

# Technology and Development Policy in Poverty Reduction: The Case of Thailand

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This presentation discussing the issues relating to technology and development policy in poverty reduction will have three parts. I will start with a short profile of the Thai economy, followed by an overview of the poverty situation in Thailand and the impacts of the economic crisis of 1997. I will then discuss the contribution of technology to development and the relationships, both positive and negative, between technology and poverty reduction. I will conclude with an overview of policies of the present government that have direct impact on the approaches to technological development and some of the initiatives already launched to ensure that technological progress will be consistent with the goal of poverty alleviation. Most of the presentation will focus on the agricultural sector, which has the greatest share of the population as well as a higher concentration of poverty incidence.

## **Profile of the Thai Economy**

With average annual growth rates between 7.3 and 7.8 per cent per annum during 1965–95, Thailand's economy was among the fastest growing in Asia. Its agricultural GDP increased by 5.24 per cent per year during the 3rd National Economic and Social Development Plan (1972–76) and by 4.15 per cent annually during the 4th Plan (1977–81). It more or less maintained that performance at 3.69 and 4.58 per cent a year during the 5th (1982–86) and 6th (1987–91) Plans. Average agricultural GDP growth was 2.51 per cent per annum in the Seventh Plan (1992–96)<sup>1</sup>. Over 60 per cent of the total population are employed in this sector. The sector's share in GDP has declined over the last three decades, however, from 25 per cent during the 3rd Plan to just under 15 per cent by the 6th Plan and further to under ten per cent by the end of the 7th Plan<sup>2</sup>.

The rapid economic growth resulted in an overall improvement in absolute income and a reduction of the proportion of people below the poverty threshold. In 1962–63 around 57 per cent of Thailand's population was classified as "poor". That measure

fell to 32.6 per cent by 1988 and further to 27.2 per cent in 1990, 23.2 per cent in 1992 and 16.3 per cent in 1996. Although the percentage was reduced in all the regions, problems of income distribution persisted, with higher incidence of poverty in the Northeastern Region (23.02 per cent of the regional population in 1996) and the Southern Region (16.7 per cent). Moreover, there is considerable inter-sector income disparity due to differences in labour productivity and adverse terms of trade between the agricultural and the non-agricultural sectors.

The economic crisis that surfaced in the middle of 1997 more or less reversed this positive trend of poverty reduction over several decades. Both urban and rural areas experienced reductions in average per capita income. The percentage of the population classified as “poor” increased by 12.9 per cent between 1996 and 1999, and the numbers classified as “poor” increased by 1.1 million. By the end of 1998, the population classified as “poor” was 7.9 million.

The economic plight of the country drew attention back to the agricultural sector. There were hopes that the sector would be able to continue to produce food supplies to feed the country as well as generate foreign-exchange earnings. Among the preconditions for the sector to be able to fulfil these expectations are the need to intensify land use, increase yields and reduce unit costs as well as import requirements. Note that technological achievement will be instrumental in meeting all these preconditions.

## **The Contribution of Technology to the Development Process**

Technology features as one of the major keys to development. The extent to which it can be instrumental to poverty alleviation depends on three major factors, namely the sources of technology, dissemination of technology and distribution of benefits from its adoption. Given the institutional, political and legal frameworks which condition these three factors, the outcomes of technological development and dissemination cannot always be predicted accurately, nor are they always positive.

Like many developing countries, Thailand’s agricultural development framework welcomed the potential benefits of the Green Revolution. Given the sense of urgency to increase output under the “*growth-before-distribution*” paradigm of the new technology, the technology-embodied miracle seeds and the entire input packages were speedily and unquestionably embraced. Reservations over compatibility with resource endowments and mechanisms employed to disseminate the use of such technologies, which feature among the most important considerations today, were more or less absent. Findings from a number of empirical studies have led to similar conclusions that when those considerations are overlooked, externally induced technology has the tendency to intensify initial differences in income distribution and development gaps rather narrow them. Moreover, the delivery of technology and services was not effective in reaching the majority of small-scale farmers. Inadequate access to the formal money markets meant that smaller farmers had to pay higher interest rates for borrowed capital; hence they had higher costs of production relative to larger-scale farmers. These have been the major explanations for the slow advances in diffusion of modern technology.

Given that poverty is spatially concentrated in rural areas and principally among those employed in the agricultural sector, one institution that has a major role in poverty alleviation, particularly with respect to the development and dissemination of technology, is the Ministry of Agriculture and Co-operatives (MOAC). The MOAC captured three key lessons about the role of technology and poverty alleviation from decades of experience as planner, practitioner and stakeholder in agricultural development.

*First*, modern technology will continue to be a major instrument among other poverty alleviation measures. More cautious approaches will have to be exercised in our choices of modern technology. Developing countries will have to learn to be more *selective* and to minimise dependency on imported technology. Greater emphasis should be given to basic research as a means of maintaining and increasing competitiveness in both the domestic and international markets. This also relates to the very pertinent issue of technology gaps between developed and developing countries. Many would agree that the gaps are likely to widen. Moreover, the increasing attention given to environmental issues and intensifying problems of depletion of the natural resource base may give rise to more subtle forms of non-tariff barriers that would further undermine the competitiveness of developing countries. It will be beneficial to discuss the issues of “free and fair” trade to explore the economic and political complexities of how to transform such principles into practice.

*Second*, there is a need to balance objectives of conservation of biodiversity resources and sustainable use of biodiversity in plant and animals. In trying to achieve production goals, adequate attention must be given to how our natural resource base can be used sustainably. The concept of sustainable production is to maintain the reproductive capacity of the natural resource base, particularly in environmentally sensitive areas. At the same time, it is widely acknowledged that adoption of sustainable production very much depends on economic viability at the farm level.

