Report for International Development and Research Centre

FARMING SYSTEMS (VIETNAM)

Centre file 91-0133

Project Appraisal Report

by

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1. Introduction

This report covers the review of IDRC’s supported project “Farming Systems (Vietnam)”. This project was implemented from 31 March 1992-31 March 1995 by a network of Vietnamese institutions consisted of 5 larger universities, two small universities and two government research institutions. University of Cantho, with its Mekong Delta Farming Systems Center headed by Professor Vo Tong Xuan, acted as the lead institute in this project.

The general objective of this project was a) to develop human resource capabilities in Vietnam in farming systems research and extension methods b) to improve and further develop appropriate agricultural systems that are both economically and environmentally more sustainable and simultaneously will improve farm and rural family incomes, nutrition and welfare.

The 9 agricultural institutions involved in this project worked in 6 agroecosystems of Vietnam as follows.

<table>
<thead>
<tr>
<th>Agroecosystems</th>
<th>Institutes</th>
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| I. Mekong delta | 1. University of Cantho, Cantho  
2. Cuu Long Rice Research Institute, Cantho  
3. Cuu Long In-Service Training College, Vinhlong. |
The reviewer's visit took place between June 21st - July 1st 1995 and the reviewer was able to visit 8 out of the 9 institutes involved, talked to research personnel and visited their research sites. A brief discussion was also made with the team leader of the one institute (Agricultural University No. 2, Hue) the reviewer did not visit during this trip. In 1993, the reviewer had already a separate opportunity to visit this institute and saw some of their research sites.

Because farming systems approach to research and extension is new in Vietnam, the project started from scratch training research personnel in these institutes using available trainers at the University of Cantho and some trainers from the International Rice Research Institute (IRRI). However, due to inadequacy in training facilities, it was necessary for the University of Cantho's Farming Systems (FS) group to use their first year to set up these facilities and prepare logistics for the training. The first 6-week FS training took place during February-March 1993 involved 32 researchers from the 9 institutions. The second training was conducted in August-September 1994 involving another 30 researchers. Farming system curriculum dealt with the concept and techniques of farmer oriented research and farmer participation, participatory and rapid rural appraisal.
(PRA and RRA), diagnostic surveys, problem identification and diagnosis, agroecosystem analysis, integrated farming systems, interdisciplinary work, socio-economic assessment, constraints to adoption and sustainable agriculture. These, to Vietnamese agricultural researchers, were very new concepts and techniques given their previous strong background in centralized model of agriculture.

Vietnam is a predominantly agricultural-based country with about 80% of the population still in agriculture. The country has been preoccupied with rice production but was not able to increase rice production substantially until 1986 when the government changed one of its important policies from close-door collectivization of agricultural production to a policy which recognized individual roles of farmers with individually-assigned land holdings and encouragement of private investment, benefits and freer exchange. Since then, rice production soars in most regions but farmers are finding that rice production alone could not relieve them from poverty and in certain environments, create pressure for environmental degradation. Diversification from rice is increasingly recognized as a means to improve the standard of living of the farmers in many regions. Nevertheless, the existing systems of research has not been able to identify farmers’ needs and potentials along that line. Moreover, the system of extension was more or less non-existent up until very recently. With respect to agricultural research and extension dealing with either sustainable agriculture, cash cropping or integrated farming system, little has been invested and achieved by the national agricultural institutions up to 1992 when this project started.

The Vietnam Farming Systems Research Network was established in 1990, with the Mekong Delta Farming Systems Research and Development (FSRD) Center as a nucleus. The network planned for human resource development in FSR methods to improve the quality of research at each participating institutions and thereby allowing the country to develop new agricultural opportunities. IDRC funding for this effort came at a time when financial support was most needed to vitalize the network.

2. Achievements of the project

Under the leadership of Prof. Vo Tong Xuan, this project has achieved excellent performance given relatively short time, vast coverage areas, and a large
number of institutions and research personnels involved. A number of factors were contributing to this success.

