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## FARMER INVOLVEMENT IN IRRIGATION MANAGEMENT

ACCORDING TO PHAN Khanh (1981), Vietnamese farmers have been involved in irrigation system construction and management for more than 2000 years:

*It can be said that these were the first public welfare works in the villages of Vietnam, from which every member of the community could more or less receive benefit. That is why people are not surprised to find that the irrigation systems could rely so heavily on the active and willing participation of the community, whose members came to see their labor as duty without pay. These investments and obligations were thus gradually included in the self administration regulations and other village rules.*

However, the most striking period that relates to development of the agriculture during the past years is the period from 1945 onwards. This can be divided into three phases with reference to socioeconomic conditions and agricultural policies:

1. Period from 1945 to 1960: This was a period of rehabilitation of irrigation systems that had been constructed during the time of the French and the simultaneous construction of new ones in North Vietnam, such as the Bac Hung Hai System. Once these systems were in place, the farmers then used traditional approaches to get water to their farms. Groups of several water users or self-helping units were established to share the water delivery from common intakes. Farmers discussed and agreed to contribute from their own resources to construct, manage and maintain the intake structures. Throughout this period, agriculture used traditional farming practices. Agricultural intensification was as yet insignificant and the irrigation infrastructure was poor, nevertheless farmers were involved in irrigation construction and management processes.
2. Period from 1960 to 1988: This was the most intensive period of irrigation development in Vietnam. Statistics show that up to the year 1976, a total of 2,188 irrigation structures were constructed. By 1990, that figure had reached 4,919 (see Figure 1).

The irrigated area increased with these irrigation systems (Table 1). Crop production increased from 11.827 million tons in 1976 to 19.225 million tons in 1990, and to 24.0 million tons in 1992.

There were two forms of irrigation management during this period. These are as follows:

- i. Irrigation agencies managed the systems from the headwork to the primary or secondary canals (depending on the scale of the system), with the rest managed by the cooperatives.
- ii. The cooperatives managed and maintained the pump stations they had constructed as well as secondary and tertiary canals. The management was undertaken by groups of farmer irrigators selected by the cooperatives. Water delivery and maintenance of the waterways were the prerogative of the farming units or cooperatives. Labor for canal digging or system construction was raised by the cooperatives. Decision makers were the cooperative leaders. Farmers played only an indirect role. Since farmers were not permitted to take part in discussion, they did not recognize the irrigation systems as their own, thus responsibility for the systems rested entirely with the cooperatives and governments.

*Farmers have repeatedly shown that they will not perform operation and maintenance tasks to the satisfaction of irrigation agencies if they are not given any real authority or real ownership. (John S. Ambler)*

Figure 1. Development of Irrigation Works.

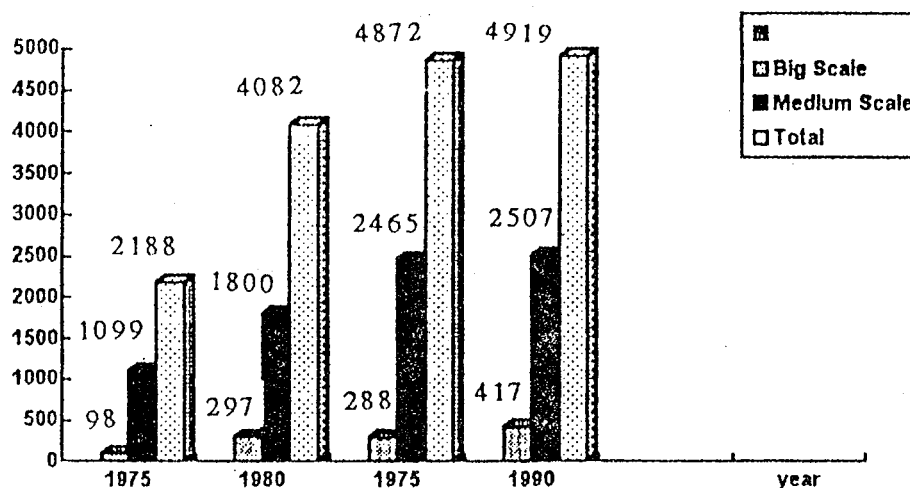


Table 1. Irrigated Rice Area by Crop Season (in 1,000 ha).

| Year  | Total Area | Area by Season |             |             |
|-------|------------|----------------|-------------|-------------|
|       |            | Spring Crop    | Autumn Crop | Winter Crop |
| 1955  | 1,043      | 488            | 318         | 555         |
| 1976  | 3,251      | 1,203          | 317         | 735         |
| 1980  | 3,736      | 1,582          | 437         | 717         |
| 1985  | 4,472      | 1,689          | 791         | 992         |
| 1990  | 5,045      | 2,011          | 1,127       | 907         |
| 1992* | 5,313      | 2,154          | 1,233       | 1,926       |

Sources: Statistical data of water resources sector of Vietnam (1986-1990).

