
INTRODUCTION

AGRICULTURAL EXTENSION IN ASIAN NATIONS : WHY IT NEEDS CHANGE!

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Prologue

In this chapter we discuss briefly changes in the roles of agricultural extension we observed in Asian nations or which might be considered desirable there and the changes in Asian societies which make it necessary to change agricultural extension. Many of these changes are discussed in more detail in this book by chapter authors who have been directly involved in these processes of change. We hope that these discussions will help readers to consider which changes are desirable in their situation and which are not and how the desirable changes can be implemented. Clearly there are large differences in socio-economic situation between different Asian Nations and even between regions within one nation. Therefore changes which are successful in one nation, may not be desirable or possible in another nation or region.

Changes in Society which cause Opportunities and Threats for Farmers

Economic growth

During the last decade we have seen a more rapid economic growth in many Asian Nations than we have ever seen in Europe or America. This has caused an increase in demand for high value agricultural products, labour costs and employment opportunities outside agriculture. Farmers have to adjust the management of their enterprise to this changed economic environment in order to be able to compete in the market.

Increased agricultural productivity

The Green revolution has resulted in a large increase in the yields of cereals and therefore in a major decrease in the number of people suffering from hunger. This does not mean that hunger has been abolished. In large parts of South Asia still more than 40% of the pre-school children are underweight (Sanchez and Swaminathan, 2005: 51), but this is more because their family is too poor to buy enough food for children than the non-availability of food in the market.

The increase in yields has resulted in an increase in agricultural production and therefore in a decrease in prices. Between 1980 and 2000 the world market prices for agricultural commodities decreased with about 50% (FAO, 2002: 12, World Bank, 2005: 23). This means that farmers have to increase their productivity a lot, if they like to maintain their level of income. If they like to increase their income as much as urban people in their country an even larger increase in productivity is necessary. We do not know what will happen with the prices of agricultural commodities in the next decades,

but we assume that they will remain under pressure. One reason for this assumption is that the application of biotechnology and ICT in agricultural research may result in new technologies which increase production.

Increasing agricultural productivity not seldom results in decreasing the sustainability of the farming system. For instance the Indian government has subsidised electricity for irrigation pumps. This one reason why in many areas the ground water table is falling dangerously rapidly. With increased yield more minerals are removed from the field. If these are not replenished through applying fertilizers or manure, soil fertility decreases (Sanchez and Swaminathan, 2005: 107).

For an increase in agricultural productivity many people think mainly of an increase in yields, but there are more possibilities to increase labour productivity. According to estimates of the World Bank the added value per worker in agriculture is in many Asian countries less than 1% of this value in the countries with the highest labour productivity: France and the Netherlands (World Bank, 2003: table 3.3, van den Ban, 2005). A real problem is that increased labour productivity will result in less employment opportunities in agriculture. Twenty years ago one of us was asked at the Thai Ministry of Agriculture: "Sixty percent of our labour force is employed in agriculture. If this decreases to 30% it is still possible to produce enough food for our population. Please, tell us how we can find employment for the other 30%". He could not, but fortunately some Thai people are more intelligent than he is. The employment in agriculture in Thailand has decreased to about 30% without causing large scale unemployment. However, such an increase in non-farm employment can not be realised in all other countries. As long as this large gap in labour productivity between

farmers in Asia and in Europe and America will not decrease unfortunately most Asian farmers will remain poor.

Many Asian farmers search seriously for non-farm sources of income for themselves or for their children (Ellis, 2000). However, they get little help of extension agents in this search.

Globalisation of trade in agricultural products

In recent decades there has been a large increase in the international trade in agricultural products, because

- the transport costs have decreased,
- the demand for high value products, like fruits and aquaculture products, has increased,
- multi-national companies and supermarket chains play an increasing role in this trade,
- the development of ITC makes it much easier to discover where one can buy good quality products for the lowest price.
- trade barriers have decreased as a result of the WTO and they may decrease even more rapidly in the next decade as the political power of farmers in rich countries decreases with the large decrease in the number of farmers there.