Firstly, Prof. Vo Tong Xuan is very well respected and influential throughout the country. He could command a high level of cooperation from the different institutions no other project leader could have done better.

Secondly, the FSRD team at the University of Cantho has been very active, well qualified and dedicated to their work. This has made the FSRD training and monitoring effective.

Thirdly, the researcher who participated in the network have been very enthusiastic and hard-working. With the guidance and financial support given by the project, these people have come up with very impressive work. The fact that this project is being implemented by university research staff could have made a difference to the performance of this project as university researchers in Vietnam are generally serious in their tasks with good intentions to work but previously have been very much underfinanced by the government.

Fourthly, the approach, direction and content of this project using FSRD as applying to Vietnam are very appropriate and timely given its political and socio-economic context. This project demonstrates clearly the positive impact of FSRD approach. How the approach to research and extension is applied, how the results are taken place in the fields, and how the farmers are benefiting from these efforts, one can say that this is one example of FSRD at its best.

2.1 Project objectives.

With respect to the project objectives, the reviewer found that they are well achieved in the course of the project in spite of time limitations. Human resource capabilities in FSRD have been well established throughout Vietnam through this project. Within only 2 years of effective operations, the FSRD concept and approach is being adopted among participating institutions. Research work is being conducted to improve and further develop appropriate agricultural systems in each agroecological zone of Vietnam. Some successful systems which are environmentally sustainable and economically viable are being extended to farmers and have improved farm and rural family income, nutrition and welfare. The
project team of researchers are able to achieve so much in so short a time and with the available limited budgets. Although there was no explicit modifications in the project objectives, the project has implicitly aimed towards institutionalization of FSRD in the national systems of research and extension. This is also partially achieved as the incorporation of FSRD is being done to university curriculum at participating institutions both at the undergraduate and graduate levels. Institutionalization of farming systems research and extension is also being done through Prof. Vo Tong Xuan's influence. Further work is being planned and done along this line. It is clear that long term activities and impact using this approach are being targeted by the project team leader. This is, in the reviewer's opinion, part of all-out efforts for nation building.

2.2 In-country training

The main trainings provided by the project were the annual 6-8 week courses with at least 3 weeks of lectures, 2 weeks of practicum and 1 week of report write-ups. During the trainings, the trainees worked and stayed together. This has enabled them to develop close working relationships with each other and with the trainers. The indirect benefits of these trainings are as important as the direct materials of the trainings themselves.

Through the interviews with FS practitioners and researchers who participated in these trainings, the reviewer found a high level of satisfaction over the trainings with respect to their usefulness. There is noticeable different knowledge, perceptions, and attitude among those who have been trained and those who have not.

The concept of system-orientation, interdisciplinary and client-oriented problem identification and diagnosis which is offered in FSRD training has been surprisingly well received by the participating institutions. Vietnamese agricultural institutions especially in the North have been structured for decades using strong disciplinary lines and top-down orientation. FSRD provides an integration of different disciplines together with bottom-up flows of problems and needs from the farmers. This approach reverses the views of agricultural scientists and for this part alone bring about fundamental change in their attitude and behaviour. The
participating researchers were reportedly convinced in the usefulness of this approach. There have been in these different institutions, either follow-up FSRD core courses taught at graduate level or undergraduated levels or a new FS department with assigned permanent staff. Many institutions sent their staff to higher overseas training in agricultural systems (e.g. to University of Los Banos, Philippines, to Chiang Mai University, Khon Kaen University and Asian Institute of Technology, Thailand). Many of these staff personnels are now back in their home institutions researching on and teaching FS courses.

After training from the University of Cantho, the trainees working with their institutions’s FSD team initiated research projects after conducting a base-line survey and rapid rural appraisal (RRA) exercise. On-farm trials were set-up, followed by agronomic and economic assessment. They applied the methods learnt from the training in their work reasonably well although sometimes rigidly and with some misunderstanding.

