

Local Organization and Bureaucracy in a Lao Irrigation Project

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The building of "middle rungs" between traditional society and more modern forms of social organization seems to be a characteristic activity of people caught up in the processes of social transformation. As a group, this family of institutions should be, consequently, of particular interest for students of social and cultural development, highlighting, as they do, some of the central tensions involved in such development and the sorts of mechanisms by means of which those tensions are resolved.

CLIFFORD GEERTZ (1962: 263)

The Problem of Interest

Agricultural development is frequently implemented through irrigation development projects. These irrigation projects are usually based on complex

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engineering works constructed and operated by agencies of the central government but intended to deliver water to local communities and individuals.

Appraising the successful delivery of irrigation water is a difficult matter because of the complexity of success criteria. A useful set of criteria for evaluating a water delivery system is suggested by Reidinger (1974): "... Its capability to supply water according to the needs of the individual cultivator, and in particular, the predictability, certainty, and controllability of the timing and quantity of his water supply."

One can add that while some systems do this for none of the water users, others do achieve these objectives for some; those close to the head of the canal, those with large landholdings, or those with political influence are often able to achieve the ideal that Reidinger suggests, at least for their own holdings.

A major point of this discussion is that the extent to which Reidinger's criteria are achieved system-wide is dependent, among other things, upon the mode of articulation between the administrative authorities and the local water users.

There have been numerous solutions to this articulation problem. To illustrate, consider the following: the Gezira solution (Gaitskell, 1959), in which the water authority is given strong control not only at the project level but also at the farm level, and individual water users operate within a highly centralized management scheme; the Taiwanese solution (VanderMeer, 1968), in which water users are represented at several levels of project operation through selected representatives; or the California solution (Bain et al., 1966), in which water users form an association to purchase water wholesale from the central authority and retail it to their individual members.

Here, I discuss an alternative solution, applicable where irrigation projects provide water to communities of irrigators already experienced in irrigated agriculture. This solution involves the adaptation and incorporation of indigenous irrigation leadership roles for the achievement of satisfactory system-user interaction.¹ To examine this solution, I first present a case example from western Laos in which a new irrigation system has been constructed by the central government. The project is administered by an agency of the central government but has incorporated an indigenous irrigation role as part of the administrative organization. From that case, several generalizations about the use of indigenous organizational patterns for the implementation of irrigation development will be discussed.

1. Any discussion of irrigation bureaucracy should acknowledge its relationship to the well-known propositions of "hydraulic society" elaborated by Wittfogel (1957). This discussion is not a further "test" of, or direct comment upon, the Wittfogelian theory that posits a causative relationship between large-scale irrigation and a highly centralized and despotic bureaucracy. For one thing, as detailed below, this is not a discussion of a large-scale irrigation system. On the other hand, the discussion is concerned with the interaction between water users and water authorities, and thus, in a most general way, deals with the bureaucracy-irrigation theme so central in Wittfogel's writing.

Description of the Physical Setting and System

The project (the Nam Tan irrigation system, located in the province of Sayaboury in western Laos)² is within the Muong Phiang Valley, which is about twenty-one kilometers long from north to south and about five kilometers from east to west at its widest point (Coward, 1972). The floor of the valley is generally flat and 350 meters above sea level. The mountains to the west rise first to about 750 meters and then rapidly to 2,000 meters. The Laos-Thailand border is located in these mountains. The eastern edge of the valley is formed by mountains which rise to over 1,500 meters and separate the valley from the Mekong River.

The main physical structure in the irrigation system is a concrete diversion dam on the Nam Tan River. From this diversion structure, two main canals convey water to a left- and right-bank command area. The system provides supplementary irrigation for wet-rice cultivation during the rainy season (approximately April-May through September-October), and water for a limited area of rice cultivation during the dry season. The irrigable area of the left bank is estimated to be 1,127 hectares; the right bank is estimated to be 919 hectares. Each is further divided into two subsections, or blocks. A varying number of watercourses, or laterals, is found in each of the four blocks of the system.³

The overall pattern of water distribution involves three different levels. First, water is continuously served to both the left- and right-bank main canals. Second, within the command area of each bank, water is rotated between blocks. On the left bank, water is delivered to a block for six days at a time. On the right bank, each block receives water for a three-day period. Third, within the block receiving water, water is distributed simultaneously to all laterals.