A result is that Asian farmers now have to compete not only with farmers in neighbouring villages, but with farmers all over the world. To be successful in this struggle they have to be well informed about consumer demand in other countries, especially the quality they demand and they have to be served by an efficient marketing system (Swanson, 2004). Bio-safety and intellectual property rights are important in this process.

Increasing gaps in income

A result of the changes mentioned above is that in many countries the income of most farm families decreases, whereas at the same time many urban families increase their income. Many governments, e.g. the Chinese and the Indian, are worried that this increasing gap in income may cause serious social unrest. Therefore they are eager to develop policies which decrease this gap. Also many donor agencies have in the last decades neglected the support for agricultural development, but they now realise that this has to change (e.g. IFAD, 2001)

Possibilities to increase farm income

The World Bank (2005: Ch. 5) mentions 5 pathways through which farmers can increase their income:

- Intensification by using improved production technologies or investments in irrigation, fertilizers, etc.,
- Diversification by taking advantage of opportunities for high value products in the market,
- Expansion of farm size. In much of Asia this is only possible if other farmers decrease their farm size or leave agriculture,
- Complementing farm income by off farm income or by processing agricultural products,
- Exit from farming for non-farm occupations (Clark, 1957).

As a group farmers may also have some other possibilities, perhaps in partnership with people in other occupations (van Mele, 2005):

- Increasing the efficiency of input supply and marketing systems and other institutions which support agriculture,

- Increasing their power in these systems and institutions in order to decrease the gap between the price the farmer receives for his products and the price the consumer pays,
- Increasing their power in formulating and implementing government agricultural policies.

A problem is that not all farmers have the same power in their society. Often large and well educated farmers can exert most power.

Changes in Agricultural Extension

Major changes in agricultural extension we observe in Asia, partly as a result of the changes in society mentioned above, are:

- From extension provided by a government extension service to a pluralistic extension system, which includes extension by NGOs, farmer's organizations, consultants and companies providing inputs and marketing agricultural products and is financed from other sources than the taxpayers money. Often agricultural development problems cannot be solved by one of these institutions, but only by a partnership of several of them (van Mele, 2005).
- From extension which tries to increase crop yields and production per animal to extension which also helps farmers to produce products for which there is a growing demand in the market and helps farmers to increase their power in the system of input supply and marketing. This implies a change from an extension system which transfers production technologies to an extension system which helps farmers to decide what is in their situation the optimal farming system to realise their goals.

- From extension which transfers technologies developed at agricultural research institutes to farmers to extension which stimulates farmers to experiment and to learn from their own experience and the experience of their colleagues.
- From a top-down approach in extension to a participatory approach,
- Towards an extension service which tries to help to alleviate poverty. The vast majority of the poor people in Asia are small farmers and farm labourers (e.g. Christoplos and Farrington, 2004).

Sources of information for extension agents

These changes require a change in the information sources extension agents use. In the past agricultural research at government research institutes was the main source of information for extension agents, but now also many other information sources have become important, such as:

- *researchers from agri-business firms.* In several countries the agricultural research budget of these firms is now larger than that of the government,
- *market information.* For which kind and quality of products is there a growing demand in the market? In which market can one get the best price for the products or can one obtain inputs of good quality for the lowest price? What are the advantages and disadvantages of different kinds of contracts with market partners? Usually government research institutes are not the best source of information for this market information; farmers' organizations may be a better source,
- *successful farmers.* It is important to learn from farmers which criteria they use to select successful

production technologies and farming systems. Farmers may have good reasons not to follow the recommendations from their extension agents and researchers. In Europe and North America learning from the most successful farmers and teaching that knowledge to other farmers has always been a prime role of agricultural extension agents, because the experience these farmers gain in their experiments is often very relevant for neighbouring farmers.

- *government policies.* The choice of a farming system or a production technology should not only take into account the present government policies, but also the likely changes in the policies in the years to come. This may influence, e.g. the extent to which farmers will be exposed to competition with farmers in other countries.
- *other extension agents.* Successful extension agents learn from their own experience and the experience of their colleagues, just like farmers (Hall et al., 2005).

