importance to agriculture than ever before; and to avoid any slackness caused by successive bumper harvests of agricultural production. In the meantime, we must make greater efforts to improve construction of infrastructure, production conditions of agriculture and open up rural markets through strengthening the basic status of agriculture and increasing input to agriculture by a bigger margin. As a result, we have effectively stimulated agricultural growth and ensured stable increase of farmers' income. In 1998, agriculture and rural economy have maintained a sound momentum of development in spite of the most serious floods never seen in the past 100 years. The gross value of agriculture, forestry, animal husbandry and fisheries of the year was up to 2,510.34 billion yuan (RMB), an increase of 2.1 percent over the year before. The grain output reached up to 490 million tons, about the same as the previous year. The production of oil crops, sugar crops, fruits and vegetables all went up as compared with 1997. The livestock and fishery sectors also had a steady increase. The township enterprises realized a total increased value of 2,218.6 billion yuan (RMB), an increase of 17.3 percent over the year before. The net income of farmers was up to 2,162 yuan (RMB), an increase of 4.3 percent over 1997 after deducting price factor. The number of rural absolute poverty population was declined to 42 million from 50 million and poverty occurrence rate down to 4.6 percent.

Characteristics and Problems of Agricultural Development at the Present Stage

Thanks to the reform and opening up over the past 20 years, agriculture and rural economy in China has entered into a new development stage. The situation of long-term short supply of agricultural commodities has been changed. As a result, the requirements of food and clothing can be satisfied; the supply and requirements of major farm produce could keep a basic balance and the market may even have some surplus in years of good harvests.

Agriculture and rural economy are of the following characteristics at the new development stage:

1. *Remarkable changes in economic structure of rural areas.* In the rural economy, the share of agriculture dropped down to 26.2 percent in 1998 from 68.6 percent in 1978. In the meantime, the share of non-agricultural industries raised from 31.4 percent to 73.8 percent. In the agricultural sector, the share of crop farming declined to 56 percent in 1997 from 80 percent in 1978, that of animal husbandry and fishery raised from 16.6 percent to 40.6 percent. The allocation of various elements and resources has been further optimized. The holistic quality and comprehensive benefits have also improved remarkably.

2. *Accelerated commercialization of agriculture.* Since 1978, the index of commercialization has kept rising with slight fluctuations. The growth rate of commercialization was above 30 percent in 1980, over 50 percent in 1985, above in 1990 and over 69 percent in 1996.

3. *Restructuring of farmers' organizations*. On the basis of the household contract system with remuneration linked to output, farmers have established various forms of cooperatives to meet the needs of commodity-oriented production and market access. By the end of 1996, there were 1.4 million specialized cooperatives nationwide and 2.34 million community cooperatives. In recent years, rapid agricultural vertical integration has been realized through cooperatives and pillar enterprises. Markets, enterprises, agricultural production bases and farming households have been linked effectively through vertical integration. By so doing, we have realized integration of farm production, processing and marketing so to reduce market risks, increase economic returns and strengthen the organization of operations.

4. *Advancement of science and technology as the primary driving force for agricultural development.* Over the past 20 years of reform and opening up, we have firmly uphold that science and technology is the primary production force and implemented the strategy of boosting agriculture by relying on science and technology. Farmers' quality has been greatly improved in terms of their knowledge of science and technology, decreased illiteracy rate, increased ratio of educated farm labours with diplomas of junior high school or above and a stronger capacity of accepting new techniques.

5. *Closer ties between agriculture and the national economy and even the global economy.* Being the foundation of the national economy, agriculture has provided not only grains and other products for the population of more than 1 billion in the country, but also supplied raw materials for the secondary and tertiary industries and a huge market as well. At the same time, with the accelerated economic globalization, the further opening up of the domestic agricultural market has not only provided an opportunity for agricultural export and utilization of foreign investment, but also brought China' s agriculture to the fierce international competition.

