

REINVENTING AGRICULTURAL EXTENSION IN VIETNAM¹

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EXECUTIVE SUMMARY

Vietnam has undergone drastic changes in agricultural production, particularly rice production, after a set of new government policy was institutionalized in 1988 that brought the country to the third place among the rice exporting country. To date, although rice export is still going on steadily, rural poverty and seasonal hunger still exist, and farm income gap is widening. The root cause of these unbalances in development could be traced back to the mal-functioning of the existing agricultural policy in which the agricultural extension system has a lot to be improved.

During the wartime, agricultural extension activities exist in Vietnam by different forms. In the north under Communist regime, agricultural extension 'per se' did not exist but a system of top down order was practiced via the heads of Soviet-styled agricultural cooperatives and state farms. The farmers only obeyed orders and worked as machines with vague incentives. Production was from subsistent to deficit level. In the south, most government effort was concentrated for the war activities, agricultural development only received a small share of the government budget. Agricultural extension system was driven also by a top down approach, conducted by the Department of Agricultural Extension of the Ministry of Agriculture, the agricultural universities, and the private agrochemical companies. A national farm radio program collaborated by the University of Cantho was significantly reaching faraway farming communities, while extension agents could only make their farm visits to more secured (less war activities) areas.

¹ Background Paper prepared for the Roundtable Consultation on Agricultural Extension, Beijing, March 15-17, 2012.

After the reunification of the country in 1975, a great threat on food security was felt among the country leaders while most southern technocrats had left. By a strong top down effort the government was determined to food self-sufficiency at all cost. Rice production was made on 'military-like' orders. Agricultural extension system in the south vanished with the old political regime. Farmers were coerced to grow rice by all means at all costs. Huge amount of national budget had gone to the drain due to environment destruction. The University of Cantho was able to re-establish their extension activities, first through their agricultural graduates who were assigned to provincial and district posts, then through farm radio program, and a new weekly TV program on agricultural technology covering the southern provinces. Applied research-cum-extension activities by agricultural students became a popular demand by provincial and district governments since they could temporarily substitute technical officer for the government. Each fourth year agriculture student, under the supervision of his/her respective professor and local administrator, lived with an advanced farmer for the period of 5 months to perform a close cycle of rice crop experiment which eventually used as a demonstration plot. The farmer-cooperator eventually became a local extension agent himself through the training by the guest student. The provincial government gradually pick up ideas from these activities, formulated their own extension programs which could only be called "technology transfer" programs - since the term "agricultural extension" connotes a 'capitalist concept' at that time. The first province that applied this program was An Giang province, which has since become the highest rice producing area in Vietnam. Their success encouraged other provinces to follow. Technology transfer programs continued to spring up everywhere, including in the northern part of the country. An Giang province began to officially call its technology transfer program as agricultural extension program since 1990. But it remained a program only, not a department, so that every other provincial department would have a sense of belonging to it. Only until early 1993, the government officially created the Department of Agricultural Extension (AED) under the Ministry of Agriculture and Food Industries (now Ministry of Agriculture and Rural Development). Unfortunately, few of the personnel of this department had specialized education or training in agricultural extension per se, therefore the entire operation of the department is still based on top down orders. There was no concrete organizational structure for the provincial AEDs, no concrete

approach to adopt to, and, most important, inadequate budget to operate. The provincial AEDs are organized ad hoc by the People's Committee to transfer agricultural technologies to farmers through occasional farmer training in plant protection, then IPM using leaflets printed with the promotional fund of different agrochemical companies. In general, these activities are still top down in nature, only benefited most well-to-do farmers, not the poor ones. Fortunately, with a financial support of the European Commission, two provinces - Tra Vinh and Soc Trang - in southern Vietnam were able to establish an effective and appropriate agricultural extension system within their province. The system was designed together with the University of Cantho's Farming Systems R&D Institute, using a farming system approach in agricultural extension. The agricultural extension staff - a multi-disciplinary team comprising the specialization on annual crop, livestock, plant protection, veterinary science, aquaculture, forestry, economics - of the two provinces were trained at the Institute and establish their posts at the provincial and district levels. They in turn trained the village agricultural cadres and advanced farmers **after** carrying out participatory rural appraisal in their respective localities to determine the precise needs of the local farmers and appropriate technologies and supporting services to fulfil those felt needs. Agricultural credit was found the most important service to go along the extension activities.