For support to decisions on the choice of farming systems other information sources are important than for the choice of agricultural production technologies. For these technologies agricultural researchers are an important source of information, although information is also needed on the resources and goals of farm families and on the reasons why they adopted or do not adopt new technologies. For farming systems, however, much of the information has to come from the markets and from the experience of farmers who experimented with these new farming systems. For deciding whether or not to change from cereal production to vegetable production, it is important to know the labour requirements on different times of the year. This information can not be collected on a research institute,

but only on farms who made this change. Also market information is quite important for decisions on the choice of farming systems. This includes information on the risks involved.

A successful change in a farming system usually does not depend on decisions by an individual farmer, but requires also changes in his socio-economic environment (Leeuwis with Van den Ban, 2004). It will require changes in the input supply and marketing system and in all kinds of government and private organisations supporting agricultural development. This implies that the new farming system cannot be introduced by an individual farmers, but only by a group of farmers who like to make a similar change. For example, a trader may not be interested to come to the village to collect the product from one farmer, but only to collect the products of a group of farmers whose products can be pooled to sell them to a supermarket chain.

Advice on a change in farming system requires a different relationship between the extension agent and the farmer than on a change in production technology. On this last change it may be possible to give a recommendation, e.g. to use a new variety which is resistant to an important disease or to use a soil test to decide which kind and quantity of fertilisers to apply. A change in farming system always involves risk, e.g. on the future development of prices of inputs and products. Whether or not it is profitable for a farmer to change his/her farming system depends on his/her ability to compete with other farmers and hence on the available resources and the competence in implementing this system. The role of extension agents in developing new farming systems is not only transfer of technologies, but mainly developing entrepreneurship and facilitating the

process of decision making including facilitating the development of farmers' organizations which support this new system (Heemskerk and Wenning, 2004).

✓ Several chapters of this book discuss how farmers, researchers extension agents and others cooperate in developing technologies which work well in the specific socio-economic and agro-ecological situation of a certain group of farmers' participatory technology development (also van Mele, 2005). In this cooperation farmers may ensure that technologies are developed, which they can finance from the limited amount of capital they have.

Financing agricultural extension

In the past agricultural extension was mainly provided by government services paid by taxpayers. Now it is often said that it should be paid by the farmers themselves, because they are the people who profit from extension. In our opinion persons who say this overlook some points:

- Farmers adopt new production technologies often only after they have seen that these technologies work well on other farms in a similar situation than their own. Therefore farmers, who have learned from extension about these technologies are not the only ones who profit from this knowledge. Their friends, relatives and neighbours may profit as well,
- Technologies which result in increased production, result in decreased prices for these products. Therefore the consumers may profit more from extension than farmers, but farmers are also consumers. It may be profitable for the consumers in their role of taxpayers to pay for the extension because it contributes to a decrease in price of their food.

Crucial in agricultural innovation is the flow of information between different actors involved. This flow is influenced by the way agricultural extension is financed. For example, farmers learn from each other about the value of innovations. If a farmer had to pay the extension service for the knowledge he learned from them, he may be less inclined to share this knowledge with other farmers than when this knowledge was available free. An extension agent can only be successful if he learns from farmers about their experience. But are farmers willing to share this experience with their extension agent, if they have to pay for the knowledge they learn from the extension agent, but are not paid for what they teach these extension agents?

We do not deny that there are situations in which privatisation of government agricultural extension services is in the interest of the country, but one has to analyse carefully when this is the case (van den Ban, 2000; Katz, 2002). A privatised extension service can only be profitable if it provides information and advice which farmers consider important. Otherwise they do not pay for this service, whereas some governmental extension services do not do much useful work in the opinion of many farmers. This is partly because they lack the operational funds, which they need for implementing the extension programme. It is possible that the government pays an NGO or farmers' organization to deliver an extension programme.

Use of Information and Communication Technology (ICT) in Agricultural Development

In recent years we have seen a very rapid development of information and communication technologies. "Computing power per dollar invested has risen by a factor 10.000 over the past 20 years" and "The

cost of voice transmission circuits has fallen by a factor of 10.000 over the same 20 years" (World Development Report 1998/99: 57). This has resulted in a very rapid rise in the use of Internet, mobile telephones and digital camera's and related technologies. This offers large opportunities to increase the effectiveness of agricultural extension and at the same time to decrease its costs. We should discover what are the best ways to realise these opportunities. In this regard Asian countries can learn a lot from each other's experience rather than trying to invent the wheel again in each country.