In the new historical period, China' s agricultural development still faces new problems. One, the restraint of resources and environment becomes more and more serious. Farmland availability per capita in China is only 0.08 ha, which is about 40 percent of the world average. With the process of industrialization and Urbanization, the acreage of farmland will continue to decrease. China is also one of the countries that are in great shortage of water in the world. The per capita availability of water is only 2,300 m^3, less than l/4 of the world average. The deteriorating ecosystem also becomes a major restraint to agricultural development. Severe soil erosion, damage to vegetation and desertification lead to serious damages to agricultural production. Two, market control becomes much

stronger. With the primary formation of buyers' market of farm products, it is imperative to establish a supply system for farm products in line with the demand system and to improve the quality of farm products. It is the priority at present and in the future. Three, the agricultural infrastructure construction is rather backward. Most of the existing farmland infrastructure and irrigation facilities were mainly built in 1950s and 1960s. The problem of outdated facilities and incomplete sets of equipment is very serious. According to statistics, because of the outdated irrigation facilities, the total acreage of irrigated farmland decreased by more than 300,000 ha annually in 1990s. Four, the level of agricultural technology can not meet with the requirements of agricultural development: lack of major agricultural scientific results, low rate of application, unsatisfactory performance in terms of agricultural research and extension and incomplete agricultural service system. Five, the growth rate of farmers' income has slowed down and the poverty alleviation situation is not optimistic. In recent years, since the profits of township enterprises were not as good as before, less rural laborers went out to work. In addition, due to the increase of agricultural production cost and the decrease in market price, the growth rate of farmers' income slowed. In 1997, the average farmers' net income was 4.6 percent higher than that of the last year while the growth rate decreased by 4.4 percentage point. And the growth rate of 1998 still fell down. At present, most of the 42 million poverty-stricken population is in remote areas with relatively poor condition for production and living. It is really hard to solve the subsistence problem for this part of population.

Measures for Trans-Century Agricultural Development in China

It is now the critical time for China's modernization construction till the year of 2010. In order to realize the trans-century objective for agricultural development, we will give the top priority to agriculture in the national economic development, persist in the fundamental rural policies, further improve the comprehensive capacity of agriculture, readjust and optimize agricultural production structure. We will try our best to improve the agricultural ecosystem and make intensified efforts in poverty alleviation to realize the sustainable development of agriculture.

1. *Stabilize the fundamental rural policies for the long term*. The two-tier management system with the combination of unification and diversification, which is based on the household responsibility system, is the basic rural policy in China. We will stick to this policy with strong determination. Promote the normal transfer of land tenure and instruct farmers to be on the road of specialization, commercialization and modernization. Strengthen the politic power at township level and the construction of farmer-managed organizations, improve the rural grass-root democracy so as to safeguard farmers' legal rights.

2. *Deepen reforms on the rural economic mechanism.* Persist in the policy of market-orientation, accelerate the reform on the circulation system of major farm products like grain and cotton. Optimize the pricing mechanism based on market prices in order to establish the unified and open market system for farm products with fair competition. Develop rural market for production factors and promote the transfer and optimal allocation of production factors such as land, capital, technology and labor force. In the light of production and market demands, promote inter-regional collaboration among diversified ownership, encourage the development of diversified specialized cooperatives, further reform farmers' organizations in order to improve their social services, improve commercialized operation of agriculture, establish and support pillar enterprises, and pay equal attention to the interests of pillar enterprises and farmers to achieve common prosperity.

3. *Readjust and optimize the agricultural structure*. Make good use of the current opportunity of sufficient supply of farm products, readjust and optimize agricultural structure, which is oriented by the market demands with the focus on economic returns and quality. Rely on scientific advancement and make full play of regional comparative advantages in order to change the current situation of inferior quality of farm products with poor processing techniques. Try to formulate the quality specifications for farm products in the near future to adopt the practice of high price for fine quality. Further improve the collection and release system for market information, which should play the role of guidance for farmers. Provide incentives for farmers to readjust the agricultural structure.

4. *Strengthen agricultural infrastructure.* The emphasis will be put on the restoration and completion of water conservancy facilities in areas covered by large and medium-sized irrigation

networks and on the improvement of irrigation systems on the farmland. The technology of water-saving irrigation will be extended and rainfall-harvesting and water-saving irrigation programs of large-scale will be implemented with more efforts to increase the use of natural precipitation and irrigated farmland areas. Efforts will be made to build small-scaled water conservancy facilities such as small ponds, small reservoirs, small water-cells, small diversion projects and small water lifting projects.