The approximately 2,000 hectares of the command area serve nearly 900 farmers who live in eleven different villages. Size of holdings is relatively equal in the command area, since at the time the irrigation project was initiated water users were allocated farm holdings of approximately three hectares each. New settlers were assigned plots of this size, and established residents with less than this size were assigned additional land to raise them to this minimum size. Resident farmers holding more than three hectares did not have their additional land confiscated. There are no very large landowners in

2. For selected photographs of the project site, see: *War on Hunger*, Washington: Agency for International Development, June 1971. The text that accompanies the photos is expectedly glowing. Political events in Laos during the period of this project's implementation were extremely volatile. Laos was very much a part of the Vietnamese war, because of the activities of various Lao factions in alignment with the North Vietnamese on the one hand, and the U.S. government on the other. Throughout this period, the western province of Sayaboury remained relatively free of the direct effects of air and ground combat.

3. For a presentation of the basic terms used to identify the engineering components of gravity irrigation systems, see: Asian Development Bank (1973).

the area, resident or absentee. Subsequent discussion will deal with the organization of this population of small rice cultivators in relation to the physical layout of the irrigation system.

Project Administration

The project was initiated in 1968 as a joint program of the Lao government and the Agency for International Development (AID). Since then, there has been more or less joint administration of the program, with heavy American control in the early years and an increasing control by Lao administrators in the last few years. American support was due to be phased out by the end of June 1975. The discussion here will concentrate on the Lao central administration of the project.

The Nam Tan project is the direct responsibility of the Directorate of Agriculture of the Lao government. This is a relatively modest agency of the Lao government, with a small total staff and not much specialization. Special divisions within the Directorate, such as the Irrigation Division, when they exist operate with a very small headquarters and field staff.

Staff from the Directorate of Agriculture are assigned to Nam Tan to serve as central administrative staff. In addition to the project director, there are staff members working in irrigation, extension, research, and grain processing. The project operates a rice mill, managed and staffed by the Directorate. Likewise, as a part of the total project, a small experimental farm has been established, and is managed by the Directorate. The project also has an extension staff, to work with farmers in the irrigation system on technology diffusion and farmer organization, and an irrigation staff of engineers and various skilled craftsmen for operation and maintenance.

In the summer of 1974, this project staff comprised twenty-eight persons. The extension and irrigation groups each had nine staff members: about one staff member each per 100 farmers; or about one each per 225 hectares of land.

There is another group whose responsibilities for implementation of the project have been increasing: the project-wide Farmer's Association.⁴ The

4. The long-range role of the Farmer's Association in project management has been an issue for several years. In general, the American project directors have urged a strong role for the Association and have envisioned a point in time when the project could be completely turned over to the farmers themselves: the ultimate rice-roots project. On the other hand, the Lao project directors have viewed a more subsidiary and complementary role for the Association; one in which government would still perform selected overall management and administrative functions while the Association accepted more responsibility for various implementation activities.

The memorandum of agreement setting a date for the termination of direct AID support seems to leave this issue sufficiently unresolved to obtain the necessary signatures of both parties. The specified intent of the memorandum is to deal with the transfer of physical property associated with the project. The wording indicates that the property is to be given by AID to the Directorate

internal organization of the Farmer's Association has been made congruent with the physical layout of the irrigation system in the following way: The Association is segmented into twenty-one small groups (twelve on the left bank and nine on the right bank). These small groups are composed of water users whose fields are contiguous and who (in most cases) receive their water from a common watercourse in the system.⁵

Each of these small groups has a rather elaborate leadership structure selected by the members of the small group. These officers include the usual president, vice-president, secretary, and treasurer, as well as other specialized officers, including a water headman. This latter role will be discussed more fully below.

Water-User Organization

The water headman is an adaptation of a leadership role found in this area of Laos prior to the present irrigation development activities. This section of the paper discusses that role in both its historical and present contexts.