FSRD trainings were also conducted for the provincial and district levels as that the local administrators understand and are able to apply the concepts and approach. Shortened curriculum were designed and conducted with the help of Mekong Delta FSD team. 6 out of 9 participating institutions conducted at one time or another in the local level FSD training involving a total of 370 local administrators in the course of the project. In total, the project has directly and indirectly trained over 2,000 trainees including innovative farmers on farming systems related topics.

The training has been quite effective to enable trainees to be independent researchers in their home institutions. Due to the different physical and climatic conditions in each agroecozone, the research topics trainees chose to do are well diverse to suit those conditions. The project funding of these research has also strengthened the indigenous research and management capacity in these home institutions as there has been little research funds from other sources. Moreover, the research which was initiated from this project involved a larger group of researchers than those who came for the formal training. Through formal and informal learning in this project, the agricultural research which answers the needs of the local people is for the first time activated on a broad scale.
2.3 Research

Most researchers reported that with this project, they were able to go out in farmers’ fields and conduct on-farm research as contrast to strictly experiment station research previously. Problem identification is one of the key changes in the approach in research in this project as compared to previously. As such, the results of the research have been very much tied to potential users and extension activities. Within a few years of work, local administrators and farmers were able to notice very much the benefits of their work. Certainly, some groups are better than others but generally research results have been transmitted to potential users, especially when they are ready for extension.

Research quality varied from group to group. Most groups did very good jobs with valid designs, methods of analysis and conclusions. Some groups were weak in some stages e.g. designs, testing or conclusions. In these latter groups, there was a tendency for easy conclusions. For example, some research is better done at the experiment stations (e.g. varietal testing) but was done on-farm with 1-2 farmers involved with no replications. After one year result, a conclusion was made without repeating the same research to see effects of climatic changes or carry overs. In some other groups, too much reliance on economic analysis of existing systems without trials on new alternative systems. These were some of the weaknesses observed during the short discussions with researchers.

Nevertheless, on the whole, the research has been of acceptable quality. More statistical designs and analysis should have made these research work more rigorous but statistics was reported to be generally weak among Vietnamese agricultural researchers because of past orientation. What has been achieved in this project is regarded as significant improvements in terms of quality and relevance of the research.

Much of the research work in the farming systems network deals with the integration of different components in the farming systems e.g. rice-fish, rice-shrimp, crop-livestock, agroforestry systems and different cropping patterns. These lines of research are of direct relevance to the livelihoods of the people in Vietnam as farmers in Vietnam are involving in these different components simultaneously.
One policy initiative is called VAC whereby farmers are encouraged to grow rice, vegetables, trees and raise livestock or fish at the same time. The research which deal with the integration of these components are of utmost importance to Vietnamese farmers and policymakers. The fact that these scientific results have always been expressed in terms of farmers’ household income have made them even more relevant to potential users. The results of these research are also of professional and scientific interest among agricultural researcher in other countries as well. The research results on environmentally related issues e.g. soil erosion in SALT models, viability and long-term sustainability of rice-fish, rice-shrimp systems, agroforestry practices and farmers acceptability are especially of current interests to the scientific community.

The research activities which have been conducted in this project have provided participating researchers more experience in research as well as better exchange among other researchers in the network. The research work is presented in the Annual National Conference on Farming Systems and this annual event provides an active forum of learning. Through the active research activities and exchange provided by this project, the agricultural research capacity in the country is much enhanced.

The farming systems work involves also a high degree of interdisciplinary exchange as different components, aspects and research and extension stages are integrated. Agronomists, soil scientists, animal husbandry and fishery specialists, agricultural economists and, to a lesser extent anthropologists, work together as a team to solve local farm problems. Such is a strength of farming systems research, particularly as it applies to Vietnam in which researchers have in the past had little exchange with each other due to their Soviet disciplinary, top-down style of research. Interdisciplinary work provide better insights in the analysis of and solution to local problems. This project has enjoyed such an advantage to a remarkable degree and is the first attempt to do so in agricultural research in Vietnam.