5. *Continue to implement the strategy of revitalizing agriculture through science and education.* Reforms in the agricultural science and technology system will be deepened and distribution of research institutions will be readjusted and their functions redefined. The priorities will be more highlighted, innovation will be encouraged and efforts will be joined to solve the most challenging problems. All these are aimed at bringing the agricultural research to a higher level. We will persist in the combining the research in basic science with application research, combining the high-tech research with research in conventional technologies, combining research based on self-reliance with introduction of technologies, and combining research efforts with efforts in dissemination of research results. With this, we are striving to make breakthroughs in biological engineering, genetic engineering and applicable technologies. We will strengthen the agricultural extension system at grass-root level and support non-government service organizations of all kinds. We will restructure the agricultural education system, promote secondary agricultural education and occupational education, continue to implement the "Green Certificate" system and implement the agricultural technical training program so as to improve farmers' quality in terms of science and culture, and enhance their capability to accept and use the agricultural techniques.

6. *Persist in the sustainable development of agriculture.* To realize the sustainable agriculture development is the common challenge faced by the world agriculture. We will further protect our farmlands, grasslands and water resources, and reduce the pollution to soil and water resources caused by in appropriate use of fertilizer, agrochemicals and plastic film in agricultural production. We will intensify the efforts to protect the environment of and fish stocks in the in-land lakes and the coastal waters, and adopt fishing moratorium in summer. We will endeavor to build agricultural systems along the upper reaches of the Yangtze River and Yellow River and in the areas of the "three norths", where the ecological system is extremely fragile. The pace of controlling grassland degradation, desertification and alkalization will be accelerated so as to check the deterioration of grasslands. Resolute efforts will be made to stop the practice of cutting down trees to make room for crops and of making more farmland by draining up margin areas of lakes. The techniques of returning the untreated stalks and animal-digested stalks to fields, and producing biogas from the treated stalks will be extended with a view to promoting the integrated use of stalks.

7. *Intensify efforts to eliminate poverty*. We will continue to increase the investment by a wide margin via multiple channels and do a good job in the food-for-work programs. We will gradually extend the practice of eliminating poverty by granting small-amount credits. And sticking to the policy of eliminating poverty by means of development, we will promote the livestock production with the emphasis on the improvement of living and production conditions of the poor. We will combine the economic development with the intelligence development and help the poor through science and education. The small number of poor people living in extremely harsh conditions will be migrated in a planned way. People from all sectors of the society will be encouraged to set up connection with some households in the poor areas and expected to help these households shake off poverty.

Key Note Presentation
Experience and Perspectives of South Asia
by
H.E. Mr. Mian Abdul Sattar Laleka
Minister for Food, Agriculture and Livestock
Pakistan

It gives me pleasure to be amongst you to speak about agricultural development and poverty alleviation in Pakistan. Agriculture is the largest income generating sector. It contributes 25 percent to our GDP. It employs 47 percent of the total labour force and supports directly or indirectly nearly 70 percent of the population. It accounts for about 68 percent of our export earnings and provides raw material for our major industries. Efficient harnessing of the agricultural resources of the country is, therefore, vital for Pakistan.

The major sub-sectors of agriculture sector in Pakistan are crop sub-sector and livestock sub-sector contributing 62 percent and 34 percent, respectively. Salient figures about land use in Pakistan are as under:

Geographical area:	79.61 million hectares
Under cultivation:	22.04 million hectares
Culturable wasteland:	9.14 million hectares
Forest area:	3.59 million hectares

One of the most importance features of our agriculture is that only 17 million hectares of our land is the net area sown in a year. This is just 21 percent of our total geographical area. It means that a very large potential for development of agriculture exists in Pakistan.

Constraints

Constraints in the way of realizing this potential are as under:

- Low average crop yield particularly in wheat, rice and sugarcane
- Land resource constraints including water-logging and salinity
- Water resource constraints and water losses in the present irrigation system
- Farm power availability is about 50 percent of the requirement
- Fertilizer applications is not according to requirement
- Availability of quality seeds is less than 50 percent of the requirement
- Plant protection coverage is less than one-fourth of the total cropped area
- Agricultural credit availability is less than the requirement
- Agriculture sector contributes one-fourth to GDP but in terms of Public Sector Annual Development Programme, it gets marginal allocations

Agriculture Performance in 1998-99

Agriculture sector showed a growth rate of 5.90 percent in 1997-98. Target growth rate fixed for 1998-99 is at 5.4 percent. The performance of the crop sector showed a mixed trend during 1998-99. Performance of the selected major crops is discussed below:

Cotton: Cotton production target for 1998-99 was at 10.5 million bales while production is estimated at 8.8 million bales. This is 4.3 percent less than last year's production of 9.2 million bales. The low production is due to decrease of 1.2 percent in area, abnormal weather conditions and attack of curl leaf virus in certain parts of the country.

