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TURNOVER OF D-CHANNELS TO FARMER ORGANIZATIONS
FOR O&M

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Introduction

1.1 Background

Farmer Participation in Irrigation system management is not a new concept to Sri Lankan farmers because majority of the tanks which exist to date, were constructed during the period of ancient kings who ruled this country. The early constructions and its' maintenance were made possible through the observance of principle of Rajakariya which used for social welfare of the society and religious meritorious work for the membership of the community which functioned in a non-monetized economy (ARTI 1990). The Konduwatawana Inscription of king 6 / Vasabha (65-109 A.C.) details out various punishments for violating irrigation water regulations which proves the importance attached to irrigation water management again the Tonigala inscription gives evidence to the fact that paddy cultivation was undertaken three times a year.

But with the change of administrative structure of the country which began after 1815 A.D a lot of new things were introduced by the British rulers who wanted to disorient the established norms and practices that had links with the ancient monarchical system as a consequence of that Irrigation practices followed by farmers for generations were gradually pushed away to a side. With removal of Rajakariya System in 1832 the communal machinery by means of which tanks had been kept in good repair from very ancient days terminated, without a substitute in its place. So, the maintenance and up keep of communal water conservation works was not the responsibility of any individual or group and the works just wasted into general decay. (Arumugam, 1969). The Irrigation manual that was published on 18th March 1899, defined the responsibilities of maintenance of irrigation works and in the following year Irrigation Department was established (15th May 1900 AD). Thus the public Works Department was relieved from the responsibility of all surveys, designs construction, restoration, and maintenance of large irrigation schemes. The minor tank came under the purview of Government Agent.

From 1900 AD to 1988 (1989 January Government of Sri Lanka accepted the Participatory Management of Irrigation Schemes as a Policy) the Irrigation Department handled both operation and maintenance responsibilities of major irrigation schemes. Why this policy decision was taken to switch to participatory management.

The experiments done on this subject of participatory management in Asia and other countries showed positive results. Also the experiments launched in Sri Lanka, for example, Minipe (1978), Gal Oya, (1979), and Kimbulwana Oya project (1979) proved the fact that performance and effectiveness increase when superiors (ID officials) share power and control with the subordinates (farmers) what is emerged from the above mentioned projects is that the local knowledge of farmers can not be ignored for they have accumulated that wealth of knowledge over many years. The term "Participation" was redefined in late seventies and it was put in a different perspective by the development experts. So it was an improved version of the earlier one which existed during kings period. the Concept of Farmer Participation. (Bold or Underline)

A shift of policy emphasis was evident to change the role of farmers from passive recipient of irrigation benefits to active partners in the management process sharing responsibilities with the agency staff (Abeywickrema 1983). According Prof. Norman Uphoff, "Two Premises stand at the cen^{ter}~~sure~~ of a participatory approach to development.

1. There is talent, capability, intelligence and leadership within the public which can and should be brought into planning and implementation of development; and (2) members of the public have a right to make decisions that affect their lives and that are now made solely by officials. The two of course re-enforce each other

if there is talent the basis for the right is clearer though one could argue for the second premise purely on normative grounds" (ARTI, 1986) Documentation series No. 10, Pap. 210).

There are four kinds of participation within the ^{ex} ~~fact~~ of irrigation water ^{Contra} management. These four are:

1. Participation in decision making including participation in problem identification, agenda setting and planning;
2. Participation in implementation, including contributions of labour money materials etc., involvement in programme management and programme activities.
3. Participation in benefits economic, social, psychological, political; and
4. Participation in evaluation formal or informal, individual or group regular or ad hoc.

(Cohen... and... 1977, 1980)

Experience gained over last two decades in the sphere of farmer participation in system management indicates that farmer resource mobilization and local knowledge can not be effectively used in development unless ^{over} control ~~our~~ decisions and resource rights are developed to user groups. (Kijne, 1995)

The stage of participation in decision making has gone through over a decade. Now it has entered to "Implementation Decade", where farmer organization have to (actively) involve in system management and programme activities, which led to the more complete concept of irrigation management transfer. why this transition i.e from participation to management took place? There are four (4) reasons:

- A. Financial failure
- B. To conserve revenues of the government
- C. Poor management performance by government agencies
- D. Confidence in farmers (Kijne, 1995)

With regard to financial status -

- there is a fluctuation in O & M allocation received by Irrigation Department through Irrigation Management Division (IMD) over a period of ten years (1986-1995)

Table: O & M Allocation Received by Irrigation Department through Irrigation Management Division for Physical Maintenance of Major Irrigation Schemes

Year	Amount (mil)
1995	70
1994	47
1993	62
1992	51
1991	34.5
1990	62
1989	57.5
1988	49.6
1987	58.7
1986	44

Source : ID, O & M Branch Records

This allocation is purely for physical maintenance and does not include the salaries of ID staff. In 1994 the allocation received is Rs.15 million less than that of 93, due to 20% deduction by the treasury over the total estimate. Again in 1991 the earmarked amount has gone down ~~up~~to 34.5 (million). This downward trend is a result of handing over of some schemes to provincial councils for O & M. However, there is an inclination by the concerned government agencies to curtail on O & M owing to financial constraints.

But the O & M can not be neglected, though funds are limited. Therefore, getting farmer participation in system management is a good move given the budgetary constraints. Even under the normal circumstances getting beneficiary involved in system management has a two-way benefit. One is maximizing on limited resources, and the other benefit is engaging the right people who are in need of irrigation water.

To have an organized systematic maintenance, needs an organized effort for which there should be an organization responsible for this task. Who can do this job? The answer to this question may be possible when examine these words " The quality of O & M depends on the amount of financial and other resources made available and applied as well as on the institutional arrangements, and a blend of the technology, through which they are mobilized...(Wijesuriya, 1990). Any organization that intends to do a quality O & M should have at least a sound financial background, technical know-how, institutional capacity, encouragement-a some kind of appreciation of the work done, from the officials of Irrigation Department and above all willingness to do a quality job by the particular organization. As we are aware that O&M responsibility has been assigned to the FOs in the respective irrigation systems. It is worth investigating whether the FOs fit into those conditions as far as O&M is concerned. An attempt would be made to deal further about the above aspects in the foregoing chapters.

Under the participatory management program government has decided in January 1989 to hand over the schemes to farmer organizations for O&M below the D. Chs. When the policy decision was announced to the effect of Participatory Management in regard to the O&M the Objectives behind that were:

- a. Adoption of management principles of the village tanks in larger systems in the turn out areas and the distributary channels respectively.
- b. Development of village level institutions to provide for active farmer participation and involvement.
- c. Encouraging of farmers to manage the operation and maintenance of the distributary systems by contributing their labor and the resources. This

development is expected to enable the exemption of farmers from payment of O&M fees.

- d. Continuation of government allocation to maintain and manage the Main System (Head Works and Main Canals) - approximately 50 per cent of the total cost of operation and maintenance.
- e. Provision of a legal framework to recognize the rights and obligations of farmers' organizations through amendments the Irrigation Ordinance and the Agrarian Services Act as required.
- f. Enactment of legislation to transfer, over a period of time, the ownership of the irrigation net work below the D.Ch. level to farmers' organizations, when they are found to be ready to take on that responsibility.

The Irrigation Management Division(IMD) which is the responsible implementing Agency for institutional development in major irrigation schemes concentrated its efforts to help build up FOs and consolidate organizations by farmers for effective O & M.

These efforts focused from different directions finally aim at viable organizations. The different directions are; providing training to farmer organizations, improving interaction between line agencies and FOs, motivating project management staff to maintain a good rapport with FOs. and monitoring evaluation and financial management of FOs to leaders/ reps; on important issues felt relevant by farmers. Under Irrigation System Management Project (ISMP) IMD has spent over eighteen hundred thousand rupees on training from August 1987 upto 1984 December(IMD Records). These investments would lead to yield positive results both in short and long terms.

With the policy decision to hand over the D.Chs. Farmer Organizations for maintenance IMD initiated a program to hand over the management of D.Chs. to FOs. taking into consideration the capabilities of the FOs.(Gunasekara & Ranatunga 1990). The handing over process began with some clear objectives. They are:

- a) To provide for a system of joint management in major irrigation schemes with increased participation of the beneficiaries.
- b) To optimize the available funds.
- c) To afford an opportunity for farmers to supplement the available funds by contributing labor and other resources in lieu of payment of O&M rates.
- d) To ensure better water distribution at D.Ch and F.Ch levels and mutual resolution of conflicts.
- e) To strengthen the planning, programming, and monitoring of O & M activities at the D.Ch and F.Ch levels.

These objectives need a close scrutinization in an attempt to evaluate the maintenance performances of FOs in handed over D.Chs.

1.2. Statement of the Problem

Some schemes that were rehabilitated with ISMP/USAID funds (Parakrama Samudraya, Giritale, Minneriya, Kaudulla, Ridibendi Ela, Gal Oya Left Bank, etc.,) experimented by handing over the D.Chs. to FOs for O & M. In handing over of D.Chs to FOs did not have a standard procedure that means different methods were adopted from scheme to scheme creating some kind of confusion in the minds of farmers as well as agency officials. Rehabilitation works also differed from scheme to scheme. In other words every scheme came under ISMP did not reach the same stage at the time of handing over the D.Chs to farmer organizations. However, farmer organizations in the respective schemes took over the O&M of D.Chs. within its jurisdiction disregard of the planned rehabilitation. The understanding was that rehabilitation work will continue even after the turn over of O & M to FOs.

But it has been alleged by some observers that the farmer organizations are not maintaining the handed over channels properly and that channels are deteriorating

at a faster rate than expected as a result. Thus the study will test the validity of the following hypothesis:

Structures and other aspects of distributary channels which have been handed over to farmer organizations for maintenance are deteriorating at a faster rate than expected rate.

In the preceding chapters an attempt will be made to throw some light on the question related to the above hypothesis i.e. do FOs maintain handed over D.Chs. properly? and give some suggestions for future consideration.

1.3 Research Methodology

The research methodology that adopted for this study consists of two types. One is direct method which includes participant observation, interviews and questionnaires. The other method is indirect method i.e use of available data; records and reports from the relevant organization/agencies.