It is important to learn how Information and Communication Technologies can be combined with other communication methods in an effective extension programme. In this field there is much experience in India, a world power in ICT. One such innovative example is stated below:

Ministry of Agriculture, Government of India has initiated a programme called, *Kisan (farmers) Call Centres* in which a farmer from the remote place can call over telephone to the subject matter specialist (SMS) in the district headquarters (at agricultural departments, agricultural colleges, agricultural technology information centres, etc.) and pose problems about his farming to get the suitable solutions at various levels. Besides, agricultural information KIOSKs and other service centres opened by agri- business companies and NGOs also provide the needed information to the farmers through electronic media.

Conclusion

We hope that this book will help our readers to adjust their agricultural extension system and approach

to the changing situation in which they work by learning from the experience in different Asian countries. We do not provide a recipe to improve the way they work at present, but try to give ideas with which they may like to experiment together with other actors in agricultural development process which support the same group of farmers. By learning from these experiments they may develop better ideas to improve extension in their situation than we can provide. We offer a “menu for the reader to select their own dish. Ingredients can be replaced, spices added” (van Mele, 2005: 258). Sharing experiences between nations may help to improve agricultural extension and in this way to decrease poverty among farm families, because it helps them to realise the opportunities the change in their society offers them.

Editorial Overview

This book is divided into 4 editorial parts. Changes in the role of agricultural extension are clearly related to changes in extension policy. Therefore in the **First Part** those chapters are included which focus mainly on these policies. Often they do not only present the policies, but also a discussion on the way these policies have changed in the past and why they have changed.

In the past most Asian farmers were subsistence farmers who consumed in their own family most of the products they produced. Now many, not all, have become commercial farmers who sell a large proportion of their production in the market and use the money they earn in this way to finance the needs of their family, it may be school fees or even foods they do not produce themselves. They do not only need the information on production technologies, but also market information as is discussed in three chapters in **Part 2** on

Commercialization. This implies that a change in the role of extension is essential as is discussed in three chapters of this Part.

Not only farmers become commercialized, but also extension services. They are no longer completely provided by the government, but also through the money they earn by giving information to farmers or providing education to them. Therefore this part of the book also includes a chapter on the privatization of extension.

Most poor people in Asia live in the families of small farmers and farm labourers. In nearly all countries a major goal of the agricultural extension services of the government and the NGOs is to reduce their poverty. For many of these families commercialization may not be the best solution, because that it too risky and they may have difficulties to compete in the market. The experiences with this kind of extension are discussed in three chapters in **Part 3**.

Nowadays farmers have not only to compete with other farmers in their own village, but with farmers all over the world. Their managerial competence determines to a large extent how successful they will be in this competition. Many see it no longer as the main role of extension service to transfer information about production technologies from farmers, but more to increase through education the ability of farmers to make their own management decisions as is discussed in **Part 4**. It can be important to help farmers to make a decision about a change in their farming system, because changes in the economic environment and technological development may make a different farming system more profitable. In this Part also two chapters are included which discuss the experiences with the use of

Information and Communication Technologies (ICT) for educating farmers and transferring information to them.

Part 1 : Extension policies

Five Chapters are included in this Part. It starts with a chapter by Sulaiman and Hall, which analyses these policies in different Asian countries and gives attention to the process of developing an extension policy. An extension policy is only effective if it serves the need for support of the target group. Therefore, this group should be able to influence policy decisions. With the rapid change in Asian societies agricultural extension has to change as well, but these changes can not be realized by decisions at the top. The people who have to implement these decisions should also be involved in the decision making process.

The case from Korea is interesting because this country started already 40 years ago with a rapid economic growth. Can we expect that several of the developments in Korean agriculture, which are discussed in Ch. 3, will in the next decades also happen in other Asian countries, e.g. the rapid decrease in the farm population and the development of specialized farms? Dwarakinath has for many decades been involved in designing and implementing extension policies of the government and NGOs in India. His experience is discussed in Ch. 4. Israeli farmers have now a high level of education and much power to influence agricultural development and extension policies, as is discussed in the Ch. 5 by Blum.