Rice: Production for 1998-99 is estimated at 4.7 million tonnes, which shows an increase of 7.8 percent over the last year's production of 4.3 million tonnes. The improvement is due to increase in

area as a result of price incentives, shifting of cotton area and less attack of pests/insects and disease on the crop. In Sindh, the crop received a set back due to rainfalls in October.

Sugarcane: Target of the sugarcane crop for the year 1998-99 was fixed at 51.7 million tonnes. According to preliminary estimate production of sugarcane for 1998-99 stands at 55.2 million tonnes as against 53.1 million tonnes of last year indicating an increase of 3.9 percent as a result of favourable weather conditions, increase in support price and shifting of area of other crops especially of cotton to sugarcane, receipt of proper rainfall at intervals during the year and use of more fertilizers for the crop.

Wheat: The Federal Committee on Agriculture (FCA) had fixed area and production targets at 8.3 million hectares and 19.0 million tonnes, respectively for 1998-99. According to preliminary estimate production of wheat for 1998-99 stands at 19.0 million tonnes against 18.69 million tonnes of the last year indicating an increase of 1.7 percent.

Oilseeds: Total consumption of edible oils during 1997-98 was 1.69 million tonnes of which 30 percent came from local production and 70 percent was imported. The edible oil requirement for the year 1998-99 is projected as 1.7 million tonnes. Of this, local production is estimated to account for 31 percent and the rest 69 percent of the requirements are forecast to be imported.

Inputs

Fertilizer: The Government of Pakistan continued to assume the responsibility of ensuring timely availability of required type of fertilizer. Revolutionary measures were taken to maintain a sizeable reserve of fertilizers. The measures included ensuring availability of fertilizer at all the times in every corner of the country and importing sufficient DAP during next financial year to meet the demand.

The Consumption of fertilizer, which contributes largely towards improved production, increased to 2.63 million nutrient tonnes in 1997-98 from 2.41 million tonnes in 1996-97. Major increase was witnessed in the consumption of Phosphate fertilizers.

Improved Seed: The Federal Government controls the quality of seed right from breeder's seed to certified seed. In accomplishing this task the government registers crop varieties for certified seed production and inspects the standing crops in order to assess the present quality of seeds. The seed from the inspected fields is also subjected to thorough investigation in the laboratory to determine the analytical purity, germination and moisture contents, etc. The quality of seed purchased by various agencies is also evaluated through pre-and post control tests in the field.

Water: As the Government of Pakistan is giving high priority to water use efficiency for achieving self-sufficiency in agricultural commodities, a huge " On-Farm Water Management Programme" throughout the country is in operation.

Economic Incentives

Support Price Programme: Support price policies are being used as a tool to increase productivity of crops in years of abnormally low prices. Presently, the support prices of wheat, paddy, seed cotton, sugarcane, gram, omon, potato, sunflower, soybean and safflower are fixed by the government. The support prices are reviewed by the government each year and revised taking into account various factors like costs of inputs.

Agricultural Credit: Agricultural credit is an important incentive for our farmers who use it for purchase of access to farm machinery, tractors and other inputs. Allocation of agricultural credit for 1998-99 is Rs. 46 billion which is likely to substantially increase in the following year.

Poverty Alleviation Policies and Programmes

Government of Pakistan has initiated a number of direct support programmes to alleviate poverty. These include Poverty Alleviation Fund, Social Safety Nets, Micro credit, Social Action

Programme, Rural Development Programme, Rural Support Programme and District Support Organizations. For example, the Poverty Alleviation Fund has been established in February 1997 with an endowment of Rs. 2 billion provides financial assistance to the poor, the landless and the assetless people through NGOs. The emphasis on use of this fund is poverty alleviation through income generation and quality of life. The Government has also taken social security initiatives by providing assistance to the needy trough the institution of Baitul Maal and Food Security Programme. Pakistan's Social Action Programme aims at addressing four important issues of primary education, basic health care, family planning and rural water supply and sanitation. Again, under the Rural Development Programme, the Government encourages the rural community to organize themselves for self-sustaining activities.