In addition to the above two methods rapid appraisal techniques were also employed during the data collection.

To evaluate the performance of D.chs a two-way approach was followed in the sample DCOs. The irrigation engineer carried out the channel inventory of damages to and deterioration of various structures - gates drop structures etc. and problems with canals such as breaches, siltation and scouring. In addition, the existing data from the ID office of the area was also collected by the IE who worked with the research team.

The social scientists carried out the field interviews primarily in the form of group interviews with lower level Irrigation Department Officers in order to get a perception of those field staff with regard to performance of FOs in the area of O & M.

The basic methodology that adopted to compare the rate of deterioration of distributary channels that have been handed over to FOs for maintenance with

those D.Chs. that have not been handed over to FOs. To carry out this comparative analysis four schemes were selected that came under ISMP/USAID within three districts of the island.

1.3.1. Sample Schemes

The four sample schemes selected for the study included the following:

- 1.3.1. a. Parakrama Samudraya Scheme (Polonnaruwa District)
- 1.3.1. b. Kaudulla Scheme (Polonnaruwa District)
- 1.3.1. c. Ridi Bendi Ela Scheme (Kurunegala District)
- 1.3.1. d. Gal Oya Left Bank (Ampara District)

From each scheme at least six Distributary Channel Organizations (DCO) were selected to represent Head, Middle, and Tail. Of the six DCOs three were non-handed over D.Chs. The researchers had to deviate from this method only with regard to Ridibendi Ela due to difficulty faced in getting accurate information on D.Chs. on time. As a result of that only four channels were selected from Ridibendi Ela instead of six. Though the number of D.Chs were reduced by two, adequate precautions have been taken to avoid any adverse impact in the exercise of evaluating the performance of DCOs. So it is expected that with the data generated from these four DCOs can get an understanding about the performance of other DCOs in Ridibendi Ela.

1.3.1. a. Sample of DCOs Selected from P.S.S.

Serial No.	Name of the DCO	# DCO Pers.	# DC Pers.	DC Com./ac.	Year DCO Est.
1	Aluthwewa East (LB.1)	86	48	210	1993
2	Weerapura (RB.18)	200	48	240	1990
3	Sinharajapura (RB.14)	152	14	70	1984
4	Sinhapura (RB. 14)	325	120	290	1984
5	Mahasen (LB.1)	202	113	565	1984
6	Palugasdamana (RB.2)	225	57	285	1987

Source : Project Office Records,
Polonnaruwa, New Town.

1.3.1. b. Sample DCO selected from Kaudulla.

Serial No.	Name of the DCO	# DCO farmers.	# DC Farmers.	DC Com./Ac	Year Est.
1.	Mahindapura (D1)	299	299	344	1985
2.	Sama (D2)	294	82	174	1987
3.	Nagarapura (D2)	337	113	366	1988
4.	Kalinga (D1)	226	226	661	1984
5.	D.S.Senanayake (D1)	185	185	112	1987
6.	Weerakeppetipola	202	106	196	1984

Source: Project Office Records,
Mendirigiriya.

Table 1.3.1 c. Sample DCO Selected from Ridi Bendi Ela

Serial No.	Name of the DCO	No. of DCO Farmers	DC Com./AC	Year Est.
1	Magallegama	256242	283 72	1990
2	Ibbawala	162 155	540 92	1990
3	Kebellwewa	153	461 200	1990
4	Taranagolla	250231	289 363	1990

Source : Project Office Records, Nikaweratiya

Table 1.3.2 Sample DCOs Selected from Gal Oya Left Bank

Name of the DCO	No. of DCO Farmers	Year Est.
LB.1 - 2-3 Wawinna DCO	130	1984
LB - 6	167	1985
UB - 1, Galahitiyagoda	52	1981
UB - 9	200	1982
LB.21 - 22 Gonagolla	315	1983
G - 10 Galapitagala	240	1983

Source : Project Office Records, Ampara

1.4 Data Base and Analysis

The data base for this study was established by way of secondary sources—using the available information and records from offices coming under ID and IMD. Then indepth interviews were held with; on very many occasions group interviews, with ordinary farmers, office bearers of the relevant DCOs, and with relevant field level officers of Irrigation Department. A structured guideline was used in conducting interviews.

In addition to the above means, the Engineer who was in the research team observed the condition of the selected channels and then beneficiaries were consulted to get their opinion about the existing channel condition. Thus the data base comprises of qualitative as well as quantitative data.

The data analysis will be done using tools applied in socio-economic survey such as content analysis, situational analysis, etc.

1.5 Limitation of the Study

The study was launched as a result of request made by Director, Water Resource Development Division, Ministry of Irrigation Power, and Energy who is also a member of the CCCIM.

- * By the nature of the problem referred to IRMU it was necessary to complete the field survey within a short period of one month also. The data collection techniques were selected in a such a manner to suit the time frame.
- * Sample schemes were purposively selected to include Irrigation Systems Management Projects (ISMP) in order to study some of aspects of participatory management.
- * Secondary data collected from the records of IMD Project office and Irrigation Engineers' office have not given the same weight that was given to information directly collected from the field.
- * Due to limited time frame it was not possible to select to more than six D.chs from one scheme for the study.
- * Owing to non-availability of data in one place different sources were used for the same set of data. So there can be discrepancies.

1.6 Organization of the Report

The report consists of five chapters including the introductory chapter. The second chapter deals with establishment of Farmer Organizations and its strength. This has been divided into two sub-sections, namely

Objectives of farmer organizations and strength of farmer organizations under different variable; membership, financial assets, maintenance capabilities, attendance in meetings and organizing capacity for collective works.

The third chapter deals with turning over D.Chs to Farmer Organizations. This chapter devotes on preparation for turning over process, responsibilities of FOs under turnover, and ID contribution to FOs in maintenance activities as specified in the agreement.

The chapter four discusses D.Ch. condition after turnover in which there are four sub-topics 1 improvement rehabilitation, 2. Physical condition of the channel. 3. water distribution efficiency, and 4. Present maintenance performance of FOs.

The last chapter is on conclusion and recommendation.

Establishment Process of Farmer Organizations and its strength.

2.1 Establishment Process of Farmer Organizations.

Organizing farmers under major irrigation schemes began after experiments done in Minipe (1978) and Gal Oya (1979). Among these two the most intensive experiment was carried out in Gal Oya left Bank which began in early eighties. Based on the experience of this pilot project, the then government decided to replicate the lessons learnt from the learning process approach of Gal Oya water management project. The outcome was that government created a new cadre of Project Managers for Institutional Development in major irrigation schemes. The overall responsibility of institutional building was vested with Irrigation Management Division (IMD) that functioned under the Ministry of Lands and Land Development and Mahaweli Development.

Figure 01 : Farmer Organization Structure

The main objective of establishing farmer organization was to promote the participation of beneficiaries in the affairs of system management. Before dealing with this particular topic one has to examine very carefully as what happened to the rural organizations established in Sri Lanka since independence in 1948. The following draw backs were identified by the researchers.

- a) Rigid centralized planning
- b) Weak data base
- c) Misplaced emphasis on law to the detriment of promoting volunteerism
- d) Absence of beneficiary consultation
- e) Obligations sans authority
- f) Bureaucratic orientation (Wickramasinghe, 1986)

Having analyzed the above drawbacks, the measures were taken in order to avoid too much of bureaucratic intervention" in the establishment process of Farmer Organizations.

2.1.1 Irrigation Management Division (IMD) Approach under INMAS

When IMD began its institutional development activities under the INMAS. Programme it aimed at changing "agency managed" system to "Farmer managed systems. This approach emphasizes shifting dependency from agency to beneficiaries. Thus a greater weight and attention were given to farmers because absence of their views in the system management was considered as a great set back for the progress of farmer organizations. Therefore, IMD promoted participatory management which means a collaboration of relevant line agencies and farmers. Here the focus was on two aspects; utilization of local resources and human resource development.

To facilitate this process IMD deployed Institutional Organizers (IOs) Institutional Development officers (IDO) and Project Managers (PMs) in 35 major irrigation schemes. (Refer Annex 01)

2.2 Objectives of the Farmer Organizations.

Farmers were helped to get themselves organized for better management of system and efficient use of inputs. Organizations were allowed to evolve out of their felt needs. If one carefully analyzes the following objectives of the FOs, it is quite easy to understand the concept behind these organizations.

- a) Equitable distribution of water
- b) Conflict resolution which would otherwise be disruptive to the system
- c) Promotion of knowledge and attitude necessary for conservation of water and the maintenance of the system among the farmers.
- d) Ensuring the operation and maintenance of the channels and structures below the D.ch, regularly and on time
- e) Communication of farmers needs to the concerned agencies, and to farmers all relevant information.

To translate these objectives into reality some activities were launched which can be again categorized under three main components.

- * Farmer participation in all aspects of management
- * Mobilization of labour and other local resources
- * Giving farmers an opportunity to handle the responsibilities Keeping these concepts in view farmers were helped to organize themselves around their felt needs in the respective areas.

As shown in schematic diagram the basic structure of FOs was either F.ch group or F.ch. organization depending on the strength of the F.ch membership and their willingness as how they should function, whether as an informal group or a formal organization.

D.ch. organization was established drawing representatives from the F.chs that fall within a particular D.ch. This organization functioned as a formal body or an institute having its own constitution and by laws.

IMD as a facilitating body has invested on farmers financial as well as other resources in the form of providing training to farmers for efficient mobilization of local resources with the aim of achieving high productivity of water. The following table shows the amount of investment done by the IMD on farmer trainings during the period of 1985 to 1994.

Table 2.1 Investment on Field Level Training Provided to Farmers
during the period 1985 - 1994

Programme/Project	Cost
INMAS Programme	487,142
ISM Project (1987)	1,850,225
Minipe-Nagadeepa Project	300,280
Total	1,637,647

Source : IMD Records, 1995

2.3 Strength of Farmer Organizations

This particular topic will cover only on the organizations that were selected from P.S.S (6 DCOs) Kaudulla (6 DCOs) Ridi Bendi Ela (4 DCOs) and Gal Oya left Bank (6 DCOs). These organizations strength will be discussed in terms of membership, financial assets, maintenance capabilities, attendance in meeting and organizing ability for Shramadana work. It was found during the survey that FOs in ISMP had been evaluated prior to turn over of distributory channel, by Sheladia Consultants (Please refer annex 02) using certain indicators such as rehabilitation of the system, maintenance, operations farmer organization and management, related activities. Scores have assigned under each indicator depending on the level of performance. Had these scores been available it would have been possible to compare with the present level of performance of the same organizations.