The discussion of T & V Extension in Ch. 6 gives an interesting insight in the decision making an donor financed extension projects based on the experience of the World Bank.

Part 2 : Commercialization of farming and privatization of extension

As a result of the rapid commercialization of farming in many Asian countries, farmers now need a very different support from extension than in the time that most of them were subsistence farmers. They need more help in marketing and in deciding how to change their farming system. This process is discussed by Hasannullah in Ch. 7, mainly based on his experience in Bangladesh. Singh, Swanson and Singh describe in Ch. 8 a World Bank Extension Project they managed, which tries to help Indian farmers to increase their income by profiting from the opportunities in the national and international market to sell high value products. Information on how to do this comes from farmers, who have done this already successfully, researchers with many different specializations, input supply and marketing companies, extension agents in different government agencies and NGOs. Therefore one has to build an organization in which many different stakeholders cooperate.

In Ch. 9 Linh describes how one works in Vietnam on the assumption that extension will be successful if it provides information for which farmers feel a need. Therefore, in many projects one has studied these information needs. A conclusion is that farmers are often more in need for information on the marketing of their products than on production technologies. This extension approach requires that the extension agents themselves are well informed about marketing.

Qamar discusses in Ch. 10 in which situations a privatized agricultural extension service can be successful. But also the dangers of privatizing a

government extension service in situations where no financially viable private extension organization can be developed. This is a topic which is often not mentioned by donors who give recommendations about privatization, but in working for the FAO he has seen in many countries that these dangers are quite real.

Part 3 : Supporting poor farm families

The people who need support from agricultural extension most are the poor farmers, who often live in risk prone, remote areas. Often they receive least support, because many extension agents and agricultural researchers do not know how they can improve their situation and the farmers do not have the political power to press for support. Rangnekar has devoted most of his life in supporting them in a large NGO and with the Indian Dairy Development Board. Ch. 11 is based on this experience.

Opatpatanakit is doing this in Thailand by involving these farmers themselves in research to develop solutions for their problems. They are more inclined to apply solutions they have discovered themselves than solutions which researchers or policy makers tell them that they should use (Ch. 12). Biradar works with dry land farmers in India along a similar line, but develops a process in which knowledge and experience from farmers, researchers and extension agents is integrated (Ch. 13). As a staff member of a research institute it is her experience that this kind of action research helps more to give researchers a good understanding of the problems, situation and possibilities of poor farmers than their participation in a PRA. This understanding is required to enable them to do research which contributes as much as possible to poverty alleviation.

Part 4 : Increasing managerial abilities of farmers and the use of ICT

Managerial abilities are crucial to enable farmers to compete in the World Market. Based on some 15 years experience with Farmer Field Schools for Integrated Pest Management van de Fliert discusses in Ch. 14 how these schools can enhance the capabilities of farmers to make decision on cultivation practices based on the actual situation in the field and not on prescriptions they receive from researchers.

Already for a century the budget for vocational agricultural education of European governments is larger than that for agricultural extension. Mancebo shows in Ch. 15 based on the experience in the Philippines that this kind of education can also be introduced in Asia to make an important contribution to agricultural development. But it has to be combined with lifelong learning in which the extension service teaches farmers how they can adjust the management of their farm to changes in the environment and to new opportunities.

There is Chapter on the use of ICT in China by Gao and Li and in India by Ramachander and Jhunjunwala, The Chinese chapter discusses how ICT can increase efficiency of an agricultural information service with 180 000 staff members and how valuable different information services are for farmers. It is still difficult to provide through ICT the location and situation specific information farmers need. The Indian chapter gives now much attention to the way the government extension service uses ICT, but more how commercial companies use it in their transactions with farmers on inputs and agricultural products and how kiosk owners earn a living by providing farmers access to information

on ICT networks. It discusses also the rapidly changing technologies through which the villagers can be reached.

Both chapters do not discuss what can be the optimal role of ICT and of other information sources in the decision making process of the farmers. That is an issue which requires further research.

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