Bridging the Gap in Resource Mobilization: Avoiding the Crisis in Sustainable Irrigation Management in Sri Lanka[1]

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Abstract

Participatory Irrigation System Management has been the Major Irrigation Management policy in Sri Lanka after 1988. Under this policy, irrigation system below the distributory canals were turned over to farmers/farmer organizations, which aimed to change the traditional farmers' role of passive recipient of irrigation benefits to active partners in the management process. The other objective of this policy is to reduce the government cost in operation and maintenance (O&M) and increase the efficient management of irrigation infrastructure.

The objective of this study is to assess the level of resource mobilization for irrigation management from both farmers and irrigation agency. The study also examines the farmers' willingness to pay (W.T.P.) for sustainable irrigation system maintenance. The research was conducted in two major irrigation schemes namely Rajangana and Mee Oya irrigation system during the wet season of 1995.

The study findings reveals that there exists a deficiency between actual resource requirement and current level of resource mobilization for sustainable irrigation management. The study also expose that there is exists a WTP among farmers for O&M in addition to the current level of resource mobilization which has so far not been captured in the process. The existing WTP will be adequate to overcome the prevailing deficiency in resource mobilization.

1. Background

Irrigation based agricultural development was the primary development approach adopted in Sri Lanka after the independence in 1948. This development approach has taken a large share of the public investment budget for construction of new irrigation infrastructure and rehabilitation of existing water resources. The investment on irrigation development during the period of 1950 -1985 was an average 19 percent per year of the total public investment budget in Sri Lanka. Ninety percent of the irrigation investment has been spent for new construction (Aluwihare and Kikuchi, 1990; IMPSA 1991). The major policy in the irrigation sector during the reference period was supply argumentation rather than demand management.

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In addition the irrigation sub-sector claimed a disproportionate share of the public recurrent budget arguably hindering the development of rainfed agriculture and other sectors. Moreover, the return from irrigation investment specifically on new construction was not impressive and the poor performance of irrigation schemes, particularly return to investment was severely criticized by donor agencies. However, Sri Lanka's economy remains dependent on irrigation for much of its agricultural output, particularly rice (paddy) the main staple, and irrigation based agricultural growth has been the primary development strategy (Barker and Herdt 1985).

The combination of fiscal constraints and poor technical and economic performance, led planners to re-think policies and put forward several policy reforms. From the early 1980s emphasis was shifted from supply augmentation to system improvement. Then the policy moved from paddy mono cropping in irrigation systems to crop diversification. It is worthwhile to note that cultivation of non paddy crops (NPC) in irrigation systems was prohibited up to the 1960s by the irrigation ordinance and the paddy land act (Alwis, 1986).

Historically there had been some instruments to collect revenue for the state for provision of irrigation service. The land tax and implicit product tax are two of the main tools used as indirect financing methods in Sri Lanka. These taxes are not linked either to use of irrigation services or the benefits received from the existence of the irrigation facilities and consequentially do not provide any incentive to use the resources efficiently in terms of irrigation investment, operation and maintenance (O&M) and sustainable use of water. All these policy changes, therefore, failed to make the necessary policy and institutional changes required to generate and allocate sufficient funds to properly operate and maintain Sri Lanka's expanded and improved public irrigation systems.

In 1984, the government introduced direct user fee collection for O&M from farmers promising improved irrigation services. The O&M fee collection was started with the 85% of amount due, which is much higher than any other previous indirect irrigation charges. But the collection rate dropped sharply during the subsequent years until less than 10% of the fees for 1985. The major reasons for the failure of the Programme were that: civil unrest which prevailed in the country, failure to take action against defaulters, lack of confidence in officers, political economy and implementation problems such as legal and administrative problems. Legal challenges were raised in courts against the implementation of O&M fee collection and a number of farmers won their cases (Gunasekara 1985; Cabinet Memorandum of GOSL 1989; Small and Carruthers 1991). Beyond these factors one of the primary reason for the sharp decline in fee collection was the centralized financial agency could not link the collected revenue to significantly improved services which was a big disincentive for farmers in making payment.

Failure to collect O&M fees demanded an alternative policy for the sustainable and efficient management of irrigation infrastructure and water resources. The government of Sri Lanka (GOSL) introduced Participatory Irrigation System Management Policy (PISMP) in 1988 as a national irrigation sector policy after series of experiments and

pilot projects under different circumstances. The GOSL has invested necessary resources and used all its administrative experience to develop the necessary institutions and appropriate environment for participatory irrigation management.

Under the PISMP, the government launched a management transfer programme from bureaucracy to beneficiaries leading to a system of joint management i.e. the full responsibility for resource mobilization and management from field channel (FC) to distibutory channels (DC) level of the major irrigation systems[2] is turned over to farmer organizations (FOs). In return, farmers are exempted from payment of the irrigation service fee. The government retains responsibility for O&M of the head works and main system, and for major or emergency repairs of turned over distributory systems. The policy aimed to secure farmer participation and contribution of labour and finance to reduce the public cost of system O&M and to improve performance. The policy emphasized the change in the traditional role of farmers from passive recipient of irrigation benefits to active partners in the management process sharing responsibility with the agency staff. (Abeywickrama, 1983).