Traditional Models of Irrigation Leadership

Irrigation roles analogous to the water headman are reported by several writers who have examined the traditional organization of irrigation management in Southeast Asia. Of particular interest are the materials from Burma (Nash, 1965), Indonesia (Geertz, 1967), Laos (Taillard, 1973), the Philippines (Lewis, 1971) and Thailand (Bruneau, 1968; Frutche, 1969; Moerman, 1968; Wijewardene, 1965, 1973).

The traditional form of irrigation leadership can be characterized as an accountability model. Notwithstanding the novel and idiosyncratic characteristics of irrigation organization in various local contexts, several basic features, which act to make the leader responsible to his irrigation group, are common to this role in numerous settings.⁶

of Agriculture for specific use on the Nam Tan project and that the Directorate will, at a future date, consider transferring this material to the Farmer's Association. It contains a final reiteration of the American preference for the role of the Association.

As this was being written (May 1975), the issue of American aid in Laos was very much in the headlines. All American aid, at least in the form it then took, was terminated in Laos prior to the date of 30 June 1975 stated in the memorandum to which I refer.

5. Information gathered in the project area in the summer of 1974 indicates the following size characteristics of these small groups:

(a) They range in membership size from 30 to 60 persons; on the left bank the average size is 38.6 members; on the right bank, 46 members.

(b) The land area of the groups ranges in size from 70 to 138 hectares; on the left bank the average is 93.9 hectares, on the right bank 102.1 hectares.

6. This issue of accountability between water users and the water authorities is fundamental, and has impacts on irrigation organization other than the leadership roles emphasized in this

The actual responsibilities of traditional irrigation leaders vary in accordance with the size and physical aspects of the irrigation system and the location of ultimate control of the system. In the case described by Moerman (1968), the irrigation system is a community-constructed, -maintained, and -operated entity. Here we see that the major duty of the irrigation leader is the mobilization of labor and materials for the annual repair of the diversion structure. In contrast, Nash (1965) describes a local role which is organized around the function of canal maintenance. The village studied obtains its water from a large, government-built irrigation system and thus has no responsibility with regard to maintaining the diversion structure(s).

Maintenance and repair of either the diversion structure or the canals is, of course, a basic activity for which all groups must arrange. However, there are instances in which the water headman's responsibilities have included activities considerably more complex and controversial. One example is the *klian subak* described by Geertz (1967). In the *subak* organization, the irrigation headman and his assistants are also involved in the distribution of water through the assignment of planting times for the various subsections of the *subak*.⁷ While it is not clear what determines this more complex leadership role, one might hypothesize that the higher population density in Bali requires greater coordination of water use among various groups obtaining water from the same stream.

While this range of activities exists, several common denominators persist, as reported in the literature. Three are of importance for this discussion. First, traditional irrigation leaders serve relatively small groups of water users, not necessarily from the same village, and small areas of irrigated land surface. Second, they are selected, in some manner, by the members of the local group which they serve. While leaders often serve for long periods of time, perhaps a lifetime, they nevertheless are subject to review and replacement, as is clearly illustrated in Wijeyewardene's report (1973). Third, they receive compensation directly from the group members whom they serve: sometimes in the form of exemption from labor (Moerman, 1968), sometimes in the form of land for cultivation (Jay, 1969), sometimes in the form of a proportion of the crop harvested (Harriss, 1974), or a fixed amount of the crop (Coward, 1971).

discussion. For example, both Birkelbach (1973), discussing the *subaks* in Bali, and Bain et al. (1966), discussing water districts in California, refer to the propensity of irrigation units to strive to maintain relatively small entities even though various economies of scale could be gained by consolidation of some sort.

7. The assignment of planting times historically has been fixed and did not require the repeated attention of the *subak* leaders. However, Birkelbach (1966: 155) notes that the introduction of new rice varieties with shorter growing periods does create the need for some adjustment of planting schedules.

These three elements—small scale, local selection, and direct compensation—are the basis of the accountability model of irrigation leadership. The accountability required of leaders through the operation of these organizational principles seems to shape their performance in directions acceptable to the irrigation group.