Table 2.3.1 Cumulative Fund Available with Selected Farmer
Organization in Parakrama Samudraya Scheme as of January
1995.

Farmer Organization	Membership	Has Bank A/C	Cumulative Fund
Aluthwewa East	86	Yes	21616.00
Sinharajapura	152	Yes	4111.00
Weerapura	200	Yes	72511.00
Mahasen	202	Yes	73958.00
Palugasdamana	513	Yes	64420.00
Sinhapura	325	Yes	48267.00

Source : Records of Project Manager's Office P.S.S

The above table 2.3.1 shows the cumulative fund of individual DCOs that were selected for the study in P.S.S. Each DCO has considerable amount of financial assets.

What are the means by which FO collected the fund? Funds were raised by selling shares, Rs. 100/- a share and by undertaking maintenance contracts. In addition, FOs in P.S.S collected Rs. 20/- per acre from each farmer, per season as O & M fee. These DCOs have received an allocation for O & M from Irrigation Engineer, Polonnaruwa a total sum of Rs. 143,048.45 for the year 1994. The same amount has approved for 1995 also.

Aluthwewa East is a new FO established in 1993. Earlier it was known as Aluthwewa with the restructuring done in 1993 the new DCO i.e. Aluthwewa East was given the responsibility of RB-2, LB-01. and LB-2. Among these three RB .2 is a main canal which supplies water to LB 1 and LB. 2. According to FO members of Aluthwewa East the maintenance of RB.2, also has been entrusted to the latter organization.

The following table (2.3.2) indicates the maintenance responsibilities handled by FOs as well as ID. From the table it is clear that FO handles most of the activities except maintenance of drainage canals and maintenance of water measuring devices. Members of the Aluthwewa FO revealed during the interview that maintaining drainage canal by ID itself is considered as a laborious task due to its very physical nature.

**Table 2.3.2 Maintenance Responsibilities Performed by FOs/ID
Regarding D.chs in P.S.S.**

Activities Performed	Organization					
	1*	2*	3*	4*	5*	6*
Jangle clearing-road and channel	FO	FO	FO	FO	FO	FO
Desilting	FO	FO	FO	FO	FO	FO
Minor repairs-structures scours etc.	FO	FO	FO	FO	FO	FO
Painting, greasing	FO	FO	FO	FO/JP	FO	FO
Mainte. of F.ch and D.ch road	FO	FO	FO	FO	FO	FO/ID
Mainte. of drainage canal	ID	ID	ID	ID	ID	ID
Mainte. of water measuring devices	ID	ID	ID	ID	ID	ID
Channel profile	ID	ID	ID	ID	ID	ID
	FO	FO	FO	FO	FO	FO

Source : Survey Data 1994

Note: 1. Aluthwewa East 3. Weerapura 5. Palugasdamana
2. Sinharajapura 4. Mahasen 6. Sinhapura

In all four sample schemes FO office bearers and members have perceived that the maintenance of drainage and measuring devices placed in the D.ch as responsibilities of the Department (ID). Two DCOs in Gal Oya left Bank (G-10, LB-22-23) and Ridi Bendi Ela (Taranagolla and Kebellewewa) also think that painting and greasing is a responsibility of ID. According to the document prepared by ISMP at the time of turn over the Department has certain responsibilities to fulfil for, achieving the objectives of turn over. Also, IMD

has got some responsibilities. On the other hand FO has given some rights and responsibilities as a consequence of the agreement signed with the line agency of the government of Sri Lanka. The tasks identified under maintenance that FO should attend are:

1. Clearing and weeding of channel network along with the channel banks
2. Desilting and maintaining the required channel profiles
3. Minor repairs to structures and filling erroded sections
4. Painting and greasing the gates
5. Maintaining D.ch and F.ch roads
6. Maintaining drainage canals.
7. Maintaining water measuring devices, *gates, regulators*.

With the available data it appears that FO members particularly the office bearers are not fully aware of their rights and responsibilities with regard to turnover. Farmers need to be educated about the responsibilities of each party involved in the turn over, adequately.

In general all FOs in the sample where researchers observed the performance with regard to maintenance, it was found that organizations put an effort to maintain their respective channels according to their level of capacity given the prevailing socio-economic condition of the area.

Is it possible or desirable to expect hundred per cent performance level from any farmer organization? It is true that FOs have been asked to maintain D.ch and below. When the D.Chs were handed over to FOs these channels were in different status. Some channels were 90% improved. Some channels were improved about 50-75 %. Also there were D.Chs that were handed over to farmer organizations which were just selected for improvement, but no physical improvements were done. This happend SO because under ISMP only partial rehabilitations were done in the selected schemes. However some FOs agreed to undertake the maintenance of the respective D.ch/s in support of the joint management policy declared by the government.

With the handing over of D.ch to FOs, attitude of all farmers may not be changed positively no it can be expected that the physical condition of the channel system would improve drastically soon after handing over. The physical environment itself is not favorable enough to achieve the far reaching results that was anticipated by management reforms. In other words. Simply by transferring managements responsibilities of D.chs to FOs, performance may not improve within three or four years without creating a suitable environment conducive for the growth of local institutions. Handing over has more focussed on transfer of responsibilities. But less attention has been paid on transfer of technology skill development, organizational management, etc. which are more crucial in D.ch O & M.

One should raise the question, whether the required condition, such as standard physical improvements of the channel network, technical know-how available with FOs, adequately trained farmer representatives, financial capability of FOs, etc are met when handing over of D.chs took place. All these condition have not been fulfilled as revealed by office bearers of sample DCOs in the visited schemes. In spite of that handing over process continued.

2.3.1. Attendance in Meeting

Farmer Organizations have an updated list of membership. Some organizations charge an admission fee from the farmers when they seek the membership for the first time. Any farmer irrespective of his tenurial status can become a member of FO Majority of the FOs have held Farmer Representative meetings monthly. But the general meetings have not been held regularly, i.e at least once in a season. During the interview when inquired about this general meeting office bearers responded saying that unless there is a need general meetings are not held. For example, Wawinna DCO (LB 1-2-3) in Gal Oya left Bank did not have general meeting after 1992. On the other hand LB. 21-22 DCO has called two general meetings in 1994, one in February and the other one in July. But when look at the percentage of attendance of these two meetings it is 27% and 23% respectively. It is intriguing that this very organization (LB 21 - 22) has organized five Shramadana in 1994, worth of Rs. 12,000/- and its fund as of 94 December was Rs. 7,745/-. What are the reasons for this kind of situation. LB. 21-22 is not handed over

to FO yet, therefore, it is continuous to get O & M fund from ID. This particular FO employees its very farmers for channel maintenance on daily wages. However, these farmers do not attend the work merely as labourers, but as users of the facility. This mentality has resulted in quality work as far as maintenance contracts are concerned. Table 2.3.3 shows the frequency of attendance in meeting in Gal Oya left bank DCOs.

Table insert

According to the above table UB.1 has hold its last general meeting in 1994 June of which attendance is 53% out 52 farmers. Also its FRs meetings have been held regularly during the reference period, having 100% attendance except on one occasion. Area wise there is a big difference, when compared UB.1 with LB 21-22, because the former organization has 284 Ac with 4 F.chs while the latter has 788 Ac. with 23 F.ch.

2.3.2. Organizing Shramadana

Every Farmer Organization has organized Shramadana work for maintenance purposes though the scale is different from one to another. Among the schemes DCOs in Parakrama Samudraya scheme and Kaudulla have organized the highest number of Shramadana during the year 1994, which is 28, and 25 respectively. (Table 2.3.4 - 2.3.5) In Polonnaruwa, P.S.S. Shramadana data related to Sinhapura could not be traced during the field survey. In Kaudulla and Ridi Bendi Ela schemes, the total value of Shramadana has exceeded the O & M allocation for these respective sample DCOs when taken as a whole. The only exception is Gal Oya left bank sample DCOs, where the O & M allocation is higher than the total value of Shramadana work completed during the year 1994. In Gal Oya farmers are reluctant to give their free labour for maintenance work, because DCO receive funds for that purpose from the ID. This tendency is prevalent even in the other sample schemes, but not to the level of Gal Oya Left Bank. Farmers in the remaining three schemes believe that if Shramadana is organized for channel maintenance it leads to yield two way benefits. One benefit is allocation can be saved to raise the DCO fund. The second benefit is cooperation among farmers can be promoted through collective activities of this nature.

What do these DCOs do with the savings? DCOs endeavor to give maximum possible benefits to its members to sustain their interest towards organizations. With that intention some DCOs advance loans to its members upto a limit of Rs. 2000/- per season. Meanwhile certain DCOs engage in bulk purchasing of agro-chemicals for distribution among its members in order to avoid paying exorbitant prices to chemical dealers. The research team also found that DCOs have purchased two wheeled tractors from the Department. Of Agrarian Services under the easy terms of payment. Money saved from maintenance allocation has channelled for paying the instalment of the tractor and for other expenses of FO with the approval of the office bearers. This decision implemented by some DCOs are not liked by certain groups of farmers. Those farmers who are opposing to keep a tractor for DCO, argue that it is being maintained for the benefit of few members at the cost of majority. DCO office bearers pointed out that with the purchase of a two-wheeled tractor hire charges of 4-wheeled tractors have come down. Also, DCO could save money that was paid to outside tractor owners during maintenance period. A tractor is also useful in transporting agro-chemicals from business centers. Apart from some irregularities found in few instances, majority of the farmers feel that keeping a tractor for FO is a point to attract farmers towards FOs.

With regard to organizing ability of DCOs for collective work, it is apparent that organizations are capable of mobilizing farmers for Shramadana work during maintenance season. But the ordinary farmers have started thinking that why they should contribute labour free of charge to the Farmer Organization when it already receives funds for maintenance of their respective channels.