Government Agricultural Policies

The Agriculture Policy and programmes of the government are formulated within the framework of National Agriculture Policy, which is based on the following national goals:

- Social Equity
- Self Reliance
- Export Orientation
- Sustainable agriculture
- Enhanced productivity

Future Policies

Agriculture will continue to be a dominant sector of the economy in order to achieve food self-sufficiency, ensuring availability of raw materials to industry and enhancing earnings through exports of agricultural products. These objectives will remain the focus of following features of our future planning:

- Attain and sustain at least a growth rate of 4.0 - 5.0 percent.
- Enhance productivity of crops, livestock and fisheries through the efficient use of existing technologies, development of new technologies and scientific methods.
- Maximize water resource development and promote efficient use of water.
- Strengthen agricultural institutions for education, research and extension.
- Identify and develop cultivable wastelands for horizontal development.
- Improve efficiency and judicious and balanced use of agricultural inputs.
- Ensure availability of agricultural credit in time, quantity and convenience especially for small and medium farmers.
- Improve income of the farmers by providing price incentives.
- Promote development and export of high value crops.
- Accelerate the process of consolidation of land holdings.
- Improve marketing infrastructure.
- Promote establishment of agro-based industries in rural areas.
- Reduce environmental degradation and conserve the resource base.

Key Note Presentation
Experience and Perspectives of South Asia
by
Dr. R.S. Paroda
Secretary to the Government of India
Department of Agricultural Research & Education and
Director General, Indian Council of Agricultural Research
Ministry of Agriculture, India

It is indeed a matter of great pleasure for me to be here with you today. I am grateful to the organisers for having invited me to share with you some of my thoughts on the pathway towards sustainable agricultural development and poverty alleviation in the next millennium in the backdrop of Asian crisis with particular reference to India.

The Crisis Assessment

The Asian crisis that still persists is an eye opener and a warning alarm to other countries in the region to be prudent in the economic, particularly financial management of the economies. Post-1997, the GDPs of the crisis-ridden economies plunged and shrunk in the range of minus five per cent to minus 15 per cent.

In hindsight, India was largely unaffected by the crisis. GDP growth was over five per cent. In relation to the crisis-ridden economies, India's financial sector remained in much better health. *Inter alia,* this is largely owing to the strict monitoring by the central bank. There has been no significant impact of the crisis on the exports and imports from the region.

During 1996-97, the share of agricultural exports from India was around 21 per cent of the total exports.

Past Accomplishments

By any reckoning, the performance of Indian agriculture since India became independent in 1947, is outstanding. It started with the Green Revolution during mid-sixties through a package consisting of improved seeds, fertilizer, irrigation, and plant protection measures combined with positive policy support, generous public funding for agricultural R&D and dedicated work of Indian farmers. The successive revolutions in oilseeds, milk and fish further consolidated the gains and contributed to the phenomenal increase in overall food grains, milk and fish production. India is now one of the two largest producers of wheat, rice, fruits, vegetables, milk, fish and eggs.

The increase in per-capita availability of food grains (175 kg/caput/year) despite three-fold rise in population (about 980 million as compared to 330 million in 1947), per-capita calorie intake closer to the accepted norms (2200 kcal/day), sizeable food grain reserves (28 metric tons), the export of cereals on an average exceeding the imports during the nineties, considerable stability in the food grain availability from domestic source, regionally diversified agricultural production thereby increasing the physical access to food in different regions, increase in economic access to food through higher growth rate of average per-capita income as compared to increase in the prices of staple cereals, rice and wheat, diversification of the cropping pattern with replacement of low yielding coarse cereals with other crops like oilseeds, vegetables and fruits, sugarcane, cotton, spices and condiments are all the characteristic features of this great agricultural success.