Irrigation roles similar to those described above were found in various villages of the command area which practiced irrigated agriculture prior to the construction of the Nam Tan project (Coward, 1971). This pre-project organization was of two major types. First, in villages that irrigated their fields by constructing very small diversion dams on shallow streams, such small dams requiring the labor of perhaps two or four water users, no village leadership role for irrigation existed. Leadership resided in each of the small work groups.⁸

However, in villages that constructed one large diversion dam to serve nearly all farmers in the village, specialized roles for administering irrigation activities were present. These villages selected an individual to act as water headman (*nai nam*). This role was separate from the role of village headman (*nai ban*).⁹ In some instances, the water chief was assisted by a group who acted as a water committee or council.¹⁰

In the summer of 1969, villagers reported that previously the water headman provided the leadership for the annual reconstruction of the diversion dam and the canals and also served in settling disputes regarding water allocation: major functions in any operational system. It was also reported that the water headman was paid for his service by each water user, who annually contributed approximately ten kilos of unmilled rice.

In this pre-project organization, the water-headman role required little or no articulation with external authorities. The village irrigation systems which they administered were self-contained, local systems, not dependent upon or linked with entities outside the village. The traditional water-headman role primarily focused on the mobilization of intravillage action and typically did not involve the articulation of village interests with those of some external

8. This miniscale irrigation may be similar to that described by Kunstader (1966) at another location in the general region.

9. Moerman (1968: 50) also notes this separation between the role of the irrigation leader and the role of the village leader. He indicates that in 1960 none of the dam chiefs nor the overall dam chief was an official or a village headman. For those with an interest in the sociolinguistic perspective, the difference in local terminology between dam chief and water chief may be suggestive.

10. The organizational pattern of leader-cum-council seems to occur frequently in the context of Thai-Lao villages. Moerman (1969: 542) in his analysis of the Thai village headman refers to a group of elders who "... advise the headman, especially on matters of village policy toward official demands, the mobilization of village-wide activities, and important trouble cases that threaten to involve the police."

organization. As we shall see below, this aspect of the water headman's responsibility has been fundamentally changed.

Contemporary Adaptation

As mentioned previously, each of the 21 small groups of water users that has been organized selects an individual to serve as water headman. His basic responsibility is to see that water is actually delivered to the members of the small group during their scheduled period.

Thus, the role expectations in the project setting are significantly different from those found in the indigenous systems. The responsibility has shifted from a concern with maintenance, primarily the rebuilding of the temporary diversion structure, to a concern with water distribution. Furthermore, to perform this new role satisfactorily, the water headman must act as a link between his water-user group and the external project administration. He also must act as a water guard, protecting the group's delivery from other water users who are near to the supply channel.

The new role finds support from both the water bureaucracy and the water users. The project staff prefers to communicate with the water headman because of the relative simplicity of dealing with a small number of individuals ($n = 21$). Likewise, the project staff tends to conceptualize the command area in terms of the small group areas and not in terms of individual farm units. They plan water deliveries to "Group A" and not to "Farmer A." The difficulties of distance to be traveled and time lost are important incentives for the individual water users to issue complaints to their local water headman rather than going directly to the central staff.

Nevertheless, there are occasions when the role of the water headman is not performed. When this occurs, it can be complicated by the relative inexperience of both Lao officials and Lao peasants with modern irrigations systems. These difficulties are well illustrated by the following incident, which occurred during the author's 1974 field visit:

On a particular day, water was to be rotated from one block to another in the left-bank portion of the command area. At the appropriate time, a staff member of the project administration went to a specific turnout, closed the gate delivering water to a lateral, and allowed the water to continue in the main canal in the direction of the lower block, whose turn had now arrived.

Some time after that, evidently soon after, an unknown person came to the same turnout and reopened the gate, thus delivering water to the original lateral and preventing water from going to the new block. In addition, this individual removed a small part from the gate, which prevented the easy correction of this illegal action.