In addition, there are other reasons that have influenced the negative thinking towards Shramadana by farmers, such as non-settlers, short-term lessees encroachers part-time farmers, Share-croppers, etc. Also, it was observed that some farmers have to spend a considerable amount of time in order to get their paddy allotments. This also results in less interest maintenance work either on Shramadana or Pangu basis. Other interpretation is that part-time farmers, Share-croppers are not worried about the long-term sustainability of the channel net work. Therefore, they do not want to involve in channel maintenance which is more on voluntary basis.

Farmer Organization has a different view with regard to soliciting farmer participation in maintenance works. That is as organizations were formed with agency patronage for getting done maintenance works due to departmental budget austerities. Owing to lack of understanding about legal framework within which organization can function effectively, office bearers hesitate to exercise the given against those who do not cooperate with in implementing the maintenance plan. The question for which FO still does not have an answer is "what FO can do about if we (farmers) do not the channel"?

Table 2.3.2 Maintenance Responsibilities Performed by Organizations/ID Regarding Field Channels and Distributory Channels in Parakrama Samudraya

Variable/Activity	Organizations					
	1*	2*	3*	4*	5*	6*
Jungle Clearing Road and channel bank	FO/Farm	FO/Farm	FO/Farm	FO/Far.	FO/Farm	FO/Farm
Desilting	FO/Farm	FO/Farm	FO/Farm	FO/..	FO/Farm	FO
Minor repairs to structures, etc.	FO	FO/Farm	FO/Farm	FO/Earn	FO	FO
Painting greasing	FO	FO	FO	FO/JP	FO	FO
Main FC/DC road	FO	FO	FO	FO/Farm	FO	FO, ID
Maintenance of drainage canal	ID	ID	ID	ID	ID	ID
Water measuring devices	ID	ID	ID	ID	ID	ID
channel profile	FO	FO	FO	FO	FO	FO

Maintenance Responsibilities Performed by Organizations
in Selected DCOs, Gal Oya Left Bank.

Variable/Activity	Organizations					
	1	2	3	4	5	6
MAINTENANCE						
Jungle Clearing Road and Channel bund	FO/Farm	FO	FO	FO	FO	FO
Desilting	FO	FO	FO	FO	FO	FO
Minor repairs to structures, etc.	FO	FO	FO	FO	FO	ID
Painting greasing	ID	FO	ID	ID	FO	FO
Mainte. FC/DC road						
Mainte. drainage canal	FO/Farm	DC-ID	DC-ID	DC-FO	FO/Farm	DC-FO
Mainte water measuring devices	ID	ID	ID	ID	ID	ID
Channel profile	ID	ID	ID	ID	ID	ID
	FO	FO	FO	FO	FO	FO

Source : Survey Data 1994

**Maintenance Responsibilities Performed by Organizations
in Selected DCOs, Kaudulla Scheme**

Variable/Activity	Organization					
	1	2	3	4	5	6
Jungle cleaning-road & channel bund	FO	FO	FO	FO	FO	FO
Desilting	FO	FO	FO	FO	FO	FO
Minor repairs structures scours, breaches	FO	ID	FO	FO	FO	ID
Painting, greasing		FO	FO	FO	FO	ID
Maintenance FC/DC road						
Mainte. of drainage canal	DC.LH	DC	FO	DC-ID	FO	DC-LD
	ID	ID	ID	ID	ID	ID
Maintenance of water measuring devices						
Channel profile	ID	ID	ID	ID	ID	ID
	FO	FO	FO	FO	FO	FO

Source : Survey Data 1994

H0 1 Mahindapura
H0 2 Sama FO
H0 3 Nagarapura

N.H0 4. Kalinga
N.H0 5 D.S. Senanayake
N.H0 6 Weerakeppetipola

Maintenance Responsibilities Performed by Organization
in Selected DCOs, Ridi Bendi Ela Scheme

Variable Activity	Organizations			
	1	2	3	4
Jungle cleaning road and channel bund	F0	F0	F0	F0
Desilting	F0	F0	F0	F0
Minor repairs to structures scours breaches	F0	F0	ID	ID
Painting greasing	F0	ID	ID	F0
Mainte. FC/DC road	F0	F0	ID	F0
Mainte. of drainage	ID	ID	ID	ID
Mainte. of water measuring device	ID	ID	ID	ID
Channel profile	F0	F0	F0	F0

1 Magallegama 3 Kebellewa
2 Taranagolla 4 Ibbawela

2.3.4. Value Shramadana Organized for Distributary channel Maintenance by Farmer Organizations against O and M in Parakrama Samudraya Polonnaruwa in 1994

Farmer Organization	Shramadana			O & M
	# of Shramadana	# of Man days	Full value of Shramadana	
Aluthwewa	01	14	1400	40337.16
Sinharajapura	05	275	27500	23,464.03
Mahasen	06	644	64454	21724.90
Weerapura	06	250	31250	18000.63
Palugasdamana	10	250	25000	42238.00
Sinhapura	04			19008.63
			149604	164771.00
	28			

Source : Survey Data 1994

2.3.5 Details of Shramadana Organized for Distributary Channel Maintenance by Farmer Organizations in Kaudulla Polonnaruwa 1994

Farmer Organization	Shramadana			O & M
	# of Shramadana	# of Man days	Full value of Shramadana	
Mahindapura	4	165	16500.00	12460
Sama	5	158	15800.00	6130
Nagarapura	4	110.5	11050.00	20880
Kalinga	4	227	22700.00	12620
D.S. Senanayake	3	108.25	10825.00	12660
Weerakeppetipola	5	191.4	19140.00	3510
	25	960.15	96015.00	73260

Source : Irrigation Engineer's Office
Medirigiriya 1995 and
Project Manager's Office

2.3.6 Details of Shramadana Organized for Distributary Channel Maintenance by Farmer Organizations in Ridi Bendi Ela, Nikaweratiya 1994

Farmer Organization	Shramadana			O & M
	# of Shramadana	# of Man days	Full value of Shramadana	
Magallegama	3	188	18800	8049
Taranagolla	3	101	10100	8348
Kebellewa	2	75	7500	10670
Ibbawala	3	139	13900	8049
	11	503	50300	35646

2.3.2 Details of Shramadana Organized for Distributary channel Maintenance by Farmer Organization in Gal Oya Left Bank Ampara 1994

Farmer Organization	Shramadana			O & M
	No. of Shramadana	No. of Man days	Full value of Shramadana	
LB.6	2	47	4700	14500
LB 1.2.3	3	148	14800	17256
GO-10	5	97	9700	39022
LB - 27,22	5	120	12000	71828
LB. 9-10	2	43	4300	32084
US.1 Galhitiyagoda	3	41	4100	10235
	20	496	49600	84925

3. Turning Over Distributary Channels to Farmer Organizations

Rehabilitating an irrigation scheme is a heavy investment to the government. Even if, government can afford to do that, may be with foreign funds, the sustainability of the scheme itself is a question mark. To overcome from this dilemma a decision was taken to charge an irrigation fee from those farmers who are cultivating with water provided under major irrigation schemes. So in 1983 government declared that beneficiaries of major irrigation schemes should pay Rs. 200/- per acre per annum. Collection of O & M fee that commenced in 1984 did not get a good response from farmers. This was further proved by the downward O & M fee collection trend that prevailed during 1984 - 1988.

Table : 3.1 Collection of O and M fee during 1984 - 1988

Year	Target	Achievement
1984	8,537,172	50.36
1985	47,954,660	17.80
1986	37,023,502	2.99
1987	33,084,240	10.31
1988	33,166,260	3.26

Source : IMD Reports

The socio-economic as well as political pressure compelled the then government to do away with O & M fee collection and instead of that introduced a new concept participatory management in January 1989 as a government accepted policy. Why it was necessary to declare a new policy scrapping an already accepted policy? This had to be done so because farmers mainly who cultivated under major irrigation schemes were not hundred per cent ready to pay the O & M fee. What were the reasons behind this tendency.

According to a study conducted by ARTI, 1989 the reasons are:

1. Non cultivation
2. Crop failure
3. Low income
4. Others do not pay
5. Influence from certain organizations
6. Unreasonable fee
7. O & M is the duty of the government
8. DCs satisfied with the present method of mobilization

3.1 Preparation for Turning Over

Having considered all these factors government switched on to beneficiary centered management which aimed at handing over the responsibility of maintenance of D.ch and below to farmers. Under this new concept beneficiaries had to maintain their own D.ch and F.ch by contributing labour and other resources available with them.

management of irrigation scheme when not accepted it as a
The participatory ~~process~~ received momentum with the 1989 January. *policy*
~~it was~~ declaration *which recommended the following that:*

1. Participatory management be accepted as a policy and systems based on these principals be developed and experimented with, with the objective of improving overall management and performance.
2. Farmers be encouraged to manage operate and maintain system in which they contribute their labour and other resources rather than just paying O & M charges to a central authority.
3. For some time to come government funds should continue to be available to the irrigation agencies for main system management with appropriate provision for consultation with farmers organizations in the execution of such work.

4. The management principle of village tanks is adopted in larger systems with the turnout area, the field channel and the distributary channel respectively in an ascending order they being treated as the respective management unit.
5. The institution involved be strengthened providing for active farmer involvement.
6. The water users' organizations be given legal recognition.

(Gunasirani A.A. Ranasinghe, J.S. 1990)

Following these recommendations as a guideline IMD framed its plan of action to implement the turn over process, as the agency responsible for institutional building. At this point it is pertinent to pose a few questions in connection with turnover.

- * What this whole process of turnover all about is?
- * What is to be turned over?
- * Who is involved with turnover?
- * When is to be turned over? and
- * Whom to be turned over

3.1.1 The Process of Turn Over

What turn over process is? "It is concerned with the turn over of operations at tertiary and distributary channel level to farmers' organizations. that means farmers' organizations will carry out system planning and management as well as the distribution of water to farmers" (Khin Maung Kyi 1990). this turn over is quite broad, and this type of turn over may not be seen in Sri Lanka.