Emerging Concerns

Despite these significant accomplishments, there is rising concern about persistence of malnutrition, poverty and population pressure relative to degraded and increasingly scarce land and water resources and slow agricultural growth in the 90s. Other negative features include growing

inequality, intra-household variation in access to food and other resources, and large scale indiscriminate damage to the life support system. It is also stated that there is huge but unquantifiable loss of landscape quality and wild life, which reduces our genetic resources, depresses the human spirit and makes all our lives less interesting and less fulfilling. Some of the main concerns include the following:

i. India's population is presently growing at a rate of 1.8 per cent per year. We are adding one Australia or one Malaysia every year. Despite the record food grain production and buffer stock, India still has around 200 million impoverished people.

ii. Coupled with population increase, improved purchasing power due to the economic growth will enhance the demand for non-cereal and non-crop based products. The gradual shift in food habits is already taking place both in rural and urban areas in view of variety of food products now available in the market. Opportunities in the world market will further push these demands on a higher side.

iii. On the basis of existing trends in consumption and income growth, it is estimated that the total food grain requirement in India would be about 220.5 million tonnes by the end of 2002. The Planning Commission has fixed a target of 4.5 per cent annual growth in agriculture during 1997-2002 so as to achieve GDP growth rate of 6.5 to 7.0 per cent at national level. To meet this target the average yield at the national level has to be raised by 30 to 50 per cent in the next five years.

iv. Access to food is a major socio-economic problem confronting us today. We have not only to increase the productivity on sustainable basis but also ensure profitability and income through on-farm/off-farm employment opportunities. Issue of sustainable agriculture is much more relevant today. In future, we will have to produce more per unit of land with less of chemical inputs. We will have to diversify our agricultural activities to raise incomes and will have to be globally competitive with respect to the quality of our products and their cost of production.

v. Per-capita availability of arable land is declining. At the same time, input use efficiency is relatively low despite increased irrigation and fertilizer use. In view of expanding demand for water for non-agricultural purposes, availability of water will become a serious concern in future. Thus, judicious use of both land and water will be central to the growth process. Further, land and water resources are already facing acute degradation. Supply of non-renewable resources like fossil fuel and phosphates will be the major constraint. On the contrary, use of agro-chemicals will be increased. Management of these including common property resources will pose severe economic and political challenges.

vi. Labour scarcity will begin to emerge since better education and faster growth in the non-farm sector will induce rapid urban migration and occupational changes over the next few years. Post-harvest losses are quite high and there is a widespread mismatch between production and post harvest technologies. One of the surest and cheapest ways of increasing the availability of agricultural supply is to minimise these losses by developing appropriate post-harvest technologies. These technologies can also add value to agricultural products besides facilitating growth of a buoyant agribusiness sector including exports.

vii. Infrastructure in rural areas is emerging as a major constraint. Also, capital investment in agriculture is declining.

viii. The private sector investment is also relatively low. The existing institutions are in a state of reorientation, particularly following liberalization and globalization. New institutional innovations must take place using new science, and we can no longer take institutions as given. The role of the state, cooperative sector, private sector, NGOs, and other stakeholders are to be redefined to face the new challenges both relating to input use and output markets.

ix. Also, time has come to consider institutional, policy and socio-economic issues on par with bio-technological issues in making socio-economic sense of science so that the quality of life could further be improved.

The Lessons Learnt and Future Strategy

Has the "Green Revolution" lost its steam? The negative features of the "Green Revolution" are being realised. Some of them include, emphasis on food grain production at the cost of research on other nutritionally important and high value added crops, detraction from a systems approach to farming in order to integrate the production of other crops and related activities such as livestock and fisheries to raise overall farm income, inability to establish the needed linkages with off-farm activities through investment in rural infrastructure, such as roads, markets, electrification, communication, etc.

The green revolution has taught us some important lessons. Hunger and famines are not the results of natural disaster or fate, but of poor policies, technological choices and action; people must have the knowledge, skill and resources to grow the food they need or the income to buy it; agriculture must be the basis for economic development; agricultural technologies must be developed and effectively disseminated to produce more food on existing agricultural land to protect the natural resource base and agricultural technology must go hand in hand with enlightened economic and institutional policy.

Developmental issues and research challenges thus pertain to reducing persistent and widespread poverty, protecting the environment, maintaining growth of food grain production and strengthening public policy. It is said that the consequences of inappropriate action or inaction to address these issues may lead to more misery. These issues are intermeshed with each other. Exclusive attention to meet food needs can exert a very high, perhaps irreversible toll on the environment. Similarly, a sole focus on preserving the natural resource base can condemn millions to hunger and poverty. Linkages and synergies between problems and solutions must be creatively exploited, thus making the world a better place.

