

## **Paper 11: Conclusions and Recommendations of Irrigation Service Fee Study**

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This study on Irrigation Service Fee in Nepal is the outcome of ongoing joint RTDB/IWMI efforts on the process and performance evaluation of management transfer programs in Nepal. IWMI in collaboration with RTDB and other DOI staffs, WUAs and other local institutions carried out the study.

### **OBJECTIVES**

The overall goal of this study has been to provide information that would lead to improvements in irrigation service fee collection from jointly managed and turnover systems. Specific objectives were:

1. To provide information useful for policy makers; and
2. To provide information that will be of immediate use for WUAs in their respective systems.

### **STUDY DESCRIPTION**

Basically, the activities related to the ISF study had six components:

1. Identification of key issues related to: concepts of financing O&M costs, ISF collection efforts and trends, irrigation policy and possible legislative requirements, etc.
2. Discussion meeting on ISF issues to have common understanding and vision to seek input from the subject related officials and professionals;
3. Review of relevant systems and practices drawn from international experiences and FMIS in Nepal;
4. Selected case studies of systems under different stages of management transfer process in Nepal;
5. One-day workshop for presenting findings of the study and to have feedback on them,
6. Dissemination of findings and recommendations.

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The main focus of inquiry has been on the following aspects:

- How are the fees set?
- How are they collected?
- How are they utilized?
- What authority does WUA have in collecting fees?
- Fee collection rate and amount of ISF collection
- Strengths and weaknesses of adopted practices.
- Constraints and limitations.
- Bases for arrears and dues collection and/or write off.

For the purpose of referring to international evidences, relevant literatures of some 16 countries were reviewed. Similarly, success stories of FMIS in Nepal have also been reviewed with the objective of benefiting from them as well as to further improve their ISF practices. For the case studies in Nepal, following systems were purposively selected:

1. Aandhi Khola Irrigation System, Syangja – fully transferred
2. Kankai Irrigation System - partially transferred
3. Marchwar Lift Irrigation System – fully transferred
4. Nepal West Gandak Canal Irrigation System - fully transferred
5. Bangeri Irrigation System, Bara - FMIS
6. Chhattis Mauja Irrigation System, Rupandehi - FMIS
7. Pithuwa Irrigation System, Chitwan – government assisted but managed by farmers

Necessary data were gathered from secondary sources and by visiting the respective sites as well. Key personnel both at policy level in MOWR and DOI and implementation level associated with system management activities including the WUAs and selected beneficiary farmers were interviewed with the help of pre-developed checklists and semi structured questionnaires.

In the mean time, a one-day workshop was held to disseminate the findings and to hold discussions to come up with appropriate recommendations. In course of this study, a discussion meeting on ISF issues was also organized to have common understanding of the issues related ISF in Nepal and to build up a common vision for taking necessary measures to address them.

## **ISF COLLECTION IN NEPAL: A REVIEW**

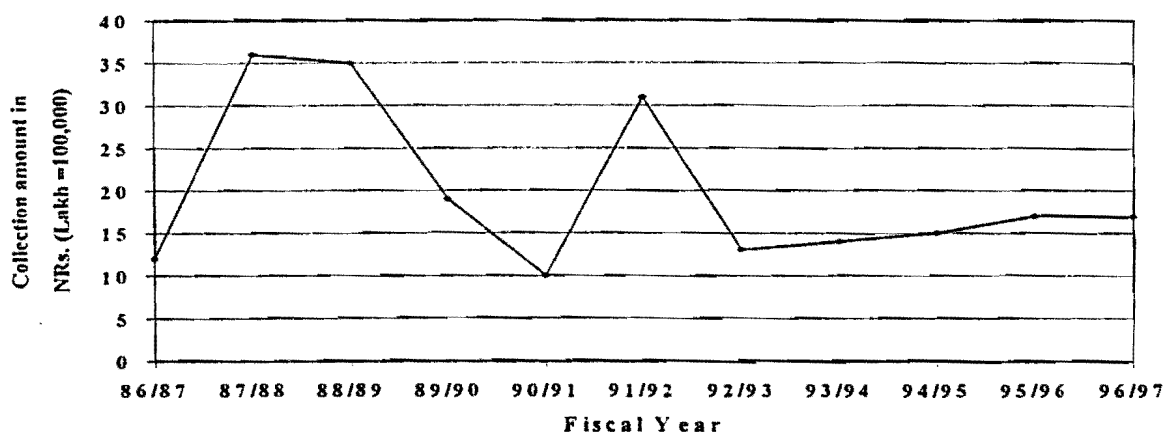
Irrigation development occupies priority in the planned development in Nepal. Out of the irrigated area in Nepal, it is estimated that 30 percent of irrigated area is managed by the farmer-managed systems. The rest of the irrigation systems fall under the category of farmer-managed

