

SOCIAL SCIENCE RESEARCH IN DEVELOPING COUNTRIES

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ABSTRACT

The objective of this presentation is to show the direction of social science research in developing countries based on the experiences and lessons of social science research which were obtained from mainly specific comprehensive research projects, namely “JIRCAS Mekong Delta Project” (Mekong Delta Project) in Vietnam and partly “JIRCAS Rainfed Agriculture Project”(Rainfed Project) in Laos. The reason why I took up social science research within these comprehensive research projects is as follows: Social science research is required to take a more solution-oriented practical approach in order to contribute to development. This requirement is true in cases of research in Japan and in cases of research in developing countries as well. And, I think comprehensive projects where social science and natural science work together have the synergetic possibilities to meet this requirement. In this presentation, I would like to mention several cases including failure cases which led to important lessons. In the Mekong Delta Project, based on problems identification, we developed component technologies such as a seeding technology for rice farming, a rice straw compost technology, a biogas digester technology, and fish density technology in diversified farming. After the development of these technologies, we conducted farm economic evaluation of these technologies and clarified the ideal optimum size relationship between each component such as rice, pig, fruits, and fish components.

The social scientists played an important role in project management in the Mekong Delta. The main activities of research and project management of social scientists were as follows;

- (1) We identified and fixed the common research site. Then, we formed an inter-disciplinary team. After developing and improving technologies in that research site, economic evaluation was conducted. As a result, we proved the possibility of the farmers' adoption of the abovementioned technologies.
- (2) In the Mekong Delta Project, we were able to conduct substantial collaborative research by allowing the Vietnamese researchers to have their own research topics.
- (3) We adopted the farming systems approach which consisted of 4 stages such as diagnosis, design, test, and evaluation/extension. We can say that this approach is solution-oriented approach. However, so far in Japan, there are few research projects which have adopted this approach. In this approach, social scientists conducted the diagnosis, design, and evaluation.

There are several lessons in social science research within the farming systems approach. First, we should recognize the significance of Participatory Rural Appraisal (PRA) and its limitation as well, and then we should find out the best way of empowerment of local farmers.

In the research site in Laos, PRA helped us to establish good relationship with the farmers. In Vietnam, we initially conducted Rapid Rural Appraisal (RRA) at the beginning. We realized later that we should have conducted PRA at the beginning of the project in Vietnam. It took two days to complete the PRA where basic tools such as mapping, historical calendar, seasonal calendar, and cause-effect diagram were introduced. There were many poor farmers and some of these farmers were illiterate. So, the Lao researchers and district officers wrote down these farmers' opinions one by one. On the other hand, in Vietnam during the project, we conducted PRA. We divided the respondent farmers into three groups such as rich, middle and poor farmers, and we conducted the PRA differently. The most inactive discussions in the case of PRA were those conducted with the poor farmers. From these experiences, I think various kinds of PRA suitable for various economic and educational levels of farmers are required. Especially for poor farmers, a more simplified PRA should be developed and practiced. Moreover, PRA is said to be a tool for the empowerment of farmers. However, the empowerment process is still not clear. Therefore, we should make clear the process of empowerment. Of course, there is no single theory for that. I think many case studies are required. Then, researchers should think out what to do for farmers according to the different stages of the entire empowerment process.

Secondly, in developing countries, the problem is sometimes lack of information. Therefore, diagnosis and design are very important stages which we should focus on and which required considerable time. And, we should be careful about the relationship with farmers. One of the main features of the project consisted of comparison

and analyses of the results of technologies evaluation for technology selection. The objective is to provide basic information for reaching consensus between the farmers and the researchers in selecting the technologies for testing. In the evaluation by researchers, AHP-method was applied with consideration of effects, possibility, easiness of practice, initial capital investment, and research cost. In the evaluation by farmers, simple scoring method was applied. Actually, we felt uneasy before finally selecting the technologies for testing due to the time pressure that we had to speed up our project. However, we spent enough time for diagnosis and design. Due to this careful diagnosis and design, we were able to develop practical technologies such as a seeding technology for rice farming, a rice straw compost technology, a biogas digester technology, and fish density technology in diversified farming. This also shows that farming systems approach is very effective and practical approach for development.

Based on these experiences, I can say that diagnosis and design should be fully placed or included in the project. Moreover, the equal relationship between farmers and researchers is important. Researchers and farmers should learn from each other and should learn together throughout the entire process of a research project.