3. Objectives

The paper examines the reduced involvement of state sector in irrigation management and the current level of resources mobilization for irrigation management from both farmers and the line agency. The study also assess the implications of the existing resource gap on infrastructure and farmers willingness to pay (WTP) to bridge the dearth in existing level of resource mobilization.

4. Research Methods

4.1 Selection of the Study Sites

The research was conducted in two major irrigation schemes under the INMAS[3] program viz. Rajangana irrigation System (RIS) and Mee Oya irrigation system (MIS). Rajangana it has sufficient water to cultivate two paddy crops per year, where as Mee Oya is experience water scarcity. Degree of participation or net benefits from participation in water management are likely to vary with regard to water availability (Uphoff et-al, 1990). Availability of water decides the cropping pattern which will determine the level of farm income and consequently farmers capacity to Mobilize the resources for system maintenance.

RIS is one of the large irrigation schemes compared to MIS. Organizational and physical complexity and resource requirement for the sustainable maintenance also differ with size of scheme and condition of the infrastructure.

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2 Irrigation schemes which have a command area of more than 80 hectares are called major irrigation schemes.

3 Integrated management of major irrigation schemes (INMAS) is a irrigation management programme adopted for selected major irrigation schemes.

4.2 Methods of Data Collection

The study is based on data collected from a rapid appraisal, structured questionnaire survey and direct field observations. Necessary data were also gathered from FO records including meeting minutes, FO account books and maintenance records.

A multi stage stratified random sampling method was adopted for the selection of sample farmers considering head-tail differences of the schemes. Questionnaire survey was aimed to collect information on the farmers involvement in O&M works and performance of agency support. More specifically, the questionnaire aimed at eliciting information on farmers opportunity cost in participation and willingness to pay for operation and maintenance (Kg of paddy per season).

5. Results and Discussions

5.1 Level of Resources Mobilization

Sustainability of infrastructure basically depend on proper maintenance of the system from primary level (head system) to tertiary level (farm gate). The task necessitate the mobilization of labour for group works (Eg. DC maintenance) and individually allocated tasks (Eg: FC maintenance), mobilization of time (Eg: planning, decision making, FO meetings) and mobilization of cash and materials (Eg: masonry works, structural repairs). The mobilization of all above items are equally essential for the sustainable maintenance of infrastructure (Aheeyar, 1997).

Table 1and 2 shows the level of resource mobilization by both farmers and the line agency and the estimated level of resource requirement for the sustainable maintenance. The findings clearly describes that there is a deficiency exists in the level of resource mobilization for channel maintenance in both schemes. The note worthy feature in the farmers resource mobilization is the level of materials mobilized for the system maintenance which is desperately very low.

5.2 Implications of the Situation

As discussed earlier, mere mobilization of labor is not adequate to maintain the infrastructure sustainable. The lower level of resource mobilization is reflected by the existing structural problems from minor level to major level for a considerable period of time. (see table 3 and 4). The sustainable maintenance of these structures needs mobilization of sufficient amount of cash and materials in addition to labor. Further existence of these minor structural problems like lack of field out level and major structural problems such as broken gates for the period of up to 10 years indicates not only the insufficient quality of maintenance by both FOs and agency but also continuation of structural problems as seen before turn over.

5.3 WTP of farmers for Irrigation System Maintenance

A traditional custom which exists in Sri Lanka is the giving of a certain proportion of paddy to irrigation headmen after each harvest for his services, though it is not in practices in new settlement schemes. Farmers chosen for the survey were asked, how many kg. of paddy they are willing to give to their FOs in addition to their current level of volunteer labour, in order to maintain the infrastructure in a good condition. Farmers explained clearly about the existing status of irrigation infrastructure, institutional context in which water resource is to be provided and funding is to be done and farmers responsibilities under turn over agreement etc. before elicit the WTP. The willingness to pay (WTP) in terms of paddy were converted into money value using 1995 paddy prices prevailing in the study area.

The average WTP for both schemes is 12kg. of paddy per acre of land irrigated per year. This is equivalent to the money value of Rs. 90 per acre at the 1995 paddy price (see Table 5). The WTP value obtained is in addition to current labour mobilization by farmers for system O&M.

The amount that farmers WTP to FOs towards system O&M is an impressive point, compared to the past attempt made to collect O&M fee through a centralized financial agency which had a unsuccessful short life of 4 years. The existing WTP for O&M is higher than the current maintenance deficiency of Rs. 60 per acre (in 1995 price). However, the level of WTP is not sufficient for a sustainable O&M if the government stop or drastically reduced its O&M allocation.