Despite better interdisciplinary work, it is noticeable that the animal husbandry component seems to be relatively weak in some FSR groups especially as far as research is concerned. While there are attempts to include animals in the systems, some of them are more of extension activities than research. On-farm
research on livestock is still inadequate and is much needed by farmers. Active involvement of animal science researchers in this network is still desirable.

As for other disciplines such as forest scientists, agricultural economists and sociologists/anthropologists, there have also been limited involvement from them but given the context of institutional setup in Vietnam, this is understandable and currently does not yet pose real constraints to the success of the kinds of work being done. In fact, as far as agricultural economists’ inputs are concerned, the network has been quite well supplied with sufficient concepts and tools for economic analysis. Certain improvements can, of course, be made. For example, there tends to be too much reliance on the use of benefit -cost ratios in economic analysis but the calculation of these ratios is still questionable as it stands.

2.4 Outcomes and implications of the project

This project has had a very good impact on the farming communities involved directly in the work. Involved farmers, through on-farm research, have benefited from increased production and income. In most sites, FS research work has been able to come up with improved production systems although the degree of success vary from site to site and from technology to technology.

Multiple cropping, cash cropping, livestock raising and shrimp farming were some of more profitable lines of production as compared with monoculture of rice. The increase in income can be as high as 3-4 times. For example, the introduction of shrimp in rice-shrimp systems can improve income 4 times around research sites in Cantho. In Hanoi, the introduction of pigs in the systems increased income 3 times. The research on rice-tomato-garlic cropping systems in the same area could yield farm income of 7-15 million ₫ per household compared with 1.3 million ₫ in the old system. In Bacthai, SALT technology and improved farm inputs and practices enabled incorporating farmers to have new houses and/or new amenities like TVs, radios, fans, etc. Farmers’ family income in this area increase 297% from 4.1 million ₫ to 12.3 million ₫.

In these research sites, the improved farming practices have brought major changes to the standard of living of the people. The farmers are seen to show much appreciation of the work being done in their localities. The research team are received with warmest welcome by the farmers. In other research sites, although
the increase in income has not been as great as 300%-400% as in earlier mentioned sites, still the improved farming systems can yield approximately 60% increase in income to the farmers. A minimum increase of income of 20-30% can be easily achievable through the lines of research and extension activities conducted by the researchers in the network. On the overall, the network has had very good impact to the livelihood of the farmers in their respective sites. The farmers in the nearby areas also benefit from the research activities as the improved technology or farming systems are spreading rapidly once they are seen to be quite profitable.

It is roughly estimated that about 30% of the research work being done has had considerable impact to the local population, 50% having reasonably good impact, while 20% needs further improvement either in team work, efforts, skills required and/or directions or work. The researchers generally show considerable amount of enthusiasm for work and in most cases have been able to work effectively in the fields.

The local authorities at the district level and provincial level have also worked closely with the FSR researchers. They have been involved in the training, research and extension activities of the FSRD network. This project has a significant effect of increase awareness and skill of the local authorities to work effectively with the communities. There have been an increase in extension activities being conducted and a better linkage to research activities at the local agencies. T.V. programs, extension pamphlets, field days have been follow-up instuments which the local authorities invest using their own funds to capitalize the progress being made by the FSR researchers.

One important feature which the project has demonstrated its importance to the local authorities is credit. In a few sites, the project has set up small credit schemes to farmers, sometimes men and other times women, and has been successful to show the critical role of credit to the sustainable improvement of the farming systems. Both the local authorities and the central administrators are beginning to see the needs and models of credit schemes. Further development along this line is being made with the project technical assistance. Some NGOs are also following similar lines with different fine details.

The project has also attempted to further strengthening this research-extension linkage by trying to institutionalizing the work into a more formal system.
of government. There has been work using FSRD concept in extension network of the local government. The attempt is still on-going but currently is already having a substantial impact on the national level policy makers.