We recommend that in sustainable agricultural development in poor rural regions, an agricultural extension system should be organized along a farming system approach to address the felt need of the poor farming communities. The farming system approach could very well enable the members of the agricultural extension system to determine appropriate technologies that are: a) easy to apply by farmers, particularly the poor farmers; b) utilizing as much as possible local sources of inputs that could preferably be generated by the farmers themselves; c) environmentally least harmful; d) least costly to farmer's income; and f) yielding optimum products whose by-products can be integrated into the production system.

I. INTRODUCTION

For more than a decade with the detrimental management system since the end of the war, Vietnam's agricultural development could not move as fast as its potential strength promises. The Renovation Policy of the Vietnamese Government since 1986 marked an economic milestone in the present Vietnamese history. It deviates from the Sovietic style in managing the country's economic activities. The centrally planned economy gradually gave place to the market economy; the main focus of production in the rural sector had been shifted from the cooperatives and state farms to mostly individual farming households.

The new policy encourages private as well as public sectors to boost up their production by exploiting their available resources by all means taking the comparative advantages of their region. Unfortunately, it is easier to say than to practice. In reality, at all government levels in Vietnam, targets for agricultural production are still allocated in the same top-down manner, and the lowest governmental body urges farmers to produce commodities even if they do not want to choose.

Furthermore, as every individual farmer tries to maximize his human and natural resources, he unconsciously --or even intentionally-- damages the environment and the resources around his household. This attitude had its origin from the period when government policy on securing *in situ* food self sufficiency was dominating the entire country. At that time, hundreds of thousand hectares of forest were cleared without mercy to provide more land to grow rice for the local populace.

As the concern for environment management becomes more and more serious, the Government directed the science and technology sector to find sustainable solutions to improve the country's three major economic programs --namely production of food, consumers' good, and exportable commodities-- by enhancing research and development in²:

- determining and applying appropriate technology to suitable environment with appropriate management approach;
- designing appropriate economic policy to ensure people's participation in making best use of resources to achieve the economic targets set forth by the Government;
- determining social factors that cause under-utilization of technical manpower, infrastructures, and back-up services.

A set of new government policy “*doi moi*” was institutionalized in 1988, restoring incentives to the farmers and other agricultural workers. As a result rice production was rapidly increased at a magnitude of about 1 million metric tons per year, causing a surplus that finally the government had to open door to rice export. Within a year, Vietnam became the third largest rice exporting country, after Thailand and the US. Today, although Vietnam assumes the second position among rice exporting countries, unfortunately rural poverty and seasonal hunger still exist, and farm income gap is widening. The root cause of these unbalances in development could be traced back to the mal-functioning of the present agricultural policy in which the agricultural system seems to have a lot to be improved.

This paper reviews the evolution of the agricultural extension system in Vietnam since the modern rice technology was introduced to uplift agricultural production, identifying the strong and the weak aspects of the system, and suggests ways to improve the situation. An indicative plan of action will be proposed along these suggestions.

II. PRESENT STATUS OF AGRICULTURAL EXTENSION IN VIETNAM

¹ State Commission on Science and Technology Report at The Mekong Delta Science & Technology Planning Conference, at Ho Chi Minh City, 5-7 October 1987.

The generated appropriate technologies from all research programs must be transferred to the farming individuals as well as to the local administrators. Under the Vietnamese socialist governmental structure, the local administrators can be strong advocator of any technology once they understand it. Their extension role cannot be denied. That is the reason why even there is no official agricultural extension system in Vietnam in the past, top-down directives could contribute a great deal to Vietnam's present increase in rice production. What appears to be agricultural extension is a little more than simple transfer of agricultural technology to farmers at large in much a top-down manner, little is paid to the real needs of the farmers, nor the concern for ecosystem sustainability. In the past we have seen hundreds of thousand hectares of forest or acid sulphate marshes had to give way to rice fields but the end results were: the forests and marshes were gone while only a small quantity of rice was harvested.

Through several workshops among responsible people involved in agricultural technology transfer in various parts of the country, there is a consensus that an official agricultural extension system should be established for Vietnam since in a market oriented economy the individual farm household is now the main unit of production. This system should be based on the grassroots of all provinces, not sitting in central government offices. In 1993, at the order of Prime Minister Vo Van Kiet, the Ministry of Agriculture and Rural Development (MARD) established a Department of Agricultural Extension (DAE), to promote an agricultural extension activities in Vietnam. At that historical junction, the DAE had to struggle to organize the new structure. While waiting for official policy on agricultural extension, the provinces have gone ahead on their own initiatives in meeting farmer's needs for technology.