Note: Data for 1955 are for Northern Provinces only (from Quang Binh to Cao Bang Province)

\*Data from hydraulic journal-29.

During this period, a number of small structures were built with cooperatives funds and owned by the cooperatives. Thai Binh, for example, a typical agricultural province, had 700 electric pumping stations. Of these, only 194 were built with government funds, the rest were built by cooperatives. In Bghe An, close to 400 reservoirs and 360 small pumping stations were built by the cooperatives.

3. Period from 1988 to 1992: This period was characterized by fluctuations in policies. "Decision 10" and "Decision 100" caused radical changes in agricultural production. The farmers became responsible for their

own farms. The role of the cooperatives was not as before. Irrigation structures that had been built by the cooperatives were now handed over to the commune authorities. The involvement of the farmers in operation, management and water distribution was thus more direct and had greater depth.

Irrigation agencies were still empowered to operate from the headwork to the primary or secondary canals of large- and medium-scale systems.

At that time, most of the systems had already been operating for 20 to 25 years, and some for more than 30 years. Most of the systems had lost their efficiency and needed major repairs. There were difficulties in raising funds. In order to escape this burden and to delegate responsibility, some small- and medium-scale systems were handed over to the localities to manage. This period was marked by the direct return of water distribution and canal management to the farmers.

The above three phases are outlined in Figure 2 below:

Figure 2. Chart showing interrelations between the government and the people in irrigation management, 1945-1992.

| Duration     | Relationship  | Technical Status  |
|--------------|---|---|
| 1945-1960    | Irrigation agencies and farmers   | Very poor condition   |
| 1960-1981    | Irrigation agencies and cooperatives  | Greater capacity<br>Better engineering<br>Small-scale systems built |
| 1988-Present | Irrigation agencies and farmers<br>-----<br>Irrigation agencies to local management | Greater capacity<br>Better engineering<br>Small systems             |

The following can be seen from the chart:

- \* *The period 1945-60 and 1988-to date* are relatively similar in that there is cooperation between the irrigation agencies and the farmers. The dotted lines show the tendency to transfer systems from the irrigation agencies to the local management.
- \* *The period 1960-88:* The irrigation agencies and the cooperatives played the major role in system management. At the same time, the cooperatives built small-scale systems from their own budget and for local use.

#### MANAGEMENT TURNOVER AND IRRIGATION MANAGEMENT TRANSFER

There had been no specific study or statistical data gathered with regard to irrigation management transfer in Vietnam. A preliminary survey shows the following:

- \* 81 medium-scale systems in Lao Cai Province of Northern Vietnam designed for irrigating 5,941 hectares of land have been handed over to local management. In addition, farmers have built and operate 537 other systems with an irrigation capacity of up to 30 ha each.
- \* In Tinh Gia District of Thanh Hoa Province in Central Vietnam, 45 other small reservoirs and 6 pumping stations are operated by the communes, in addition to larger systems managed by irrigation agencies.

- \* In Vinh Loc District of Thanh Hoa Province, the irrigation agencies operate only 4 pumping stations out of the 5 reservoirs and 19 pumping stations; the rest are run by communes.

Yoder observes the following when studying irrigation management in Nepal.

*In order to improve irrigation performance and to transfer the operation and maintenance cost to the irrigators, programs have been initiated in a number of countries to turn over the management of an entire system to the irrigators for them to operate and maintain. The objective is to transform the system from being agency managed to being locally managed. (Robert Yoder)*

Thus, some irrigation management transfer from irrigation agencies to local management has taken place in Vietnam. Research should be conducted on management transfer as soon as possible in order to work out appropriate models and draw lessons from experience for further application.

When considering the transferred systems, the following can be said:

- \* The systems are small scale with up to 300 hectare irrigation capacity. These include pumping stations, reservoirs and diversion dams. The systems usually cover territory belonging to one village or one commune.
- \* Reservoirs in systems built during the seventies have silted up due to deforestation. The structures have been damaged and canals are filled with sediment because there has been long periods of operation without proper maintenance. The effectiveness of the pumping equipment is low.
- \* As a result of the market-oriented economy, the irrigation agencies have become self-accounting, meaning that the agencies must cover all their costs without government subsidy. Irrigation fees have not been enough to cover operation and maintenance expenses. As a result, the systems have deteriorated rapidly. The resulting financial deficit has led to the transfer of some systems to a locality in order to release the financial burden on the agencies. The financial burdens of self-accounting have speeded up the process of transfer to a large extent.
- \* The process of transfer has not been well planned on both sides. In many cases, the process has been as simple as issuing a decision and some instructions. That is why the farmer see the transfer as governmental. There has now been the building of an institutional framework (for example, the relationship between water users and an operation board) necessary for the systems to be accepted at the local level.
- \* Farmers have not been provided with minimum knowledge about water management and distribution. Usually the people who are to manage and operate the systems have not been well trained. If they have, their training has been only in machine operating skills and not in managerial techniques.
- \* The concept of water user association and its activities is insufficiently perceived. Some of the expatriate NGOs such as CIDSE, OXFAM-UK and QUAKER SERVICE have projects with farmer involvement in irrigation management or organizations of water users.