Within the participating institutions themselves, the recognition of the FSR approach has been demonstrated in the way the administrators have been willing to incorporate the approach in their institutions on a long term basis, either by changing the curriculum of graduate and undergraduate programs or by setting the Farming Systems Department. Occasional trainings on FSRD are being arranged in these institutions using ex-trainees from the University of Cantho and other FSR institutions. On-farm research is being conducted in those institutions using the methods introduced at the FS training. Use of farm survey, rural rapid appraisal, agroecosystem analysis, problem identification, on-farm trials and economic analysis are among the most common tools adopted by the ex-trainees and other researchers in the participating institutions. They would present these research results in an annual FS conference. Such events further strengthen the network, facilitate communication among researchers of different institutions, stimulate better quality and relevant research. Over 3 years, the network researchers have produced at least 83 Vietnamese, 28 English, 8 theses and 12 miscellaneous research papers. Some of these papers were elected to be presented at international conferences and symposiums. The quality of work has improved throughout the years and has been well recognized in the international FS research communities. Given the leadership provided by the University of Cantho and the strong collaborative efforts in FSR research in each participating institutions through effective academic exchange, FS network in Vietnam with the help of this project has been in general a highly successful and commendable one.

Through the research and extension activities of the network members, the project has had considerable progress in improving existing productive systems and providing new profitable production systems to Vietnamese farmers. Moreover, it has laid a very good foundation for future work. Human capacity, institutional set-up and relevance to local situations are all built-in within this project.
2.5 Local and government commitment and responses to the project.

Because of the demonstrated effectiveness and appropriateness of this FSRD approach to Vietnam country situations, the government of Vietnam has endorsed a policy in agricultural and rural development (through the promulgation of the Resolution of the Fifth Plenary Session of the Vietnamese Communist Party) giving guidelines to government bodies at all levels to turn toward individual farmers and farming households, as contrast to the collectives, as main targets of sustainable development. It has also promoted actively integrated farming systems (VAC policy), as opposed to the previous heavy emphasis on rice production alone.

The influence of this project on the local and government commitment is also especially notable in extension programs. Extension activities to farmers were minimal before the project started. Given FSR/E approach, extension of research results is an integral part of this approach. To work with individual farmers, to know their environment, needs and constraints were all new to the local government officers. The way this project has worked closely with farmers, through the cooperation of provincial and district agricultural offices, has demonstrated examples of how to effectively relate to farmers and develop their production systems. The local government in many regions have committed resources and personnel to FSR/E activities. Many district officials worked hand-in-hand in on-farm research with FSR/E team. The local government invested resources in extension activities as well as in credit programs following the on-farm research results produced by FSR team. For example, in Bac Thai after successful tests of SALT technology, the local government has launched training, TV programs, publications and field days on SALT technology. The Department-level administrators worked closely with the university staff and are planning future activities together. In Cantho, after the initial credit scheme introduced by the University of Cantho, the district-level offices have resumed the scheme using the government sources of fund. In Dak Lak, the Rubber Corporation and Coffee Research Institute participated in integrated agroforestry system research recognizing farmers’ diverse needs and constraints. In Long An province, the Southern Institute of Agricultural Sciences (SIAS) was able to work effectively with farmers and local administration officers on livestock programs (namely: poultry and swine). The Institute involved heavily in training programs of FSR (400 persons being innovative farmers, extension workers of the district and local
administration officers). After a period of successful operations, the local officers expand this program with their own funding.

The usefulness of FSR training offered by the University of Cantho is valued by the provincial level policy makers. As the project fund ceased in 1995, there have been arrangements that the provincial administration pay for food and housing cost of trainees. There seems to be adequate demand from provincial officers and adequate funding in their part to do so.