Agricultural extension system before 1975.

In the Mekong Delta of southern Vietnam, agricultural extension was not at all a new idea. Under the Ministry of Agriculture, an Agricultural Extension Directorate operated extensively down to the village level. The Directorate's activities included:

- taking charge of targeted technology training for provincial and district level extension agents, who in turns will train the farmers under their jurisdiction;
- publishing booklets and leaflets of simple technology to supply free of charge to the farmers through their district outlets;
- establishing `demonstration farms' throughout the country in accordance to the various agroecosystems;
- encouraging private agrochemicals companies to finance part of the extension activities in the provinces;
- coordinating closely with the Government Radio station to instruct farmers through the most farmer-popular drama `Uncle Tam's Family'. This 30-minute variety drama was broadcast every morning at 5 am.

Other institutions also participated in agricultural extension effort of the government. Techniques in agricultural technology transfer were included in an Agricultural Communications course at the College of Agriculture of the University of Cantho since 1972.

Agricultural extension system after the end of the war in 1975

As the country was reunified, it was obvious that new agricultural policy applied to the southern part of the country gradually abolished most of the pre-1975 institutions. The only Agricultural Extension course in the country, which was being taught at the University of Cantho, was discontinued, since it was regarded as a capitalist approach. There was a strong expectation that under the socialist system, agricultural technology can be transferred easily through the leaders of the agricultural cooperatives or state farms, no needs of approaching the individual farmers. It was thought that under the orthodox socialist system there would be no individual farmers but only the collective farmers exist. Unfortunately, the realities showed the opposite: there is none such beings as collective farmers. The individual farm households in the Mekong Delta continuously resist to collectivization efforts. Agricultural production output continued to stagnant.

Then came the Resolution 10 in March 1988 that liberates farmers from collectivization in the southern Vietnam and gives great incentives to the cooperative farmers in central and northern Vietnam. Provincial governments felt that something must be done to make the individual farmers more capable of improving their own production. But in the organizational structure of the Ministry of Agriculture and Rural Development (MARD), technology transfer is carried out by specialized directorates such as agronomy, plant protection, animal husbandry and veterinary, agricultural machinery... Technology in aquaculture is supposed to be extended by the Ministry of Fisheries, in forestry by the Ministry of Forestry (now being merged into MARD), in water management by the Ministry of Water Resources (now being merged into MARD), etc. Agricultural credit facilities were independently operated by a few agricultural development banks and numerous people's credit groups. There is little concerted effort by all concerned; coordination is always poor.

At the provincial level, the line ministries have their equivalent departments but they cannot fully direct the latter because they are not responsible for their appointments and their payroll, but the provincial government instead. This is true with the personnel at the district and village levels, too. The Party officials often use their position to instruct their lower level counterparts to promulgate top-down food production schemes. Following this hierarchical trend, the village level Party members receive all the orders to convey to the farmers.

The village agricultural cadres are at the lowest echelon: although they are supposed to make daily contact with farmers, but due to their inferior technical ability, very poor salary and poor working conditions, most of them could not function effectively, letting the time go by.

Recognizing this phenomenon early in the game through rapid rural appraisals in the Mekong Delta, the rice bowl of the country, starting 1977 the agricultural division of the University of Cantho, with the participation of the television stations of Ho Chi Minh City and Cantho City, decided to launch a program by which as many government officials at all levels as

possible could learn appropriate rice production technology, since food production was the first concern of Vietnam. A television series on 'High Yielding Rice Cultivation Technology', a step-by-step presentation of modern package of practices suitable to the Mekong Delta condition was broadcast every week to cater a large audience of government and Communist Party personnel from provincial to hamlet levels.

Simultaneously, the agricultural division of the University of Cantho introduced an integrated method of instruction, research and extension to send the students to the districts to assist provincial and district governments in executing applied research and demonstration of appropriate technology. Each of these projects was used as a partial fulfilment for the requirements for graduation of university graduates in agriculture. It was found that by this approach, several advantages were realized:

- agricultural research at farm level can be carried out at a very low cost to the central government because there was a greater share by the local government. The local government always gave strong supports to these projects because while they felt real needs for the technology they could not have their own expertise to do the job.

- technology transfer to farmers happened when the students work together with cooperating farmers under the supervision of University's professors. The applied research plots in the farmer's fields served well as demonstration plots where farmer-cooperators could by themselves explain to their neighbors of what they did to obtain those technologies.