According to the circular issued by Director irrigation by circular No. 70-000404 of 23.05.1988 "a written request should be made to the Divisional Irrigation Engineer (IE) by Project Committee through the Project Manager after a formal decision at a project committee meeting to hand over the O & M of the distributary channels. The request should cover an area which includes all the field channels under a distributary channel or a distributary channel in such a manner as to avoid the joint operation by both departmental staff and the FOs on

the turnouts in the same distributary channel". Here the ID has used the term hand over in place of turn over to denote the changing position.

Turn over process per se is not limited only to operation and maintenance of D.chs and F.chs. It encompasses of whole spectrum of institutional building, consolidating, empowerment and decision making in system management. That means turn over/handing over process should really commence right from the initial stage of establishing farmer organizations and then pass the necessary steps gradually. Otherwise, ad hoc handing over of D.ch for O & M will not yield the expected output. Because, FOs have not gone through the entire process which they are suppose to undergo.

From IMD view point handing over has few objectives to achieve. These objectives are :

1. To provide for a system of joint management in major irrigation schemes with increased participation of the beneficiaries.
2. To optimize the available funds
3. To afford an opportunity for farmers to supplement the available funds by contributing labour and other resources in lieu of payment of O & M rates.
4. To ensure better water distribution at D.ch and F.ch levels and mutual resolution of conflicts.
5. To strengthen the planning, programming and monitoring of O & M activities at the D.ch. and F.ch levels. (Gunasekera and Ranatunga 1990)

3.1.2 Functions Falling Within Turn Over

What is to be turned over? It is operation and maintenance of D.chs and F.chs to be turned over. So far in many of the schemes where D.chs have been turned

over to Fos, only F.ch have been turned over fully for both operation and maintenance. In D.chs FOs undertake only the maintenance. The activities fall within the maintenance responsibilities are:

1. Maintenance of irrigation canals (both D.chs and F.chs weeding, jungle clearing, desilting, earth work and minor repairs to structures).
2. Maintenance of drainage canals
3. Maintenance of canal roads and tracks

From the available data collected during the survey it is evident that FOs have not paid any attention to drainage canals. Office bearers of the FOs are of the opinion that maintaining drainage canal is not within their capacity. Out of all selected DCOs surveyed recently not a single DCO mentioned that maintaining drainage canal is one of DCOs responsibilities. This may attribute to vagueness in the turn over agreement or low awareness created particularly among office bearers of FOs and farmers in general.

Under operations FO is responsible for opening and closing gates within distributing channel, distribution of water equitably within the F.chs, adhering to a water delivery schedule. Though D.chs are handed over to FOs, gates on D.ch are operated by Irrigation Department. Only one DCO of the total sample of handed over D.chs is doing gate operation in the D.ch i.e Sinharajapura in P.S.S. This too is not an official arrangement. In this area improvement works under ISMP is going on and farmer Representative of RB 14 has undertaken some contracts in this particular D.ch. Therefore, he has taken the key from Jalapalaka-ID. In Ridi Bendi Ela even the F.ch gates of Ibbawala, Kebellewa, and Taranagolla are operated by ID staff according to the information provided by farmers.

3.1.3 Partners Involved with Turnover

In the turnover process there are three key role players. It is something like angles in a triangle having equal lines and degrees.

Each organization (ID,IMD,FO) has to fulfill certain condition in realizing the objectives of the turn over. Withdrawal or retreat of even one organization from the process can cause a serious set back in terms of achieving the expected output.

To play the individual role successfully one should conceptualize the given role thoroughly. In this regard more attention is required towards FOs. Why it is required? Because, this is the organization which is going to undertake the responsibility of O & M, that was vested with ID for many decades. The IMD is the authorized organization responsible for institutional building in major irrigation schemes. Also it functions as a coordinating body that put together the services of other line agencies. The role of these two organizations, i.e. the ID and the IMD are clear as far as system management is concerned.

But when farmer organizations were formed in Gal Oya Left Bank, P.S.S., Kaudulla or Ridi Bendi Ela initially the set objective was to get the cooperation of farmers in water distribution at F.ch level and help during rehabilitation by organizing meetings, Shramadana etc. At that time the idea of handing over was not in the agenda of Farmer Organization Programme. Over time, the objectives of FOs have change as a result of which new responsibilities have been added to the existing ones. Thus a training in required in order to discharge the added responsibilities effectively. Were there adequate training programme for FOs/Farmer Representatives and ordinary farmers. The IMD has invest on farmer training Rs. 1,850,225 during 1987 - 1994 under ISMP. This amount covers expenses on farmer training including meals, stationary etc. Resource Persons were not paid because, they belonged to IMD or came from Project Managers Office.

Maintenance Responsibilities Performed by Organizations
in Selected DCOs, Gal Oya Left Bank

Variable/ Activity	Organizations					
	1	2	3	4	5	6
MAINTENANCE						
1 Jungle clearing road and channel bund	FO/Farm	FO	FO	FO	FO	FO
2 Desilting	FO	FO	FO	FO	FO	FO
3 Minor repairs structures scours - breaches	FO	FO	FO	FO	FO	ID
4 Painting greasing	ID	FO	ID	ID	FO	FO
5 Maintenance of structures	FO	ID	DC-ID	DC-FO	FO/Farm	DC-FO
6 Maintenance of structures	ID	ID	ID	ID	ID	ID
7 Maintenance water measuring devices	ID	ID	ID	ID	ID	ID
Channel profile	FO	FO	FO	FO	FO	FO

Source : Survey Data 1994

Key 1 LB - 6 4. LB 21,22, Gonagolla
2 LB 1,2,3 5. UB 9,10
3 GO 10 Gonagolla 6. UB.1 Galahitiyagoda

**Maintenance Responsibilities Performed by Organizations
in Selected DCOs, Kaudulla Scheme**

Variable/ Activity	Organization					
	1	2	3	4	5	6
Jungle clearing-road and channel guard	FO	FO	FO	FO	FO	FO
Desilting	FO	FO	FO	FO	FO	FO
Minor repairs-structures, ditches, bridges	FO	DO	FO	FO	FO	DO
Painting greasing		FO	FO	FO	FO	DO
Maintenance FO/DO Road	DO-FO	DO	FO	DO-DO	FO	DO-DO
"Maintenance of drainage canals"	DO	DO	DO	DO	DO	DO
"Maintenance of water measuring devices"	DO	DO	DO	DO	DO	DO
Channel profile	FO	FO	FO	FO	FO	FO

Source : Survey Data 1994

HO 1. Mahindapura N.Ho 4 Kalinga
HO 2. Sama FO N.HO 5 D.S. Senanayake
HO 3. Nagarapura N.HO 6 Weerakeppetipola

Maintenance Responsibilities Performed Organization
in Selected DCOs, Ridi Bendi Ela Scheme

Variable/ Activity	Organization					
	1	2	3	4	5	6
Jungle clearing road and channel bund	FO	FO	FO	FO		
Desilting	FO	FO	FO	FO		
Minor repairs to structures scours breaches	FO	FO	FO	FO		
Painting - greasing	FO	FO	FO	FO		
Mainte. FO/DC road	FO	FO	FO	FO		
Mainte. of drainage	FO	FO	FO	FO		
Mainte. of water measuring devices	FO	FO	FO	FO		
Channel profile	FO	FO	FO	FO		

HO 1 Magallegama 3 Kebellewa
 2 Taranagolla HO 4 Ibbarala

3.4 Value of Shramadana Organized for Distributary Channel Maintenance by Farmer Organizations Against O & M in Parakrama Samudraya Polonnaruwa in 1994

Farmer Organization	Shramadana			O & M
	# of Shramadana	# of Man days	Full value of Shramadana	
Aituchwewa	01	14	1,400	40,337.16
Sinnarajapura	05	275	27,500	23,464.03
Wahasen	06	644	64,454	21,724.90
Weerapura	06	250	31,250	18,000.63
Palugasdemana	10	250	25,000	42,238.00
Sinnapura	04			19,008.63
			149,604	16,4771
	28			

2.3.5 Details of Shramadana Organized for Distributary Channel Maintenance by Farmer Organizations in Kaudulla Polonnaruwa 1994

1	2	3	4	5	6
No	No	No	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes

ID Contribution to Farmer Organizations in Operation and Maintenance by Farmer Organizations - Ridi Bendi Ela

Contribution Mode	1		2		3		4	
	Y	N	Y	N	Y	N	Y	N
Gives mainte. fund		4	1		1		1	
Gives operation fund		0		0		0		0
Gives tech. guidance		3	1		1		1	
Gives implements	1	3		0		0		0

1. Magallegama
2. Taranagolla
3. Kebellewa
4. Ibbawala

	1	2	3	4
Contribution	Yes	Yes	No	No
D. Contribution	Yes	Yes	Yes	Yes

ID Contribution to Farmer Organizations in Operation and Maintenance by
Farmer Organization, Kaudulla

Contribution Mode	1		2		3		4		5		6	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Gives mainte. fund	1		1		1		1		1		1	
Gives operation funds	1		1			0	1		1		1	
Gives tech. guidance	1		1		1		1					0
Gives implements		0	1	0		0		0	1			

Source : Survey Data 1994

1 = Yes
0 = No

1. Mahindapura 4. Kalinga
2. Sama 5. D.S. Senanayake
3. Nagarapura 6. Weerakeppetipola

Counts of DCO responses on ID contribution in DSH in Kaudulla

Responses	DCOs Yes	DCOs No
1. Gives maintenance fund	6	-
2. Gives operation fund	5	1
3. Gives technical guidance	4	2
4. Gives implements	2	1
Total Survey Data		44

Table : 3.1.1 Percentage of Responses of Farmers/Office Bearers on O & M Training Before Handing Over D.chs to FOs by Schemes

Schemes	Percentage of Responses			
	OB	FRs	Farmers	Total
1. Parakrama Samudraya (N= 6 DCO)	-	50	-	50%
2. Kaudulla Scheme (N= 6 DCO)	50	16.5	16.5	83%
3. Gal Oya Left Bank (N = 6 DCO)	50	-	-	50%
4. Ridi Bendi Ela (N= 4 DCO)		25	25	50%

Source : Survey Data 1995

Note = OB Office Bearers
FR Farmer Representatives

The above Table (3.1.1) indicates that adequate training has not been provided to ordinary farmers. Only in Kaudulla and Ridi Bendi Ela ordinary farmers have given an opportunity to participate in O & M training. Sample farmers of Gal Oya Left Bank feel that training should not be limited only to office bearers or farmers representatives. Their argument is that office bearers are liable to change after one or two years. When the new office bearers are selected again they have to be trained for which costs money. So, if ordinary farmers are trained they are likely to get motivated and immediate training is not necessary once they are selected as FRs/Office bearers.