When the water did not begin arriving at the lower block as expected, a number of the farmers from that block went to the project authorities and to

the site of the water theft to complain. Some farmers arrived with guns; all arrived with insulting words for the water bureaucracy and its agents. The water authorities discovered the broken gate, and since the day was Sunday, indicated they would not be able to repair it until the next day. They also indicated to the farmers that because of the delay in delivering water, their block would be provided water for one additional day beyond their assigned time. Farmers were dissatisfied with the delay but reluctantly agreed to wait. Some wanted to try to repair the gates themselves, but this was not attempted.

Other details related to the incident are not necessary here. Let us pick up with a staff meeting held a few days later to discuss this incident. This meeting was attended by leaders of the project administration and several local officials, including the police. No farmers were present at the meeting. A most interesting point about the meeting is that the focus of discussion was not on the problem of water stealing—who had changed the gate, how he could be located, what punishment should be used. Rather, the discussion centered on the inappropriate behavior of the farmers who had not received their water in time. Most participants were concerned with the disrespectful behavior that farmers had shown toward government officials, including the behavior of waving guns. Most disturbing was the insulting behavior that had been used by the farmers in their complaints to the bureaucrats.

The group decided to take three actions, each reflecting an interesting perception of the problem. First, it was decided that the project administration would hold a meeting in the involved village to discuss with them the inappropriateness of their recent behavior. Second, it was decided that the police official would investigate to try to discover who had damaged the gate. Third, it was decided that the role of the water headman had not been fully utilized in avoiding such an incident. Thus, it was suggested that in the future the appropriate water headman should be on hand at the time water is rotated as a witness to the fact that the central administration was doing its part to operate the system as scheduled. If things went wrong after that, the water headman could assure the water users that the problem was caused by other agents than the water bureaucracy.

From this incident we can see the numerous difficulties that can arise when water users and bureaucrats attempt to interact, particularly in problem situations. The use of the irrigation headman as a link between these two groups is critical to project operation, as recognized in the staff meeting discussed above.

Clearly, this is a demanding responsibility and not everyone will be equally suited for the task. The following illustrates this point. During 1974, I met one water headman whose performance was considered so exceptional by local water users that he had been asked to serve five different small groups simultaneously. His success was apparently related to his ability to supervise and manage the behavior of water users. In his explanation, he indicated his

special powers as a magician and his ability to prevent his skin from being pierced by any kind of object.¹¹ These special powers made others fearful of him and thus more willing to follow his orders, including orders about irrigation. In this case, the incorporation of a traditional role in the administration of the modern project also resulted in the mobilization of a special local resource: magical power!

For their activities and responsibilities, the water headmen are paid a small fee by each of the irrigators, reported to be about sixteen kilos of unmilled rice for each hectare of land served. In addition to this fee, each water user also pays a water fee to the project administration at the rate of 80 kilos of rice per hectare.¹²

Indigenous Social Organization and Irrigation Development

We began with a question regarding the utility of social organizational forms evolved in communal irrigation systems for the administration of modern irrigation projects. In view of this issue, the current use of the water headman role as an integral part of the irrigation administration of Nam Tan is suggestive.

Throughout Southeast Asia and elsewhere, those responsible for irrigation development are concerned with the issue of appropriate organizational forms for operating and maintaining costly irrigation systems. Most discussion of irrigation "organizations and institutions" deals with organization at the level of the water users and not at the level of the water bureaucracy. Consider the following excerpt from an Asian Development Bank publication (ADB, 1973: 50).

The success of an irrigation project depends largely on the active participation and cooperation of individual farmers. Therefore, a group such as a farmer's association should be organized, preferably at the farmer's initiative or if necessary, with initial government assistance, to help in attaining the objectives of the irrigation project. Irrigation technicians alone cannot satisfactorily operate and maintain the project.

However, many nonlocal irrigation systems lack the formal type of water users' association prescribed above. Often, those who study such systems also

11. For an introductory discussion of the use of magic in Lao society, see Lebar and Suddard (1960).

12. To provide some perspective on these "costs," I have converted the payments into proportions of the harvested crop. On the assumption of an average yield of 1.5 tons per hectare, the payment to the water headman is just over 1 percent of the harvest; the payment to the system is about 5 percent.