It has become very clear that our approach and policies for agricultural growth in the next millennium have to be necessarily different. It should be based on long-run planning and on a vision for next 20-25 years.

A clear-cut vision perspective and blueprint for action is necessary because we are faced with many concerns as stated already. Meeting these concerns require policy reorientation, re-channelling as well as conservation of available resources, creation of better work environment, favourable price and trade regime, increased application of modern technologies, generation of first rate human resource and more investment on infrastructure and capital formation activities. I strongly feel that in the next millennium, more than ever before, it is essential to bring together the world of science and the realm of agricultural technology in the socio-economic sphere of farmers. Harnessing science should centre on people, permanency, productivity, profitability, protection and partnership. As amply demonstrated in the past, the National Agricultural Research Systems in the developing countries of Asia will have to take many fresh initiatives and continue to be in the forefront to harness ample uncommon opportunities.

The strategy to address the challenges of the next millennium include:

- Maintenance of self-reliance in food and nutrition and ensuring economic and ecological access to food and nutrition for all sections of society by enhancing productivity through application of new science;
- Strengthening of agricultural research and education system in the country with greater role of both public and private sector;
- Conservation of the natural resource base through sustainable management of land and water resources and protection and conservation of biodiversity;
- Diversification of farming systems for greater employment generation, higher household incomes and reduction of poverty;
- Reduction of regional imbalances through greater emphasis on rainfed farming through watershed approach, hybrid technology and farm mechanization;
- Efficient use of inputs by following integrated plant nutrient system (IPNS) and integrated pest management (1PM);

- Value-addition, quality improvement and export orientation of farm produce through agro-processing and improved post-harvest management;
- Technology assessment and refinement before its transfer;
- Institutionalization and strengthening of linkages/partnerships with national and international organizations both in public and private sector, and
- Use of modern information and communication technology.

The guiding principles, while devising the future strategy, should include research relevance, environmental sustainability, efficiency and equity, system's approach, interdisciplinary focus, enhanced human resource, partnership and participatory approach.

Limited scope for horizontal expansion and the need for increased crop intensity and productivity dictates the sustainability of agricultural production through judicious exploitation of available agro-biodiversity. Hence, its collection, conservation, optimum utilisation and germplasm enhancement have to receive greater attention. Globalization is likely to hasten the process of monoculture, spread of improved varieties of a few major food and cash crops and as a result, in the replacement of traditional indigenous cropping system. This may lead to faster erosion of biodiversity and loss of traditional knowledge. Therefore, a national action plan in a mission mode approach is required to collect, evaluate characterise, conserve (both *ex situ and in situ)* and utilise plant, insect, animal, micro-organism and fish genetic resources of indigenous and exotic origin. The efforts would also help in the conservation of biodiversity, bio-prospecting of wild species and weedy materials, and DNA fingerprinting of valuable germplasm.

Application of biotechnology to improve indigenous, and evolve new breeds of animals, fish species and plants resistant to pests and diseases must receive greater attention.

There is also a need to strengthen the existing capacity for supply of quality seeds, planting materials, prototypes and other technologies to the farmers. Presently, this is one of the major constraints in bridging yield gaps.

Diversification of agriculture to include livestock, fisheries, horticulture and agro-forestry needs to be emphasized which will require reorientation towards System's approach.

Water will become the most scarce input in future and, therefore, research on increasing water-use efficiency through *in situ* water harvesting, micro-irrigation techniques and plasticulture needs to be stressed. Similarly, there is a need for improving the fertiliser use efficiency. Watershed management has to be the approach for irrigation development, particularly in rainfed agriculture. Besides the watershed management approach, the strategy for rainfed agriculture should include use of hybrid technology and appropriate farm mechanization.

To improve soil fertility and health, it is important to emphasize now on conjunctive use of organic manure and inorganic fertilizers with stress on integrated plant nutrient system (IPNS). Similarly, there is a need to stress on integrated pest management (1PM) including use of biopesticides and biocontrol agents.

Post-harvest technology with emphasis on on-farm handling and storage systems suitable for different commodities should receive attention. Similarly, post-harvest research on dairy technology, fish processing, meat technology, processed agri-horticultural products needs greater emphasis.