Duration of training programmes have lasted from 1-14 days. Farmers are of the opinion that duration of training programme are not adequate. For example, Nagarapura FO has got only one opportunity during the last 03 years of which duration was five days. From farmers point of view, technical subjects like preparation of estimates formula of concrete mixtures, gauge readings, etc. are difficult to digest. What is required is tailor made programmes to suit the needs of farmers having given due consideration to farmers education level and age group. Training should have staggered in such a way that each subject gets

adequate time for discussion as well as clarification. while organizing farmers training more emphasis should be given to practical sessions than that of theoretical and classroom lectures.

It was also revealed that in P.S.S. O & M training sessions have been conducted by Institutional Organizers (IOs). Farmer Organization office bearers think that IOs are not competent enough to lecture on technical subjects like operation and maintenance. Also, they think that work supervisors would not have been invited to give lectures because they lack explaining skill, communication ability on a given subject. However, in general farmers and office bearers are not fully aware of responsibilities of the ID, the IMD and FOs within the context of O&M.

3.1.4 When is to be Turned Over

Turn over is not simply giving the control of D.ch and below for O & M to FOs. As explained earlier in this very chapter, in order to have an effective turn over, there should be well based strong farmer organizations. Then irrigation net work should be improved that can cater to the demands of farmers. Also, farmers have to be provided with training pertaining to O & M and related to other subjects. Once farmers are trained the ID field staff should have engaged in a joint management exercise at least for 2 seasons just to observe as how far farmers have learned the subject.

When both ID and IMD are satisfied about the performance of FO with regard to O & M, then an evaluation is being done. The purpose of the evaluation is to ensure the strength of FO that is going to undertake D.ch and F.ch O & M. The pre-evaluation has few components under each

components there are number of indicators on which strength of FO is assessed. Following on the components.

- i. Rehabilitation of Irrigation System
- ii. Maintenance
- iii. Operation
- iv. Farmer Organization and Management
- v. Membership & fee collected
- vi. Amount of money deposited in the bank

When all these components are scored satisfactorily then FOs can take over the subsystem (D.ch & F.ch)

3.1.5 To Whom to be Turned Over

Farmer who have organized at F.ch and D.ch level will take over the responsibility of O & M by a written agreement. Why it was decided to give to FOs? FOs were given the O & M for following reasons.

- * Farmers are the immediate beneficiaries of the system
- * Users can be effective managers
- * Damages can be minimized if farmers are given the responsibility to look after
- * The water allocation and management can be successful when done by an organization rather than by TA/WS/JP
- * In participatory management beneficiaries have to play a key role.
- * To enhance the local institutional building capacity and to promote the farmer involvement in the system management process including decision making.

Did this turn over take place gradually having created a conducive environment? The reply that farmers gave was "no". As pointed out earlier in this report turn over took place in different stages in different forms. For example, in P.S.S some DCO expressed the willingness to take over the D.ch O & M with the completion of major portion of the improvements under ISMP. In case of Kaudulla DCOs were reluctant to any "handing over" for the simple reason that improvement works had not begun. Farmer Organizations consider it as an "imposed hand over". Due to communication gap or some other reason farmers were given the impression that line agencies concerned are pressing hard the idea of "handing over" with the intention of relieving budgetary constraints of the government.

3.2 Responsibilities of Farmer Organization Under Turn Over

The whole concept "turn over" came into light with the ISMP. In the document prepared for the turn over contains attachment 1 and 2, that explain the

responsibilities of Irrigation Department, Irrigation Management Division and right as well as responsibilities of distributary channel Farmer Organization.

According to attachment one ID's main responsibility is to rehabilitate the irrigation channel referred in this agreement to a level that water can be managed and adequately delivered to each individual while ensuring the handing over task of irrigation channel management to Farmer Organizations. (Please refer attachment 2).

Among other responsibilities the ID officials along with the IMD officials, at the project level should decide whether the channel management is in line with the indicators, that were developed with the system level Farmer Representatives. On the other hand, the IMD has also responsibilities (4) with regard to handing over. Its' first responsibility is to develop suitable indicators together with system level Farmer Representatives to decide whether a particular DCO is ready to accept the D.ch. In addition, it should provide assistance to farmers at all levels for organizational work and training.

*main
fina* { From Table 3.2.1 which shows the percentage of responses on DCO maintenance means, one can understand the tasks undertaken and the variations of the means. For example, in Parakrama Samudraya Scheme and Kaudulla for structural repairs neither Pangu System nor the paid labour has been used. It is not because farmers did not do any structural repair. That is only because in the sample DCOs structures were either new or they were under going improvements. With regard to greasing and painting Farmer Organization in P.S.S. had assigned this particular job to DCO-JP who is a paid labourer of the DCO. In some DCOs JP was paid a monthly allowance while some DCOs paid by seasons. The practice in Gal Oya left bank is some what different from the other schemes. There DCOs do not spent any thing on grease or paint. It is done by the ID. But with regard to D.ch cleaning Gal Oya left Bank sample DCOs have used 83% of paid labour which is the highest among all the four schemes. For earth work use of Shramadana as a means is more than 50% in all the schemes. D.ch bund road as well as F.ch track repair appears to be important for DCOs. In Gal Oya every DCO has contributed to repair the road and tracks by way of Shramadana. In Ridi Bendi Ela 3 DCOs out of 4 have organized Shramadana to repair the D.ch road and F.ch

road. The other DCO did not have to repair the road for it was main road in the scheme. In P.S.S D.ch roads were maintained by the ID.

3.3 ID Contribution to FOs in Maintenance

Whether we use the term "hand over" or "Turn Over", as invariably referred in this reports also, it means giving control over the resources to farmers on which their entire livelihood is depended upon. With the handing over of D.chs to FOs can we assume that the ID's responsibility as far as maintenance is concerned is over. The simple answer is "no". This is not like a relay race. Once the batten is handed over at a given point, it is the responsibility of the next runner to run ahead. In the contest of D.ch handing over the ID officials have to follow up closely to ensure whether FO tread in the proper direction. Let us look at some of responsibilities of the ID.

1. To assist FOs in preparing water distribution schedules maintenance plans and estimates. Supervision of plans during the implementation.
2. Giving technical assistance and training for O & M
3. To prepare guide lines with FOs that should follow in O & M
4. To maintain head works and main canals as enable to deliver the agreed amount of water to FOs.
5. To renovate the channel system with no cost to FOs, if such damages caused by natural disasters.
6. To ensure the required amount of water is delivered to FO reasonably, on time, at the right place.
7. To provide O & M expenditure on main system for the information of FO.
8. To evaluate the water requirement of a given D.ch in association with FOs.

These are some of the responsibilities assigned to the ID in dealing with the handed over D.chs. According to the following table perception of the office bearers regarding the ID contribution to O & M in the selected sample can be understood.

3.3.1 Percentage of Responses on ID Contribution in O & M by Sample

Mode of Contribution	P.S.S. % Response	Kaudulla	GOLB	Ridi Bendi
Gives mainte. fund	100	100	100	100
Gives operation fund	100	83	100	Nil
Gives tech. guidance	100	66	100	75
Gives implements	16	16	50	25

Source : Survey Data 1995

In addition to these direct contributions, the ID Staff, in every visited sample scheme now take a keen interest to work with FOs and to cooperate and collaborate with them on every possible occasion. The positive attitudinal changes observed in the Ranges Divisions, and units can be attributed to these factors. There can be other tractors also behind this such as;

1. Impact of the training provided to them
2. Attitudinal changes in officers
3. Improved understanding and good relationship between farmers and officers
4. Improved outlook of the farmers

However, there is a positive sign of interdependency between farmers and irrigation officials. As they have been able to look at one another with a mutual trust dealings between FOs/ farmers and officials have become quite easy. The other reasons for this amicable association is that the joint committees and meetings. The frequency of officers meetings with farmers have increased significantly. There is a D.ch meeting. There is a project committee meeting. There is a sub project committee meeting. There is a system level Farmer Organization meeting. At all these meetings farmers come in contact with officials of various line agencies. That gives an opportunity to improve the

rapport between farmers and officers. It is a meeting ground where all key line agency officials can be contacted individually by farmers and vice versa.

Active FOs/Leaders get the attention of politicians. Specially if the contacts are established with the ruling party members, such farmers are likely to get more attention when they go to government officers, may be divisional levels, Or it may district or provincial level. Whatever the level is, if the affiliations are established with the ruling party it is to the advantage of leaders. But this affiliation should not any way disturb the mutual understanding among the FO membership. Also they should take enough precaution not to become the henchmen of the local politician.