- training of research and extension cadres --in the persons of graduating students-- can be realized at low cost to the central government. The research quality was assured because the students worked not only for the sake of the farmers but also for their own graduating reports.

Since 1988, decentralization in all government activities was imposed. The most significant outcome of the decentralization process was that the district and provincial agricultural officers had to generate income for their own organization to pay their own salaries! As a consequence, many agricultural technicians lost their jobs with the government because many of their former state-owned enterprises suffered great financial losses. The remaining personnel were as-

signed to various state-owned enterprises such as state agrochemicals companies, state import-export companies... Almost all of the personnel involved in crop protection are now under the payroll of state pesticides companies, those in veterinary profession are under the state animal health care companies... These technicians work as extension agents while selling pesticides, fertilizers, new seeds... to farmers.

The official birth of provincial Agricultural Extension system

As “*doi moi*” (economic renovation) period moves forward, taking seriously the extension activities led by the University of Cantho’s Faculty of Agriculture, several provincial governments invented different forms of extension system to serve their farmers more effectively. An Giang province was the very first one which organized an ‘*Agricultural Extension Program*’ led by a Provincial Program Committee. Being established as a ‘Program’ but not a ‘Center’ nor a ‘Department’, the An Giang Agricultural Extension program was owned by various specialized departments of the province under the coordination of a Provincial Program Leader. The Program, with extension cadres working down to village level, is supported by funds taken from the provincial revenues derived from sales of agrochemicals within the province. It pays salary to a network of cadres working at the district level. The village level is still dependent on the village cadres who are not supported by any program.

Another popular form is pioneered by the Vinh Long province which organized an ‘*Agricultural Extension Center*’ headed by a Director who is concurrently the Director of the Department of Agriculture of the province. The Center is supported by a small provincial budget, carries demonstration plots (for new rice varieties, fertilizer rates, new pesticides...) throughout the province, distributes technical information printed on colorful leaflets, presents video movies featuring technical subjects, etc. Technical and material backups were provided by its companion ‘Seeds and Plant Protection Company.’

The Dong Thap province presents yet another form of agricultural extension by

establishing an '*Agricultural Science and Technology Transfer Center*' which has similar activities as the Vinh Long 'Program.' This Center is connected to the Provincial Department of Agriculture and having BSc-level cadres working at provincial agricultural applied research station and moving around the district.

The latest system of *agricultural extension in Vietnam that adopt farming system approach* in defining farmer's needs prior to designing concrete plan of action was adopted by the Tra Vinh and Soc Trang Agricultural Extension Centers. The staff of these two Centers were trained by the Mekong Delta Farming Systems R&D Institute with financial support from the European Community International Program. The Center's structure (see description below) was designed to integrate applied research and extension in one unit in which the all the technologies will be tested for their appropriateness along the line of sustain ability and environment conservation.

In northern Vietnam at the same period, almost all scientific institutions are trying to engage in extension works, each with its own approach. The provinces are organizing *agricultural extension centers* similar to Vinh Long province's type to serve their own farmers. Each center is managed by a handful number of personnel transferred from the Provincial Department of Agriculture, linking to district and village level agricultural cadres.

Realizing the usefulness of these forms of extension activities by the provinces, while a number of officials at the MARD still branded agricultural extension a capitalist phenomenon, Prime Minister Vo Van Kiet urged the ministry to establish the Department of Agricultural Extension in March 1993. MARD has merged several departments, such as agronomy, plant protection, animal husbandry and veterinary..., into the DAE. A few years later, DAE was reorganized into a National Center of Agricultural Extension (NCAE) which serves as national coordinator to distribute extension budget to provincial agricultural extension centers.

Types of extension activities

1. Short training courses

The most common types of extension activities are: training for agricultural cadres and farmers, demonstration plots coupled with farmer field day, specific commodity farmer's club (such as High Yielding Rice Farmer's Club, Horticultural Club,...), informal technical discussion during village gatherings.

Throughout the country, short training courses have been conducted by agricultural, forestry, aquacultural extension specialists and cadres. There are two categories of courses: (1) officer training courses for extension officers and cadres and (2) farmer training courses designed for farmers.

- *Officer training courses* are conducted mostly at Provincial Extension Center/Office by cadres who were trained by the universities, or by a few agricultural research and development institutions. This type of training may take place once, sometime twice, a year.

- *Farmer training courses* are most popularly designed to teach technology for high yielding rice cultivation and integrated pest management (IPM). Sometime specialized training courses for livestock keeping, animal disease prevention, hybrid corn production, etc. were given. Usually there are about 50 farmers attending each course. Some courses conducted by famous scientists may attract 200 trainees at a time. Attendance sometime depends on the amount of per diem paid: IPM courses sponsored by FAO is more popular since their per diem is fatter than local training courses.