3. **Strengths and weaknesses of the project**

The project, as it operated in Phase 1, has many strengths which enable it to be successful. To recapitulate some of these strengths already mentioned earlier. the strengths of this project are

1. Strong and influential leadership.

2. Well trained, dedicated and hardworking team at the University of Cantho.

3. Active and motivated researchers at participating institutions.

4. Effective networking of key institutions.

5. Appropriateness of the FSRD approach to the technical and socio-economic situations of Vietnam, particularly interdisciplinary, problem-oriented research and extension.

6. Good support from international research organizations as well as foreign educational institutions.

and 7. The project has been one of the first few projects dealing with agricultural research and extension and as such the marginal contribution of this project has been great.
There are of course certain areas of weaknesses in this project which can be improved and corrected. Some weaknesses are those connected with certain particular participating institutions. Some others are more inherent in the way the project has been operated.

1. The project has still some relatively weaker links to the animal and forestry sectors. More researchers have been crop-based, especially rice-based.

2. Occasional blurred distinction between research and extension has made some researchers weak in their research objectives, designs and analysis and thus their roles as FS researchers. This can adversely affect the quality of FS research. Some researchers operated their on-farm research as demonstration plots. When research-extension distinction is not clear, outsiders tend to treat FS work as extension work. The vital role of adaptive research in FSR is then undermined.

3. In some institutions, underutilization of manpower, internal politics and misunderstanding of the nature of FSR work is observed among policy makers. The need to have understanding administrators who can mobilize the team and give them support is noted. This is where high-level influence is necessary. The project in general has had good support from policy makers from each institution. Some weaknesses occur in a few institutions which need further follow-up.

4. Statistical methods, experimental designs and extension strategies are topics which seem to be given insufficient treatment in FS training, given the background of trainees.

5. The involvement of social scientists in the project is still limited. More rigorous economic analysis, gender analysis, technology adoption and adaptation studies are still largely needed.
4. Recommendations

Given the above strengths and weaknesses, it is recommended that this project be extended to expand this kind of work in a greater number of institutions and a greater coverage area but with the following considerations.

- The project should emphasize and integrate research on animals and trees (farm or forests) more seriously than the past.

- The project should expand activities into marketing and food processing research as an integral part of the project.

- There should be attempted to make use of existing and new gender analysis studies in the generation of farming systems technologies, evaluation of the impact of new technologies and in the extension activities. From existing studies on women roles in Vietnam, Vietnamese female farmers have much potential to improve the production systems and so much potential for research and extension in this area.

- There should be studies on farmers’ adaptation of technologies as well as adoption and impact of FS technologies in and around the research sites.

- FS training should also give greater time and lessons on experimental designs, on-farm trials and use of certain statistical methods.

- There should be an examination of agricultural policies, regulations and institutional constraints to production and ways to eliminate or bypass them (e.g. credit constraint).

- There should be a good documentation of FS efforts as operated in Vietnam because much can be learnt from these activities for groups both outside and inside Vietnam.

- Lastly, there should be serious and explicit attempts towards institutionalization of this approach into the agricultural research and extension system of the country. Further FS training and research is needed for other
important agricultural institutions of Vietnam. While such attempt has begun in Phase I, the work is still incomplete. Phase II can enable the work to be accomplished.

With these modifications and extension of this project, the next phase of operations will be more rewarding than Phase I, which as it is, has already yielded uniquely outstanding performance.

5. References


6. Appendix 1: Itinerary

22 June  Site visits, Hanoi.
23 June  Site visits, Bac Thai.
24 June  University of Agricultural and Forestry, Ho Chi Minh city, Briefing
25 June  Southern Institute of Agricultural Sciences, Briefing and site visits.
26 June  Meet University of Hue’s FS coordinator.
         University of Tay Nguyen, Buon Ma Thuot, Briefing.
27 June  Site visits, Buan Ma Thuot.
28 June  Site visits, Buan Ma Thuot. Back to Ho Chi Minh City.
29 June  University of Cantho, Briefing and site visits.
30 June  Cuu Long Institute of Rice Research Briefing.
         Cuu Long In-Service Training College, Site visits.
1 July  Leave for Bangkok.