In order to take full advantage of the changing global agricultural trade scenario, particularly following GATT agreement, intermeshing of policies related to the pricing, marketing and trading of agricultural commodities at global level as well as domestic level will have to be given importance. Domestic market reforms are needed and the control on prices and movement of agricultural produce will have to be addressed, including the sector being opened up for exports. However, to take advantage of globalization and to insulate against its disadvantages, the issues like IPR and non-tariff barriers to trade need to be addressed forthwith. Prudence in financial management must accompany

increasing trade flows. Regional trade is a strategy which holds high promise SAARC and ASEAN, agriculture will form an important part of all this.

The economic importance of agriculture inevitably declines with overall national development. Its share in GDP has fallen from close to 50 per cent in the fifties to less than 30 per cent now. This transition has to be accelerated through massive expansion in non-farm sector, wherein rural industrialization is now considered to be critical.

The present extension system is to be revamped in the country. There is a need to forge linkages between researchers, extension workers and farmers. The successful models of technology assessment, refinement and transfer like Krishi Vigvan Kendra (KVK), Lab-to-Land Programme, Institute Village Linkage Programmes (IVLP) etc., need to be expanded to serve the farming community better. Similarly, technology dissemination losses need to be minimised using modern communication technology as well as through creation of "Technology Agents" who are job creators than job seekers. Also, new initiatives such as opening up of Agricultural Technology Information Centres (ATIC) in agricultural research institutions and State Agricultural Universities (SAUs) and vocational training programmes are to be accelerated. The district level extension system will have to be further strengthened on the lines of innovations in technology dissemination like Agricultural Technology Management Agency (ATMA) that are now being tried on pilot basis under the National Agricultural Technology Project.

Women in India have remained invisible as farmers, despite the fact that they are major stakeholders in the production to consumption chain of food in terms of value, volume, and time in agriculture and allied activities. Women play a key role in food production, food access and food utilization. We have to empower them through enhancement of their abilities, resources and evolve technologies suiting to them. Technologies that overcome drudgery of women in agriculture will have to be given high priority in future.

There is an incredible variation in human capability both at the physical and mental level. Equally incredible is the degree to which an individual or group can evolve or degenerate based on the efforts put in the process. This simply underscores the need to develop the human resource irrespective of the area of activity. HRD is a necessary concomitant of all dynamic systems for stability and attaining equilibrium with external forces. Any diversification or an effort at renewal should be preceded by matching HRD initiative. After all, the strength of any organization is judged not by numbers but by the technical competence of its employees. What really counts is not the 'machine' but the 'man' behind the 'machine', in spite of all scientific advancements.

There is also a strong need to reorient agricultural education system in future with emphasis on uniformity in educational standards, skill improvement of farm women, teachers training and retraining, utilization of brain and skill bank of retired scientists and teachers, development of skills and training in agri-business, urban agriculture and horticulture, peri-urban dairy, poultry and piggery, post-harvest processing, agricultural machinery, multi-media development, job oriented education, instructional technology, manpower planning, etc.

The evolution of agricultural research system from a single National Agricultural Research Institute (NARI) to National Agricultural Research System (NARS) consisting of several stakeholders is a significant organizational change necessary for accelerated agricultural development in India. Hence, the funding support for agricultural research is very critical. For achieving the targeted growth in productivity and to address all new paradigms, the investment in agricultural research will have to be stepped up in India from the current level of 0.45 per cent of agricultural GDP to at least 1 per cent during the next five years and a minimum of 2 per cent thereafter.

Concerted efforts are needed to both improve and harness the latest Information Communication Technology (ICT). The objective is to have on-line and real-time system of "Agriculture on line" capacity to analyse the signals emanating from the farms and the markets for the benefit of all the small and marginal farmers.

Epilogue

To propel Indian agriculture into the 21st Century, the quality, technical skills and management of agricultural manpower must improve in consonance with rapidly changing needs of our society, both nationally and internationally. Any lack of effort can adversely affect our national research, education and agribusiness system despite large investments made both on infrastructure and human resources. I believe that the ideas shared today form an ecologically sound, economically viable, environmentally sustainable and culturally acceptable development package leading to a perceptible improvement in the quality of life of our people, especially those deprived of benefits of science and technology. Obviously, those nations will overcome economic crisis more successfully who try to base their growth on sound agricultural growth and developments in future.

Thank you.