According to an evaluation by an outside consultant:

*Although the term Water User Association was generally known (apparently after being regularly used in discussions with OXFAM staff) at all levels there was little understanding of its conceptual meaning. Informants in hamlets, communes and the district had different opinions about what was meant by it. (Nooyans, Thuan et al.)*

Although studies are insufficient, the following lessons can be drawn from the above analysis as well as from the evaluation reports of NGO projects.

1. It is essential to consider carefully the socioeconomic conditions of the locality, including conventional and modern farming practices as well as the soil and water potential for food production.
2. It is important to help farmers appreciate the necessity of transferring the systems from irrigation agencies to local management as well as to provide people with managerial knowledge. Guiding farmers in organizing

water user associations and in electing a management board is but one step in transferring authority and responsibility to the local authorities.

3. The transfer process should start from the smaller to the larger systems, within one commune or one village. Prior to transfer, the status of the system should be studied (in terms of quantity, technical situation, quality and intermediate repairs necessary to keep the system operational and to take care of difficulties during the first years after receiving the system, because early system breakdown will discourage farmers the most).
4. Transferring staff must have not only a knowledge of engineering but also of management and organization, and of activities of water user associations. This knowledge must be extended to include socioeconomic awareness and know-how in dealing with farmers.
5. Training in irrigation management is essential both for irrigators and farmers. Methods and points to be made during training are different for each of the groups.

### Things to be Done in Vietnam

There is much to be done. This conference is an early step that has special significance for Vietnamese participants. Before talking about what needs to be done in Vietnam, I think it's necessary to point out the following:

1. Irrigation management is the responsibility of both the irrigation agencies and the farmers. In the past, the irrigation agencies worked well. That is shown by 5,319,000 hectares of land irrigated annually. But that does not mean that irrigation efficiency is high. There have been financial difficulties in operation and maintenance and the systems have deteriorated. These difficulties can be assuaged if farmers are encouraged to take part in the management processes as the management is being transferred to them.
2. In other countries such as India, Sri Lanka, the Philippines, Nepal, Thailand, etc, there are many studies, activities and successful models of farmer management. However, these are not well known in Vietnam. There may be a great time lag in awareness and practice (among both the agencies and the farmers) if Vietnam is compared with neighboring nations.
3. The new laws on land holding and agriculture give farmer the rights of ownership that encouraged them to invest their effort and to take part in the management of irrigation systems. Thus there were favorable conditions at the start.

There are already systems that have been built and managed by cooperatives. These can be examples for the transfer program.

Both the Government and the Ministry of Water Resources have acknowledged the importance of system management. Mr. Nguyen Canh Dinh, Minister of the Water Resources Ministry had the following to say:

*It is work to retrain cadres for the new managerial requirements to improve the management system and to promote the spirit of responsibility, while encouraging the motivation of the irrigation management teams. The three tasks to be executed: administration of the water management works, economic management and communication with farmers.*

When assisting in irrigation projects, NGOs often pay attention to the participation of farmers in system construction and try to help localities in setting up an institutional framework with management training. From these projects, we may be able to draw models for system management and management transfer. This can be verified in evaluation reports of QUAKER SERVICE irrigation projects:

*Operation and maintenance were well organized in both villages, with active management committees whose members were well known and accessible to all villagers..*

*Management is at present ensured by management committees which are also in charge of the operation and maintenance of the system. The Chief of the village has been appointed by the commune as leader of the committee, and the other members have been chosen by the villagers.*

*During the evaluation visit, it appeared that the committed in Ngoc Village was more active and effective than the one in Cung Village, the system in Ngoc Village in general being in better shape and the population continuing to work on improvement and extensions. (Nooyans, Thuan et al.)*

### **Things to be Done**

Both irrigation agencies and farmers need to learn how to do irrigation management transfer.

- \* Researches need to inventory and study the general irrigation management status in Vietnam to identify problems surrounding irrigation management.
- \* Other detailed research is needed. IIMI may be able to help us with specifics such as ... methodology, direct experience and even offer suggestions for financial assistance.
- \* We should study successful local management systems especially from NGO projects and gather lessons from their experience.
- \* A research division for irrigation management will be established this year. It's function will include researching irrigation management, and training and cooperation with international organizations.
- \* Helping local people to manage irrigation systems by themselves, step by step.

### **CONCLUSION**

Management transfer has started in Vietnam. But successful management transfer needs assistance from neighboring countries, especially that of the IIMI experts. [We are looking forward to exchanging ideas with all of you. In this report we have talked mainly about the situation in Vietnam and not so much about the experiences we have had. We hope to have the cooperation of all the participants of this Conference and of the International Irrigation Management Institute. Thank you very much.]

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