- Trainers of these courses are designated extension trainers trained by extension centers or agricultural research institutions, or just agricultural officers of district or provincial agricultural departments. Many of the training courses were reported not effective³ since most of the trainers did not have specialized extension training so they do not possess special skills in training methodology. Their training lessons were therefore not appropriate to the various levels of education of the trainees, the degree of retention of information by the learners was low, and even nil especially where lessons contain highly technical terms. In addition, teaching materials used in

³ Nguyen Thi Kim-Nguyet. 1996. Survey of existing agricultural extension systems in two representative provinces of the Mekong Delta. *Unpublished report.*

the training courses are usually boring, since the trainers did not learn appropriate techniques in teaching aid production.

Furthermore, most of the training courses are designed following a set module, without consideration for the felt needs of the intended farmer-trainees. This top-down approach often discourages the learners and resulted in more negative effect than beneficial. Seldom a training course is designed through a farming system approach in which the solicitation of farmer's participation is essentially needed in order for the multidisciplinary team to recognize indigenous knowledge, social conditions and biophysical condition where appropriate technology will be designed, and based on this design the training course could be designed. The CIDSE program in Bac thai province, the SIDA program in five other mountainous provinces, and several extension programs of Tra vinh and Soc trang provinces are among the first ones that employ a PRA approach in agricultural extension in Vietnam.

2. Extension workshops

The NCAE regularly organizes extension workshops at provincial extension centers to solicit expert consultations on agricultural development issues before the technology is transferred to farmers. Usually the NCAE invites some experts to address a solution or a new technology (a new crop variety, a better approach in production) to a large audience of provincial agricultural officers and lead farmers, cooperative managers.

3. Radio and television broadcasts.

Perhaps the most popular and most effective extension activities are the broadcast media since it is very affordable to all farming households to own a radio receiver; better still they own a color television set. It doesn't need the listener or viewer to be literate to understand the extension messages! The format of these broadcasts is popularly in form of a comedy featuring a farming family and their neighborhood chatting around a current issue on the farm which the sponsoring

company can give solution. Both government extension programs and commercial promotion/advertisement programs use these media frequently. A drawback of this channel of extension is that it often causes confusion in the farmers/listeners since the commercial companies are competing with each other, and even the government extension programs are sponsored by commercial companies so there is no objective voice to guide the farmers.

4. Contract farming.

Some agricultural commodities producers try to establish trustworthy relation with farmers by contracting the latter to produce raw materials. The contractors usually carry out trainings for the participating farmers to produce accurately the raw material needed. For example, a company from China came to Vinh Long province to contract farmers in a whole hamlet to grow sweet potato. It gave exact instructions on cultivation and harvest to packaging. Then it bought the entire output at a premium price.

5. Application of ICT

On the Internet, hundreds of websites addressed to farmers both in Vietnamese and English languages, various information from weather, tips for production, to market prices of farm commodities. In some communities desktop PC units are provided by the local post-office; others may have some farmers or cooperative team members own a PC, and it is a matter of learning skills in using the PC and Googling. Viettel telephone Co. has started its first phase in Vietnam to provide instant reply to queries from mobile phone users' questions regarding farming and agricultural markets.

6. Farmer's Field School (FFS): a method introduced by FAO to train farmers in identifying field problems from symptoms of damages by insects or disease organisms to measures to control or prevention. The farmers in FFS method needs some constant mentor to guide them through an entire cropping season. This approach is effective as long as there is an

enthusiastic mentor to guide the farmers.

7. Farmer's Friend (FF) program: a method by the An Giang Plant Protection Company in which they employ hundreds of university agricultural graduates to promote sale of pesticides in villages. The FFs browse all rice fields, inform the farmers what to do before the pest make damage to the fields. The program has grown to the extent that farmers can borrow a space in the storage to store their rice after a free drying by machine. This approach has evolved to a program called "Large model farm" which may cover several thousand of hectares. Unfortunately if farmer's outputs are not consumed on time, the program could fail easily.

8. GlobalG.A.P, VietG.A.P.: Another model of farmer's assistance initiated first by the ADC Group of companies. ADC collaborated with the agricultural cooperative My Thanh in Cai Lay District to apply the GlobalG.A.P. standard in producing rice. All participating farmers followed strictly the procedures that had been taught to them. The results: farmers obtained high yield at a low production cost. In addition ADC paid them 10% more than the prevailing price of rice. This is a good approach in bringing more income to farmers, but the drawback is that if the collaborating company does not have a good market for the product, it will not be able to maintain the standard, hence farmers would go back to the old practices.