It is also of interest to know something of the value of the payment to the water headman. I have converted the one-hectare payment into days of rice supply for one person. Using Gerhold's (1967) estimate of 0.85 kilos of rice as daily per capita consumption, the 16-kilo payment would allow the water headman to support one individual for approximately 19 days.

focus on the need for local organization. For example, Reidinger (1974) studied water distribution in a large system in northern India and concluded with a recommendation for local water associations as an alternative for improving system operation.

If it is accepted that an adequate strategy of irrigation development involves provision for local water-user organization, policy makers and implementers are still left with decisions regarding the organizational format to be followed. In many instances, though not all, irrigation development projects are intended to serve water users who have previous experience with indigenous forms of irrigated agriculture, including experience with local irrigation organizations, institutions, and leadership roles. Thus, there is the obvious possibility of using these previously evolved roles, institutions, and organizations, perhaps in a modified form, for the administration of the modern irrigation system.

Levine (1971: 29) has elaborated on this possibility:

Almost all new irrigation projects recommend some form of public institution similar to that found in developed countries. There is very little attempt to work within existing institutions or to develop adaptations based upon indigenous social relationships. For example, the design for the Upper Pampanga River Project in the Philippines envisions either irrigation districts (U.S. style) or, more recently, irrigation associations (Taiwan style).

What is needed in irrigation development is recognition of the potentials of indigenous organizational arrangements for water management. This is not unlike Geertz's earlier recognition of the relevance of indigenous savings organizations for the development of savings behavior and credit institutions. In a well-known article, Geertz (1962) noted the prevalence of rotating credit associations in many parts of the world and explored their relevance for directed-savings programs. In anticipation of this subsequent discussion, he wrote:

The rotating credit association, which assumes a remarkably similar form over a wide geographical area, although to be sure with local adaptations and variations, will be shown to be essentially a device by means of which traditionalistic forms of social relationship are mobilized so as to fulfill non-traditionalistic economic functions. It will be seen, in fact, to be an "intermediate" institution growing up within peasant social structure, to harmonize agrarian economic patterns with commercial ones, to act as a bridge between peasant and trader attitudes toward money and its uses. The rotating credit association is thus an institution of the sort Myrdal rightfully demands: one which fits into community patterns and yet aims at planned and "goal-directed" savings. (1962: 242)

Similarly, the role of the water headman in modern irrigation systems may be viewed as an intermediate pattern assisting with the transition from previous locally managed irrigation systems to present-day systems controlled and managed by field agents of the national government. To paraphrase Geertz, the contemporary water-headman role may act as a bridge between agency

policies toward water and its uses and locally established patterns of water use and allocation. The case of irrigation development suggests another arena in which the study of "middle-rung" institutions is important.

Nevertheless, we know relatively little about the likelihood that indigenous organization can be articulated successfully with the formal administration of a modern irrigation project. The work of Ongkingco (1973) suggests that this has occurred in the Ilocos region of the Philippines, where the traditional irrigation associations (*zangjeras*) apparently continue parallel with the bureaucracy of the government's National Irrigation Administration.¹³ I am not aware of other examples in the existing literature.

Some Generalizations

The role of water headman in Nam Tan, while significantly different from the traditional role in some aspects (particularly regarding duties and relationships with government agents) is highly analogous in others (particularly in the manner that incumbents are selected, rewarded, and judged).

It is important to note that the methods of recruitment and reward, and the normative expectations of the water headman, even in the modern context, makes the role incumbent accountable to the water users whom he serves. First, they are involved in his selection and have the ability to review his performance to consider his continuance or dismissal. In the example cited earlier, the water headman who was asked to serve five groups simultaneously was replacing other water headmen. Second, the incumbent is dependent upon the water users and not the bureaucracy for the payment of his fees. Reluctance to pay, or the actual nonpayment of irrigation fees to the water headman, provide a very direct form of job evaluation.