6. Concluding Remarks

Since irrigation sub sector in Sri Lanka was heavily subsidized throughout the years, farmers have a mentality of depending on government financial allocations for management of the irrigation system. It was found during the study that all FOs are mainly dependent on external agents for their financial requirement and their first priority in financial allocations from FO fund is for income generating activities. No FO leaders were keen to invest FO money for routine maintenance activities although it is farmers responsibility under the turnover agreement. It is interesting to note that no single FO had a special fund or provision for maintenance activities in their FO accounts.

At the same time the government has not given any guidance to FO leaders on how farmers could generate O&M funds, what is the amount that should be collected and how it should be utilized. As Kloezen (1994) rightly pointed out *"Participatory management programme in Sri Lanka focuses too much on sharing activities without making clear who is responsible for these activities and who can be made accountable if these activities do not take place"*. The situation is also evidenced by the above analysis. FO leaders are not keen to invest FO money for operation and maintenance. They strongly believed and expect that maintenance works which need cash and materials will be done by the agency as they were in the recent past while DC's were turned over to FOs. It was

observed in Kaudulla irrigation scheme, where farmers have incentives to work harder for their multi-functional FOs to make it financially viable. The financial viability is mainly for cheaper services provision through FOs and merely to improve system maintenance (Kloezen, 1994).

The existing deficiency in the current level of resource mobilization by FOs for O&M is not being properly addressed in current irrigation management policy. The major concern aimed by the PISMP is reduction of government cost on irrigation O&M which rises the doubt about the long term physical sustainability of irrigation infrastructure.

Although there exists a willingness among farmers to pay in kind for sustainable maintenance of the infrastructure toward FOs, FOs in the study schemes have no system to mobilize cash and materials from farmers for system O&M. It is a responsibility of FOs to amass necessary resources under the turn over agreement in order to maintain the sustainability of irrigation infrastructure and to increase the efficiency of resource allocation. Nevertheless, no mechanism has been adopted by farmer organizations (FOs) to capture the farmers WTP towards irrigation system management. The role of government at this juncture is to provide necessary guidance to FOs to mobilize necessary resources and monitoring the financial transparency with proper legal backing in order to maintain the physical sustainability and farmers financial sustainability.

Table 1: The Estimated Value of Level of labour mobilization by Farmers for maintenance (Year 1995/96)

Location	Average labour mobilization for group works per farmer(a)	Average labour mobilization for meetings per farmer (b)	% of participation for group works per farmer ©	% of participation for meetings (d)	Value of mobilized labour[2] (Rs/ac) (e)
H 1	2.3	0.17	85	85	111.00
H 2	2.7	0.26	75	75	183.25
T 1	3.6	0.71	75	75	172.50
T 2	3.2	0.17	60	60	150.00
H 3	1.6	0.15	90	60	82.00
T 3	1.69	0.16	95	80	105.00

Source: Survey data

Note:

1. H1 and H2 - RIS (Head) H3- MIS (Head)
   T1and T2 - RIS (Tail) T3- MIS (Tail)
2. e =[No. farmers in FO x (a) x © x opportunity cost of labour] + [No. of Farmers in FO x (b) x (d) x opportunity cost of labour]

Table 2: Level of Resource Mobilization for Irrigation Maintenance (Year 1995/96)

Scheme	Average value of mobilized labour (Rs/Ac)	Average value of mobilized materials (Rs./Ac)	ID allocation[1] (Rs/Ac)	Actual requirement for proper maintenance[2] (Rs/Ac)	Deficiency in Current resource mobilization (Rs/Ac)
RIS	154.23	0.86	85.00	300.00	60.00
MIS	93.00	0.00	50.00	200.00	57.00

Note:

1). Average amount of money allocated in last 5 years

2). Value estimated by the Irrigation engineer in charge of the system (personal discussion). Lower estimation for MIS is because of Single season cultivation in a year which required proper maintenance only once per year.

Source: Survey Data

TABLE 3: STRUCTURAL PROBLEMS IN SAMPLE FCs

Type of the Problem	Number of Given Problem in FCs		Duration of the Existence of Given Problem	
	RIS	MIS	RIS	MIS
Broken gates	26	02	1-5 years	3-8 years
Broken structures	01	-	02 years	-
Broken Channel bunds	51	17	0.5-5 years	1-6 years
Lack of field out lets	33	11	0.5-6 years	1-10 years

Source: Survey Data

TABLE 4: STRUCTURAL PROBLEMS IN SAMPLE DCs

Type of the Problem	Number of Given Problem in DCS		Duration of the Existence of the Given Problem	
	RIS	MIS	RIS	MIS
Broken gates	10	04	02-04 years	02 years
Lack of water regulators	12	-	04 years	-
Broken channel bunds	13	12	0.5-15 years	02 years
Broken structures	02	-	02 years	-

Source: Survey Data

Table 5 : Willingness to pay for system O&M (Kg of paddy per acre per year)

Location	**WTP (Kg/Ac)**	**Value of paddy (at 1995 price in Rupees)**
Rajangana (Head)	12.45	93.37
Rajangana (Tail)	11.05	82.87
Mee-oya (Head)	13.6	102.00
Mee-Oya (Tail)	11.1	83.25

Source: Survey data

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