Evaluation of performance of the present extension system.

The biggest drawback of this state of unorganized and uncoordinated activities clearly resulted in:

- unnecessary duplication of efforts,
- wasteful expenditures on extravagant equipment,
- frequently, ineffective technology promotion because the top-down approach in technology transfer is still prevailing,
- little is left to the farming households to learn about the resource system they possess, and hence they could hardly select the farming system that is most appropriate and sustainable to them.

- Little awareness to environmental conservation by both extension workers and farmers.

The overall impact of this 'free lance' extension system is that the income gap between the rich and the poor is widening. Rural poverty and seasonal hunger still persist in every corner of the country due to farming failures by poor farmers in remote areas.

III. GAPS AND NEEDS

It is quite clear now that in order for Vietnam to move faster to catch up her "dragon" neighbors, the livelihood of her major component of the population has first to be addressed by a better approach. Since more than 75 per cent of the population live in rural areas, sustainable agricultural rural development (SARD) must receive high priority in the government agenda. This approach requires a truly integration of multidisciplinary solutions to farming situations. So far, as indicated above, SARD approach has been introduced for sometime in the Vietnam but still remains strange not only to most government administrators but also even to researchers at various institutions. Therefore, sustainable development of the agricultural production in Vietnam cannot be realized successfully without training a wide range of people who direct, do research, participate, and practice farming activities. This will call for the establishment of an accelerated and comprehensive adaptive research program linked with an effective agricultural extension system. The urgent need for implementing this strategy is *an appropriate human resource development program*.

Agricultural education and training in Vietnam in general is changing its approach to cope with new economic policies. However, in a socialist country in transition toward market economy, there is no easy solution to a more appropriate development strategy. Formal courses at agricultural universities have begun an inclusion of agricultural extension, and farming systems research and development concepts.

Several research institutions in cooperation with foreign experts have been organizing

short courses to train researchers in agro-ecosystems analysis and rapid rural appraisal. Several institutions, the Center for Resources and Environment Management of the University of Hanoi, the Graduate School of the Agricultural University No.1 Hanoi, the Upland Farming Systems R&D Center of the Agricultural and Forestry University of Thai Nguyen, the University of Agriculture and Forestry of Ho Chi Minh City, the Mekong Delta R&D Institute of the University of Cantho, have been conducting short training course on farming systems R&E giving emphasis on the rapid rural appraisal (RRA) and participatory rural appraisal (PRA). It is expected that as the knowledge of RRA and PRA become more popular among Vietnamese scientists it would be adopted by scientific organizations and integrate it as basis for a combined research-extension system for sustainable agriculture and rural development.

Structure of a research-cum-extension system.

The structure of a *research-cum-extension system* in some provinces should be institutionalized to other provinces. This setup is found very appropriate and useful to both the farmers and the research-extension workers. In the end this continuous delivery-feedback system minimizes the cost of the entire operation. The structure is designed as follows: the researchers-specialists at the provincial Agriculture-Forestry Adaptive Research Center (AFARC) would form a Provincial Resource Management Guidelines (RMG) Team who would carry out adaptive research at their experimentation station by themselves and at the communes by two (or more) advanced farmers with the direct guidance of commune extension agents (CEAs).

The CEAs --the most important workers in the extension system-- will be backed up regularly by the District Resource Management Guidelines Team who are staff of the District Agriculture-Forestry Office (AFO). They will be constantly in access to improved research facilities and an upgraded experimentation station. This Research-cum-Extension system thus has a pyramid shape with a broad base to meet all farmer's needs and a sharp cone to streamline the best expertise group in the province to stay in the forefront of appropriate technologies.

The Provincial RMG Team and all District RMG Teams will first be trained together in PRA technique and farming systems component technologies before they carry out PRA in their respective districts. The Provincial RMG Team becomes trainers, who in turn will conduct annual refresher courses to CEAs. Appropriate scientific institutes and universities will be commissioned to organize the first training at the province. All course contents should be tailored to the sustainable agro-ecosystems development of Tuyen Quang province. Complete training aids should be prepared and hand over to all trainees down the line to CEAs, so that they can use them in their training. The CEAs after the training, will use the training materials during their visitations with farmer's households. It should be noted, as indicated above, as the system operates, staff of agro-chemical supply companies also do extension work parallel while promoting their commercial products.