Thirdly, we should appreciate the farmers' own capacity. From this point of view, we had better more closely monitor and evaluate farmers' activities. We understood that farmers tried to adapt to the environmental conditions by making various efforts and that farmers have their own capacity to improve technologies and to disseminate technologies successfully by themselves. For example, the farmers tried to make various efforts to prolong the life of the biogas digester in our research site. And, farmers improved a seeding technology. Originally, the farmers practiced broadcasting with higher seed density. Through this project, some farmers adopted the row seeding technology. In the case of row seeding, seed density is at its lowest. But, when farmers faced the golden snail problem, they changed from row seeding to broadcasting with lower seed density (higher seed density than that of row seeding, but lower seed density than that of original broadcasting) as a result of risk consideration in relation to the threat posed by the golden snail.

From other villages which were not part of our research site, some farmers organized on-site trips to conduct observations of row seeding trials in our project site. Then, they decided to disseminate this technology to other farmers inside their villages. In fact, some village leaders bought several row seeding machines to encourage the farmers to use them in cooperation. We might be able to say that these cases are the cases of advanced farmers and an advanced area. Then, social scientists should make a case study on the process of improvement and dissemination of technology as part of the ongoing process of empowerment. This kind of case study will lead to useful suggestions to other farmers and other areas for their empowerment.

Fourth, we should recognize the significance of the research leading to the useful suggestions for the improvement of policy and systems. It is very difficult for poor farmers to adopt diversified farming because initial capital investment is necessary. This was clarified by the workshop before and after the project. In order to solve these problems, not only technological development but also solutions to socioeconomic problems such as rural financial difficulties should be addressed. We should have deepened this kind of research instead of merely identifying the problems, so that it could have led to important suggestions for policymakers. It has been said that farming systems approach has no strong linkage with policy. This seems to be a weak point of the farming systems approach.

So far, this kind of researches have been mostly done independently, but there are advantages in conducting this kind of research inside a farming system research project. One advantage is that we can narrow our focus on a particular socioeconomic issue based on the diagnosis of the whole farming systems in the research site. Another advantage is that we have capacity to connect socioeconomic issues with technology issues.

In our research site in Laos under the Rainfed Project, food shortage is a very serious problem. In fact, farmers there borrow rice from neighbor farmers. And, livestock is very important component for their farming. There is a "cattle bank" which is helpful for especially poor farmers lacking the initial capital. There are many failure cases in the projects which cope with these kind of problems in Laos. Therefore, social scientists should analyze the causes of the failures and based on this analysis, they can make useful suggestions about the system itself and policies to support the system.

KEYWORDS

farming systems approach, project, PRA, case study, empowerment

Social Science Research in Developing Countries



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Objective of this presentation

- Objective of this presentation is to show the role and the way for the contribution which Japanese social scientists will make in developing countries.
 - Based on the experiences in the comprehensive research project in Vietnam and Laos -
- This presentation will limit micro economy that is farm management research.

Role of social science research in developing countries for the contribution to development

- To show the direction of technologies development and to make technologies evaluation
- To make policy recommendation on development from research site

The way to fulfill the role of social science research in developing countries

- Common site selection
- ↓
- Identification and evaluation of problems
- ↓
- Listing up of the technologies to be developed
- ↓
- Evaluation of technologies
- ↓
- Selection of technologies
- ↓
- Evaluation of developed technologies



Table 2 The results of the problem evaluation (Pig raising)

| Problems | Score |
|---|-------------|
| Problems about the disposal of pig excreta | |
| 1) Vinyl biogas-digester is expensive. | 4.10 |
| 2) The smell of excreta is disliked. | 3.11 |
| 3) Nitrogen in the canal is too much for rice production. | 3.00 |
| Problems about pig diseases | |
| 1) An unknown pig disease occurred. | 3.39 |
| 2) Pigs suffered from diarrhea. | 3.16 |
| 3) Pigs died from accidents. | 3.06 |