Table 3.2.1 : Percentage on Responses of DCO Maintenance Means in the Sample DCO by Schemes During 1993/94 Maha

Schemes >>>	Parakrama Samudraya Scheme 6 DCO			Kaudulla Scheme 6 DCO			Ridi Bendi Ela 4 DCO			Gal Oya Left Bank 6 DCO		
Maintenance Task	Maintenance Means			Maintenance Means			Maintenance Means			Maintenance Means		
	P.S A%	Shra. B%	Paid Lab. C%	P.S A%	Shra. B%	Paid Lab. C%	P.S A%	Shra. B%	Paid Lab. C%	P.S A%	Shra. B%	Paid Lab. C%
Ditch cleaning	83%	50%	33%	16%	50	66%	75%	50	25%	66%	33%	83%
Ditch earth work		83%	16%	Nil	66%	16%	Nil	50%	25%	Nil	66%	33%
Structural repairs	Nil	Nil	Nil	Nil	16%	Nil	25%	50%	25%	Nil	Nil	16%
Greasing and painting			100%	Nil	50%	50%	Nil	25%	25%	Nil	Nil	Nil
Channel roads track, Repairs	16%	50%	16	Nil	33%	Nil	50%	75%	25%	Nil	100%	16

Source : Survey Data 1994

P.S = Pangu System
Shra. = Shramadana
Paid Lab. = Paid Labour

Table 4.1 The Year D.chs Turned Over to FOs and the Year D.chs Rehabilitated by DCOs

DCO		Year Turn Over	Year Rehabilitation
PSS	Aluthwewa	1992	1993 *
	Sinharajabura	1990	1992 *
	Mahasen	1990	1992 *
	Weerapura	1992	1992 *
	Palugasdamana	1994	1991 *
	Sinhapura	1992	1992 *
Kaudulla	Mahindapura	1991	1993 *
	Sama	1992	1990 *
	Nagarapura	1991	1991 *
	Kalinga	1994	1992 *
	D.S. Senanayaka	1988	1986 *
	Weerakeppetipola	No. TO	1990 *
RBE	Magallegama	1992	1991 *
	Ibbawala	No. TO	1994 *
	Kabellewa	No. TO	1991 *
	Tarangolla	No. TO	1992 *
GDL	LB. 2-3	No. TO	1992 *
	UB. 1	1992	1982 *
	LB. 6	1992	1984 *
	UB. 9-10	1992	1985 *
	LB.22	No. TO	1983 *
	G-10	No. TO	1984 *

* Year Commenced

Evaluation of the physical condition of the channel.
~~B. Distributary Channel Condition After Turn Over~~

Distributary channel that were turned over to FOs, were not 100% rehabilitated.

According to the agreement signed between FO and the ID/MLLD, Irrigation Department should have rehabilitated the channel before handing over to a level so that it can control water as to distribute adequately to every body. To distribute water adequately among every body, a main requirement is control gates and regulators. These gates have been put in place. In addition ~~to that~~ *to that* farm out lets, culverts and drops, etc. have been constructed. For example, in selected DCOs of GOLB, the following items have been done under the rehabilitation.

1. Improving D.ch profile
2. F.ch head walls
3. Farm outlets
4. culverts/bridges
5. Regulars ^{to}
6. Drop structures
7. Replacement of Water Measuring Devices
8. Side walls
9. Bathing spots
10. Rift-raft

In all the sample DCOs (22) a considerable amount of improvements have been completed. One thing note worthy is that whatever the work been done have been done with the consultation of FOs/beneficiaries. Also, farmers were involved right from the planning stage. Therefore, farmers know what was constructed, why it was constructed and how it was constructed, etc.? Farmers expressed their concern over the delay of work plan. For example, in Weerakeppetipola, in Kaudulla scheme, rehabilitation estimates were prepared in 1990 and the tenders were called to award the contract after 03 years, informed the farmer

representatives. Due to the price escalation no contractor wanted to undertake the job. Due to this situation improvement works have got disrupted and it has affected to a greater degree in delivering adequate water to farmers. The following table 4.1 shows the year in which rehabilitation began and the year that D.ch was turned over to FOs. In all these D.chs only partial rehabilitation was one under ISMP. Having observed the situation by the research team including two engineers it was found that some D.chs had been maintained properly although all structures were not in place. for example, Aluthwewa East, (P.S.S) Magallegama (Ridi Bendi Ela) Mahindapura (Kaudulla) an LB-6 (Gal Oya Left Bank) D.chs found to be properly maintained. It is interesting to note here that office bearers of the FOs consider channel maintenance is their prime responsibility. So they give priority and more time for maintenance. Also it was revealed that FO does not limit its maintenance just only to the allocation it receives from the Departments. The organization always attempts to complete the entire section of the channel irrespective of the amount received. Farmer representatives who are working as Jalapalaka live in the colony with other fellow farmers. As a result now there is more accessibility than before. As he is a representative he is more answerable to beneficiaries than irrigation officials. This atmosphere makes him conscious of what he does.

3.1 Physical condition of the ^{sample} channels

The physical condition of the sample D.chs were observed at least ^{by} one Irrigation Engineer together with ~~the~~ other researchers in order inventorize ^{to} the current physical status of the D.chs. the observations were based on following areas.

- i. Structures of the D.ch.
- ii. Canal proper
- iii. Canal road

The summaries of the physical condition of the individual D.chs are presented herewith.

4.2 Water Distribution Efficiency

Water distribution after turn over has become less cumbersome when compared with the before turn over situation. There are two factors that helped towards the positive improvement, These two factors are:

- i. rehabilitation constructions done under ISMP
- ii. FOs active involvement in the water distribution

As indicated in Table 4.1 no D.ch is completely improved. But whatever the improvements that were completed, had the FOs full participation right from the beginning of need identification. As a consequence of that FOs were able to prioritized their most felt needs. In most of the cases farmer involved even in the construction that further improved their knowledge and understanding about the use of structures, and made it easy to operate by farmers themselves.

Earlier water distribution in the Field channel was done by Yaya Niyojitha with the help of Jalapalaka/ID. Then this responsibility fell on Farmer Representative under the guidance of Jalapalaka (JP) Now where D.chs have turned over to FOs the sole accountability for water distribution within F.ch and among F.chs is with the farmers. That has paved a way for more close interaction with ID. Because FO has to prepare a seasonal water distribution plan under the guidance of Irrigation officials. Not only FO plans for water distribution, it also implements and supervises in order to maintain efficiency in water distribution.

Since FO began distributing water there are some positive results. For example under, FOs FRs are taking keen interest to serve their fellow farmers. These are some of the results.

- i. with the division of responsibility FR is able to concentrate on his limited area
- ii. Water related conflicts have reduced accord farmers, and office bearers.

iii. The reliability of getting required amount of water has increased, so there are less damages

iv. With the improved communication and interaction mutual understanding as well as trust among farmers and officials have improved significantly. This change in the mental setting has helped in the water management process.

The most important factor in water distribution is that farmers now go to FR/FO in case of any problem they encounter with regard to water. The earlier practices such as damages to structures sending petitions against ID officials and seeking the refuge of local politician, etc. are disappearing. In Kaudulla during 1993 Yala water management panel approved water only for half the extent of the entire scheme. But system level farmer organization went for full extent which was successful except a few problems in Ambagaswewa area. In Ridi Bendi Ela also, general farmers have got the feeling that the channel is their property. So they do a better maintenance which results in increased water distribution efficiency. Since farmers have entrusted with the water distribution responsibility they put their whole heart into it and try to do a better job. In essence FOs have been able to reduce water losses by taking the following measures.

- i. Not using water for weed control
- ii. Operating gates according to a schedule
- iii. Reducing conveyance losses
- iv. Closing gates when not required
- v. Protecting water resources

4.3 Present Maintenance Performance FOs

been able to reduce water losses by taking the following measures.

- i. Not using water for weed control
- ii. Operating gates according to a schedule
- iii. Reducing conjancies losses

- iv. Closing gates when not required
- v. Providing water resources

4.4 Present Maintenance Performance FOs

Before coming to the topic of maintenance performance one has to ascertain as what are the assigned maintenance responsibilities to FOs under the "turn over" agreement. These responsibilities are referred in chapter 2, under section 2.3. The main responsibility is preparation of an annual maintenance plan and budget for each distributary and field channel under FO's control with the help of Irrigation Department officials. As mentioned in chapter 2 FOs awareness about maintenance responsibilities appears to be inadequate. Because FOs do not think that maintaining drainage canal and measuring devices as one of their responsibilities. What are the possible reasons for? The following are the possible reasons:

- i. FOs were not given adequate understanding about the terms and conditions of the agreement
- ii. It is possible that FOs have misunderstood what was communicated by agency officials.
- iii. FOs may have forgotten some of the terms and conditions of the agreement.

ID Maintenance	DCO Maintenance
1. Clear only the light jungle	clear light jungle and desilting (Sama DCO)
2. Desilt once a year	Desilt twice a year (Mahindapura)
3. Desilting not done as specified by ID Officials	Desilt as specified (Nagarapura) by ID Officials
4. Maintenance limits to allocation	Don't limit to allocation, (Weerakeppetipola, Weerapura)
5. Poor quality jungle clearing and desilting	Good quality jungle clearing and Desilting (G-10, Kebellewa, 21-22 AB 01 DCOs)
6. Maintenance plan is not known	Maintenance plan is transparent
7. Not done on time with a close supervision	Done on time with close supervision (Mahasen, Aluthwewa DCO)
8. No farmer participation	More farmer participation (Sinharajapura)
9. Job is done by paid labourers	Job is done by users with a sense of ownership - (G-10, Kebellewa, Tanangolla, Magallegama)

Source : Survey Data, 1995

Farmer Organizations informed that they prepare an annual maintenance plan for consultation with the farmers. Then a budget is prepared with the assistance of ID officials. Based on this budget estimate ID releases funds for individual DCOs as a result of this process farmers get an understanding about the maintenance activities identified for the particular year.

In general as a consequence of handing over D.chs to FOCs water related conflicts have reduced considerably, damages to structures have decreased, water reliability has increased and interdependency (farmer and officers) has increased.

Conclusion & Recommendation

*Resource mobilization.**technical know how, financial resources, institutional capacity, operation.*

- * Farmer Organization office bearers are aware of the rehabilitation from its very inception, as they know what was constructed, why it was constructed and how it was constructed, etc.
- * Delayed construction process affected the water distribution schedules of FOs
- * FOs maintenance is satisfactory given the physical condition of the channels, available technical know-how and resources
- * FOs attend the entire maintenance work of a given channel irrespective of the allocation approved by the ID
- * Water distribution has shown positive improvements due to rehabilitation work and FOs active involvement in water distribution
- * FOs distribute water according to a delivery schedule prepared under the guidance of the ID
- * The reliability of getting required amount of water has increased, so there are less conflicts now.
- * Communication and interaction have improved among farmer and between farmers and officers.
- * When farmers encounter water related problems now they contact FR of the area instead of approaching the irrigation officials
- * FOs do not have a full understanding about the terms and condition of the turnover agreement. But, inspite of the limited understanding performance have improved after the rehabilitation

- * FOs are still not capable of attending O & M work by its own without ID's financial support
- * FOs want to undertake income generating projects through government agencies, so that additional income can be generated to be used in O & M without putting an extra burden neither on farmers nor on government.