A value chain approach for sustainable development of the agricultural sector.

Sustainable development of the agricultural sector, for food security and beyond, will soon adopt an integrated strategy which should include at least the following objectives:

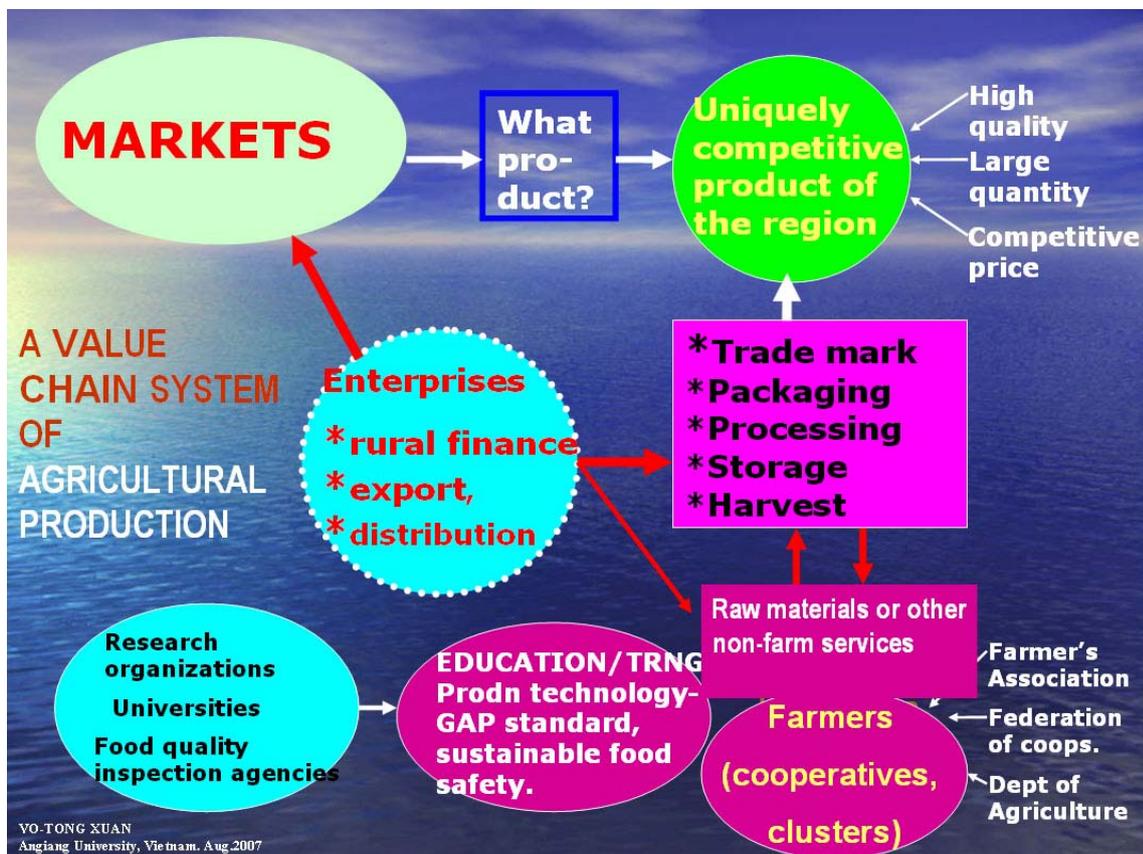
- (a) to mobilize needed internal and external capabilities to explore agricultural systems management for various agroecosystems to assure optimum food production, especially rice, while supplying more plant, animal, aquaculture products and at the same time maintaining sustainability of the systems;
- (b) to improve production efficiency for all major agricultural, forestry and aquacultural products;
- (c) to increase the value of all above products by appropriate processing techniques;
- (d) to increase farm income by appropriate agricultural extension system coupled with credit facilities and creation of internal and export markets for projected farm products.

To meet the above objectives, *a strong program of agricultural extension based on farming system value chain approach* should be institutionalized and implemented as soon as

possible. This program requires a strong and well coordinated extension system throughout the country to include:

- 1) the establishment of provincial research-cum-extension structure (as described above). This will create a full range of extension personnel from provincial to community levels;
- 2) participation of grassroots organizations such as women's union, youth's league, farmer's association or cooperative;
- 3) training on: (1) PRA; (2) extension methodology to research staff, and community extension cadres. For the latter, appropriate technology as required by defined resource management guidelines will be taught to prepare them well fit to guide or to train the farmers in their respective areas.
- 4) integrating other support services, such as rural credits, input-output marketing, postharvest processing, into the extension program.