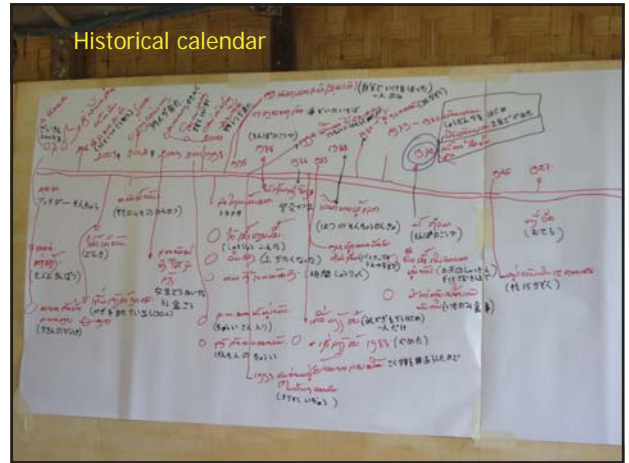
Application of PRA

- PRA: Participatory Rural Appraisal





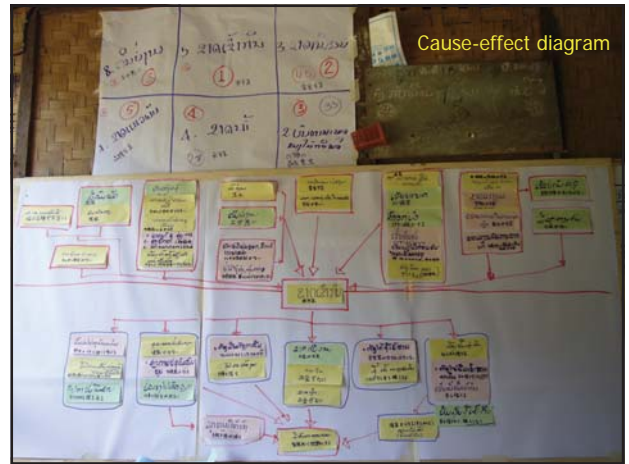
Mapping



Historical calendar



Seasonal calendar



Cause-effect diagram



Technology evaluation and technology selection

- Establishment of criteria for technology evaluation (effect, ease of learning new technologies, initial investment, and research cost etc.)
- Comparison of the evaluation between farmers and researchers

↓

Consensus

↓

Technology selection

Selection of technologies (Example of biogas digester)

Vinyl biogas-digester



Concrete biogas-digester



Table4 Comparison in technologies evaluation between farmers and researchers

| | Vinyl biogas digester | Concrete biogas digester |
|-------------------------|-----------------------|--------------------------|
| Farmers' evaluation | 3.6 | 3.9 |
| Researchers' evaluation | 0.558 | 0.441 |
| Adoption of technology | ○ | × |

Note: The result of farmers' evaluation was obtained by simple scoring.

Evaluated technologies in the Mekong Delta project



The results of the evaluation of developed technologies in the Mekong Delta project (possibilities of farmers' adoption)

| Capital constraint | Row seeding | Rice straw manure | Biogas digester | Lower fish density |
|--------------------|-------------|-------------------|-----------------|--------------------|
| 1 million VND | × | ○ | × | ○ |
| 2 million VND | × | ○ | ○ | ○ |
| 3 million VND | × | ○ | ○ | ○ |

Note: The above shows the cases of smaller farmers (~0.5 ha).

Collaboration of researchers in the Mekong Delta project

| | Row seeding | Biogas digester |
|---|-------------------|-------------------|
| Pre evaluation of technologies | S (J) T (J, V) | S (J) T (J, V) |
| Technologies development (On-farm trial etc.) | T (J) T (V) | T (V) T (J) |
| Evaluation of developed technologies | S (J) S (V) | S (J) T (J) |

Note: S=social scientist, T=technology researcher
J=Japanese researcher, V=Vietnamese researcher

Collaboration with Vietnamese researchers and capacity-building

The collaboration to maximize each other's strengths as shown below will enable capacity-building of each other in that process.

< Strengths of Japanese researchers >

- Higher speciality
- Higher capacity of deepening research

< Strengths of Vietnamese researchers >

- Practical research
- Interdisciplinary research

Another direction of social science research in developing countries

- **Diversified farming and poor farmers**

The importance of micro credit and farmers' groups

- **Poor farmers in Laos and the direction of solutions for mitigating risks**

The importance of the systems such as rice bank.



Necessity of the research on impact assessment of development projects.



Collaboration between micro and macro research

- Collaboration between the research on macro economy, agricultural policy and the research on farm management



- From horizontal collaboration to vertical collaboration

Research and development, Collaboration of each organization

- **Research** ↔ **Development**

University ↔ JIRCAS ↔ CIAT ↔ JICA
CG (IRRI etc) NGO