Both of these procedures reinforce the normative expectation that the water headman will act to meet the needs of the immediate water-user group that he serves, sometimes in lieu of the needs of the water bureaucracy. This is in considerable contrast to many of the roles used to link the water user with the larger system, which often do not provide for structural accountability to the water "clients" (see Reidinger, 1974, and Coward, 1973, for examples).

Having continued elements of the traditional role that maintain the incumbent's local accountability, it is possible to alter the traditional role with regard to its basic task activities and to expand the role to include relations with project officials. These alterations make the role compatible with selected administrative and management needs, especially the need to facili-

13. The *zangjera* irrigation associations have a long history in the Ilocos region of the Philippines. An early description is provided by Christie (1914). More recent discussions of the *zangjera* in both the traditional Ilocos area and new areas to which Ilocanos have migrated are found in Lewis (1971) and Hackenberg (1971).

tate the distribution of water within the areas of each of the small groups while also achieving an equitable distribution of water between these groups.

The importance of local accountability is further illustrated by the recent work of Gillespie (1975). In describing an irrigation system in northeast Thailand which is operated by the Royal Irrigation Department, an agency of the national government, he comments on the activities of the "common irrigator": a role with task activities very similar to the Nam Tan water headman. The following excerpts illustrate the cogent differences:

- (1) ... the RID [Royal Irrigation Department] pays the common irrigator's stipend. [p. 15]
- (2) RID personnel also take an active part in the selection of the common irrigator, although the farmers are supposed to independently choose him from among themselves. [p. 15]
- (3) The project manager (RID) believed that the farmers did not have the experience to choose a competent common irrigator. [p. 15]
- (4) According to the farmers ... "they had no interest in who held the position." [p. 15]

In this case, a role with task activities and relations similar to the water headman has been created but with accountability oriented to the water bureaucracy and not to the water users. One important consequence is a lack of interest in the common irrigator's role on the part of the water users.¹⁴

From these observations, a hypothesis related to the utilization of indigenous organizational forms in developmental contexts may be derived. It builds on the simple observation that indigenous leadership roles in agrarian organizations are linked with various "follower" roles in ways that foster accountability. Often, in the process of linking agrarian organizations with central government activities, an attempt is made to use existing leadership roles while shifting leader accountability from the local community to the field agents of the central government. In so doing, the nature of the relationship between leader and constituents is significantly altered—sometimes precluding the effective performance of the leader.

Thus, a derivable hypothesis is as follows: Indigenous irrigation leadership roles can be mobilized to perform in modern irrigation projects even if task activities and relationships are altered (for example, shifting from maintenance duties to water distribution responsibilities and increasing the interaction with agency staff members) if accountability for job performance is linked to the local water users and not the water bureaucracy exclusively.

14. The Lam Pra Plerng irrigation project is a relatively new one, and a number of difficulties exist in these early stages. There are still important problems with the physical components of the system. At this time it would be difficult to distinguish between these effects and any organizational influences on system performance. Therefore, comments about the present accountability of the common irrigator should not be viewed as causative of system performance.

It is a hypothesis suggested by the discussion, clearly not tested by it, and it deserves increased research attention.

If supported by additional research, this hypothesis might have useful implications for irrigation development planning. As a part of such planning, attention would be given to the identification of irrigation leadership roles among those to be served by the modern system. Where such roles are present (or have recently been used), attention should be given to understanding the manner in which accountability between the irrigation leader and the water users was organized. Based on that critical information, organizational rules and procedures could be developed and tested to maintain this basic accountability to users while shaping the role to perform tasks and engage in relationships functional in the modern system. Ultimately, this concept of accountability might be extended to situations in which there are no indigenous institutions on which to build.

Summary

As irrigation development increasingly is implemented through projects constructed and operated by agencies of the central government, the problem of successful articulation between the project administrators and the water users is highlighted. In areas where the project serves local water users with previous irrigation experience, one solution to this problem is the adaptation of indigenous irrigation leadership roles to link bureaucracy and local users. It is hypothesized that these indigenous roles can be used for articulating these two groups if accountability for job performance remains largely with the local water-user groups. Identification of indigenous irrigation leadership patterns and the adaptation of these patterns to modern irrigation administration deserve increased attention by researchers and policy makers.

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