To illustrate, we use the value chain approach introduced by the ITARice Company of Long An province (see figure below). The ITA Rice Co. (the enterprises) being the main driver of the system, links with the farming households to (1) train all farmers the optimum technology to grow the rice variety OM4900 as the needed raw material to process into a branded product for high quality domestic consumption or for export; (2) supply to the farmers all inputs they need in order to produce paddy raw material at the lowest production cost but highest quality; and (3) buy the paddy from the farmers at a premium price, 10% above current market price. ITA Rice technicians guide the farmers in every step of the production cycle. In this model, farmers participate actively as members of the company. They no longer pollute the soil, water or air with excess agrochemicals. The middlemen are eliminated almost entirely. The profit would go to the farmers instead of to the middlemen like before.



Suggestions and recommendations

GENERAL RECOMMENDATIONS: In order to improve and strengthen the existing agricultural system in Vietnam today, we suggest that the Government should take bold steps to realize as soon as possible:

- Institutionalization of farming system value chain approach to agricultural extension system.
- Integration of applied research and extension.
- Integration of support services accompanying agricultural extension activities.

SPECIFIC RECOMMENDATIONS:

a- *Institutions and personnel:*

- at provincial level: Establishing or upgrading an agricultural applied research center and an expert team
- at district level and a number of applied research sites on farmer's fields: Establishing or upgrading an expert team.
- Posting specifically trained commune extension agents in every village, or creating that position in cooperatives
- Establishing credit and saving facilities as close to poor farmers as possible.

b- *Operation and Management:*

- For every community or every agro-ecoregion, accurate benchmark survey using PRA method by the district expert team together with commune extension agents (CEA) and key farmers to define most appropriate *market-linked* resource management guidelines (RMG).
- Defining/applied researching appropriate technological and socio-economic measure(s) to implement the above RMG;
- Designing training course for CEAs to:
 - (I) learn the needed technology required by RMG;
 - (ii) familiarize with credit loan procedures to get ready to help farmers applying loans.
 - (Iii) prepare appropriate lesson plans and training materials ready for farmer training or visitation.
- Organizing credit loan to targeted communities.

- Monitoring and continuing guidance to farmers by CEAs.

- It is desirable that an enterprise that has an interest in the market-linked resource of the region would take the lead to organize the above operation of the value chain.

Indicative plan of action

The following sequence of an indicative plan of action is designed to implement the above suggestions:

STEP 1- National planning at the National Center of Agricultural Extension to redesign the structure of AE system for the whole country. *Output:* A proposal for **Strengthening of AE system in Vietnam for sustainable agricultural development.**

STEP 2- Staffing all required posts prescribed in the proposal by redistribution of current staff at the ministries who belong to the excess personnel.

STEP 3- Infrastructures to be established:

- . National/regional Agricultural Extension training centers
- . Provincial Agricultural Applied Research and Training (AART) Centers.
- . District AART Offices.

STEP 4- Defining specific training objectives: for each staff level, the training objectives of their respective training courses are defined to meet the expected outputs.

STEP 5- Organizing training activities:

- . Courses for staff at all levels by respective training facilities;
- . Courses for farmers, by CEAs, after the RMG will have been defined.

STEP 6- Monitoring and evaluation: this is a routine operation of every extension program, particularly when PRA is used as a basic tool.

IV. CONCLUSION

For sustainable agricultural development in poor rural regions, agricultural extension system should be improved by replacing the top-down approach with a farming system value chain approach to address the felt need of the poor farming communities. The farming system value chain approach could very well enable the members of the agricultural extension system to determine appropriate technologies that are: a) easy to apply by farmers, particularly the poor farmers; b) utilizing as much as possible local sources of inputs that could preferably be generated by the farmers themselves; c) environmentally least harmful; d) least costly to farmer's income; and f) yielding optimum products whose by-products can be integrated into the production system.

To the developing countries in Asia, the issue of environment and sustainable development is still taken for granted since they present an eternal conflict at the grassroots level. As the poor farmers continue to rely on natural resources for their survival without consciousness of the degradation of these same resources due to their destructive exploitation, the poor will become even poorer. It is high time now to reverse this trend, first by restructuring our agricultural extension approach. The recommendation proposed above will eventually provide a powerful tool for hunger eradication and poverty alleviation.