*Third*, traditional technologies not only are cost minimising but also are practices more compatible with localised resources and the ecosystem. It is equally important to emphasise the rights of individuals and communities who have access to sources of information to ensure that they will be able to obtain and retain a fair share of benefits from making such information known and profitable in the market economy. This will demand an appropriate supporting legal system on patenting property rights over indigenous and traditional knowledge and practices.

### **Government Policy to Advocate Advances in Technological Progress as a Means of Fighting Poverty**

I come now to the final part of my presentation, where I would like to draw your attention to the current policies and implications of technological development and poverty alleviation. All the measures that I will briefly bring to your attention are fundamentally different from previous development approaches in that they are targeted directly to the farmers as opposed to the rural-*cum*-agricultural sector. This is dictated

mainly by the recognition that sector-oriented approaches have had limited impacts in reaching the intended target beneficiaries, these being shortcomings conditioned by the distortion of market mechanisms and social-economic differentiation discussed earlier. Our principle is to reduce the dependency on external development inputs among poverty-stricken rural communities, which will ultimately create self-reliance. It is a major challenge to Thai society because it not only necessitates changes in the entire administrative apparatus, but also involves mobilisation of the masses, until very recently the silent recipients of development services. This is the current direction towards decentralisation and democratisation of Thai society. The process is already taking place with restructuring of the entire top-heavy administrative apparatus to allow for greater speed and improved efficiency in delivery of services.

The prime concern of the government is to improve access to the capital markets, which in turn will improve access to technology. This is to be accomplished through a combination of measures. Debt restructuring is a policy to restructure debt payment of small-scale agricultural producers for a period of three years, during which a system for revision and a comprehensive approach to production restructuring can be put in place. It relates to one of the structural problems of production mentioned earlier, distortion of the money markets and inadequate access to formal sources of credit, which have been among the reasons for slow adoption of modern technologies.

The Thai government places emphasis on creation of opportunities for the poor to access sources of capital through the establishment of the People's Bank and the Village Fund. The approach is to set up a fund of one million Baht per village, which can be used as a revolving fund for investment promotion and employment creation. The fund is expected to be useful for creating small-scale enterprises in rural communities. The principle for small and medium-scale enterprises (SMEs) is systematically to strengthen the performance of existing entrepreneurs. This will create, upgrade and maintain performance of the production supply base so that SMEs become major sources of employment and revenue generation as market networks expand beyond the boundaries of local markets to regional, national and international markets. The People's Bank has also been introduced to create access to the capital market, particularly for small producers, principally to reduce dependency on the informal money markets.

The government is also presently advocating the concept of "One Village, One Product" aimed at encouraging communities to draw upon their traditional and indigenous knowledge for product development. To support this concept, the government will provide inputs such as modern technology and management to link products to the domestic and international markets through networks of distribution chains and the development of information technology.

Finally, I would like to conclude with the observation that everything described above requires two basic inputs. The first is effective reorientation of the research apparatus. The second is the creation of local organisations that can function as partners in the research and technological development process, furnish the appropriate

information on research needs and provide the appropriate networks for dissemination, applications and adaptations of research findings. These two inputs will ensure that technological development can be harnessed to the goals of poverty alleviation.

The reorientation of the research apparatus is of crucial importance to ensure that the principle of agricultural research to increase productivity is consistent with the principles of sustainable production, conservation of natural resources, environmental protection and rural poverty reduction. A recent study on restructuring the MOAC identified key measures that may be instrumental for the desired changes. These include:

- The establishment of an apex body at the national level to formulate and facilitate agricultural research policies and priorities;
- The adoption of a new approach at local levels in which researchers work more closely with farmers in identification of their constraints and in testing new and traditional technology to overcome them; and
- Improved vertical and horizontal integration within the research system and with other partners in agricultural development.

The creation of local organisations that can function as partners in the research and technological development process, on the other hand, involves a shift of paradigm from a supply-driven, top-down system of technology generation and transfer to one that is bottom-up and demand-driven. Among the recognised merits is that the shift will open access by the hitherto top-down planning agencies and research apparatus to the farmers' knowledge of their environment and traditional wisdom, for the benefit of planning and evaluation of on-farm trials. The information will serve as the base for framing the research agenda to ensure that the research system can produce technological innovations consistent with needs and adoption capacity of farmers. The key mechanism to link the MOAC with communities to involve them in planning and in the decision-making processes is the Technology Transfer Centres (TTCs). Among the primary functions of the mechanism, a *Tambon*-level organisation to be established nationwide, is to enhance flows of information and technical services from the public sector. It is the general expectation that the TTCs will be instrumental in expanding sources of information and technical services through more effective linkages and networking among the public and private sectors, NGOs and local communities.

Some of the issues I have raised are not unique to Thailand and there are common experiences and views of how we can approach problems of poverty and the contribution of technology development. I hope that the issues raised will serve as starting points for fruitful and valuable discussions.

## Notes

1. THAILAND, MINISTRY OF AGRICULTURE AND CO-OPERATIVES (1997), *Action Plan During the Eighth National Economic and Social Development Plan, Revised According to the Cabinet Approval on March 18, 1997*, Office of Agricultural Economics, MOAC, Bangkok, pp. 9 and 11.
2. THAILAND, NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT BOARD (1999), *GDP at Current Market Prices (Original)*, Quarterly Gross Domestic Product, Quart. 1/1999, Bangkok.