Recommendations

1. Performance of Farmer Organizations can be further improved provided organization is in a position to obtain the full supply of water for the respective D.ch. Only then it can distribute water among users and establish its credentials as an effective organization.
2. Each distributary channel should be improved to a level that can provide adequate water delivery and control for each farmer. This should be done as far as possible prior to handing over the D.chs to FOs for O & M
3. Level of awareness about handing over D.chs should be increased both in farmers as well as line agency officials. Office bearers of the FOs are not aware of some of the responsibilities assigned to FO with regard to O & M. Also some agency officials have the feeling that once D.chs are handed over to FOs, the ID has no responsibility other than allocating funds, and supervising O & M activities.
4. Irrigation Department field staff should assist FOs to prepare maintenance plans, budgets and water delivery schedules in a "participatory" manner.
5. Irrigation Department should transfer necessary technical knowledge to FOs in operation and maintenance of channels
6. Project Management office should organize more farmer training on O & M with the collaboration and co-operation of irrigation staff of the respective area.
7. Farmer Organization should be given a thorough knowledge about Irrigation Ordinance and Agrarian Service Act. which have been amended. Majority of office bearers of the FOs do not know the powers that FOs can wield once registered under 56" B". This has resulted in prolonging petty issues having referred to higher authorities, instead of solving at the FO level itself, as done earlier by minor courts.

8. FOs should be intrusted with collecting of O & M fee of the respective D.ch area and it should be tie up with an incentive in a form of commission to that particular organization which take unitiative in O & M collection.

Physical Condition of D-Canals

Galoya left Bank

D-Canal	Condition		Canal Proper	Bund Road
	Structures			
LB2 of Ampara Non-handed over	HR is in a very good condition. Instead of ER, flow by-pass is used (not enough water). Out of the 5-D structures observed 4 are in bad condition, but still functioning. (Wing walls, head walls, fall etc. damaged or leaking). Scour is moderate or serious at most of the D-Str. Culverts are in very good condition. Measuring device is very good. Off-take str. in Good condition.		Canal over all maintenance moderate. At the tail end moderate weed problem. Serious jungle growth at few places. Scour is considerable at the d/s of D-structures.	Overall maintenance moderate. Weeding problem is the same as canal proper.

LB6 of Ampara Contour canal, Non-handed over	HR, CR, culverts and all the OT structures are in very good condition. Serious erosion of backfill of 2 OT structures. gate & spindle are missing in one OT structure.	Canal is in a very good condition except for jungle growth and moderate scour at few places.	Except for a few places, Canal road is in very good condition.
UB1 of Uhana, Contour canal, Handed over	Out of 4 CR only one is in good condition. Others are moderate / bad condition but working. ER is also in bad condition, mainly head walls are broken, but still functioning. Measuring device baffle wall is broken. Otherwise good. culverts (3) moderate/good. R/B wing wall is broken in one culvert, out of 4 OT, 1 moderate, 3 very good. morning glory spill (3) are in good condition.	Tail end 1/3 moderate maintenance. moderate siltation. Serious growth of jungle/bushes at few places. Intersecting gravel road act as I/F drainage canal. middle 1/3 rd Excellent maintenance, silt is removed. Head 1/3rd moderate maintenance. Siltation moderate/serious. Scour serious at few places.	Overall maintenance moderate.

UB9-10 of Uhana Handed over	Out of 4 measuring devices 3 moderate condition. 1 v.good in 2 baffles are broken. HR good CR(3) in good condition. OT (11) v.good condition. Out of 6, 4 culverts in bad condition, but still functioning. Out of 18 D-Str. One is not functioning. 8 bad condition, but still functioning. Mostly head wells are damaged by farmers. others are mostly moderate.	Overall maintenance moderate. moderate scour at the d/s of D-Structures weed moderate.	Overall maintenance moderate. condition of road surface moderate.
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G 10 of Ganegolla Non-handed over	Out of 17 D-Str one is in bad condition, fall collapsed, but still functioning. 10 structures in good condition. Others moderate. Cracks are observed in wing wall or side wall. OT (14) are in good condition. CR & HR (3) in good condition. Culverts and measuring device in a good condition.	Overall maintenance moderate. Moderate siltation at few places. Moderate/serious scour mostly at the d/s of D-structures.	Overall maintenance good. Very good appearance.
LB 22 of Panagolle Contour canal Non-handed over	Of the 15 OT str. all are in good condition. few culverts and morning glory spill str. moderate. Others are in good condition.	Overall maintenance moderate. tail 1/3rd siltation moderate. At the bends serious siltation. Middle 1/3rd moderate siltation. head 1/3rd serious siltation. At middle 1/3rd scour is moderate/ serious. At the TE and some where	Overall maintenance moderate. condition of road surface moderate.

Parakrama Samudra Scheme (Non-handed over)

D - Canal	Condition		
	Structures	Canal Proper	Canal Road
RB 2 of Palugasgamana Rehabilitated in 1992	All the structures observed are in very good condition. Moderate scour problem at the d/s of almost all D-str, head reg. and culvert. Out of the 14 OT observed gate, spindle and bush are missing in one str.	Bad maintenance at d/s 1/3rd. X-section is irregular. side slopes are filled with shrubs and weeds. moderate scour problem. canal appearance bad. Maintenance is good at u/s 2/3 rd.	D/S 1/3 rd bad maintenance. No side slope. No graveling. Seriously filled with jungle. moderate cleaning. bad appearance. U/S 2/3rd under the authority of Highways Dept.

Part of Structures	Out of 4 Str. observed 3 in good condition. (recently constructed) 1 is completely damaged and not functioning. Scour is serious or moderate at d/s of most structures. Culverts (2) moderate. BR in good condition. Side walls are in good condition.	Overall maintenance and serious or moderate situation throughout the canal. Scour is moderate. Canal slope is irregular. X-section is irregular.	O&M maintenance, no clearing, no paving, no concrete carrying. Irregular road surface. Appearance bad. Damages due to cattle and vehicles frequent.
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Physical Condition of D-Canals

Kaudulla Irrigation Scheme (Non-handed over)

D - Canal	Condition		
	Structures	Canal Proper	Canal Road
D 1 of Kalinga Rehabilitated in 1992 -1993	All the structures (HR, CR(1), Box-culvert (9), D-Str. (14), OT(19)) are in good condition. Out of the 18 off-take structures observed Gates or spindle/gate are missing for 16 OT str. Water overflows from L/B sidewall of one D-str. into the canal.	Moderate maintenance. Weeds serious throughout the canal proper. At tail end, middle 1/3 rd of the canal scour is serious.	D/S half of the canal moderate maintenance. No graveilling. No side slope. road surface moderate. U/S half fairly moderate maintenance. shrubs and weeds very serious. No graveilling.
D2 of Weerakeptipola	Out of 13 OT, 6 in moderate condition. D/S pipe is damaged somewhere in the middle. (Pipe diameter is small.) 6 Str in bad condition. Gate & spindle missing in most of the structures. Box culverts (4) in good condition.	Overall maintenance bad. X-sectional shape irregular. Canal lining damaged at sides. Water leaks through RB of the damaged cleaning for 100 yds.	Bad maintenance. Frequent potholes observed. Condition of road surface bad.

D1 of Senanayake	HR good. Out of 11 D-Str. 3 in bad condition. Flow by-pass in 2 cases. Structure not used. Others in moderate/good condition. 2 cases leaking through R/B side wall. d/s scour serious/moderate. Box culverts (3) in good condition. OT(7) good condition. backfill washed off in one case.	Overall maintenance moderate. Canal condition better at the head 1/2 compared to tail 1/2.	Bad maintenance. Condition of road surface is bad
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4.2.5.

Physical Condition of D-canals

Kaudulla Scheme (Handed Over) - Polonnaruwa

D - Canal	Condition		
	Structures	Canal Properties	Canal Road
Mahindapura DCO Rehabilitated in 1991	All the structures are in good condition except at the tail end where rehabilitation has not been done.	Condition of the canal is good.	Condition of the canal road is good
D2 Nagarapura DCO Rehabilitated in 1992	All the structures are in very good condition. No measuring gauge at head of DC. No control in water issues to FCC is rarely gates are operated	Condition of the canals is very good	Condition of the canal road is very good

Serial 200	25000	25000	25000
Rehabilitation is on progress	<p>25000</p> <p>Structures are in very good conditions. Most of the other structures have to be rehabilitate</p> <p>d. Size of the opening to DC from MC has been increased. No measuring gauge at head of DC.</p>	<p>25000</p> <p>of the canal is not good. Camages (due to increased flow) in D/S of the canal.</p>	<p>25000</p> <p>of the canal road is not good. Specially in D/S</p>

DCO & DC No.	Physical Condition		
	Structures	Canal Proper	Canal Road
Handed Over Magallagama CPO 12	Canal consists of 1 HR, 1 TO, 15 PO, 8 D-Str & 1 BCW. All the structures are in good condition	Canal bund damaged at several places at the tail end. Other 3/4 th of the canal is in good condition. Tail end R/B bund reservation encroached by paddy fields. Tail end 1/4 th bad maintenance.	1/4 th of the road towards tail end is in bad condition. Rest in good condition.
Ibbawela CPO 18	Canal consists of 1 HR, 6CPO, 9PO, 1TO, 6 drops, 1 BCW & 1 culvert. Other strs are in good condition except for HR. No gates and locking arrangements in HR.	Tail end 1/3 canal proper bad. Other 2/3 rd of the canal is in good condition.	Tail end 1/3 rd canal road bad. reservation encroached by paddy fields. Other 2/3 rd in good condition.
Non-handed over Tharangolla CPO 32	Canal consists of 3 TO, 4 culverts, 1HR, 16 PO. All the strs. are in good condition.	Tail end 1/4 th not used due to siltation. Other 3/4 th is in good condition.	Land side of the road not cleared.
Kebellawa CPO 40	All strs (1HR, 2 CRR, 3TO, 4 Drops, 3 Culverts) are in good condition.	In general good condition.	In good condition.