Three types of irrigation financing exist in Nepal. One is full government financing where the government bears the entire development and recurrent cost of irrigation and users are charged for irrigation services. This is the dominant form of public irrigation financing. Thirty percent of irrigated area falls under this category. The second is cost sharing where the irrigation cost is shared between the farmers and government agencies in varying proportion during public intervention and government assistance. There is no water charge collection in such systems. Third type is fully farmer-financed ones and O&M responsibility is borne by the user-farmers themselves.

## Collection Trend

The collection trend is shown in the following graph:

**Graph 11.1 ISF Collection Trend in Nepal**



Source: Economic Survey of Nepal, 1998. Kathmandu: Ministry of Finance.

## Difficulties in ISF Collection

Some difficulties in ISF collection efforts perceived during the past decade are as below:

- a) Lukewarm government commitment
- b) Unreliable water supply due to poor O&M of irrigation systems
- c) Irrigation service fee considered burden by the irrigators.
- d) Projects has failed to generate full benefit to the farmers at the early stage,
- e) Farmers have been using water freely and not paying water fee
- f) The institutional mechanism was inadequate in administering the collection of fees.

## O&M BUDGETS AND ISF COLLECTION

There is an alarming gap between irrigation service collection and O&M requirements in irrigation systems (See Graph 11.2).

## **ISSUES RELATED TO ISF IN NEPAL**

Some issues related to ISF are outlined below:

### **Policy Issues**

- Should ISF be imposed at all?
- Should ISF be determined on the basis of cost incurred in the construction and maintenance of irrigation infrastructure or on the basis of benefit delivered to the farmers?
- Should ISF be determined to cover up only recurrent costs (cost of operation and maintenance) or recurrent and replacement cost (cost of rehabilitation works) or all recurrent, replacement and capital cost?
- On what basis should ISF rate be fixed?
- Should one price be fixed for ISF throughout the nation or should ISF vary from one irrigation scheme to the other?

### **Issues Related to Mechanism of Irrigation Service Fee Collection**

- Who should collect ISF? Should the irrigation agency only collect ISF or should the authority also be delegated to others?
- How should ISF be collected?
- When should ISF be collected?
- What can be most appropriate incentive structure?

### **Issues Related to Utilization of Collected Amount**

- When Water Users' Associations collect ISF should the total amount go to their fund or should they be made to deposit some percentage to the national treasury? If so, what percentage?
- Should the government dictate the rules and regulation concerning the utilization of the share of ISF belonging to the WUA or should it be totally left over to decision of the WUA?
- In order to cover up the O&M costs should the WUA be confined to ISF collection or should fund collection be diversified? Can the amount collected from ISF be used in other uses as well?

## **MECHANISM FOR GENERATING RESOURCES IN FMIS FOR O&M IN NEPAL**

The review of resource mobilization practices for meeting their O&M costs in FMIS Nepal yielded following insights:

- The major activity of many FMIS revolves around the resource mobilization internally. Hence, resource mobilization implies the rules, regulations, norms and values, and organizational pattern that have evolved and been internalized by the members of the irrigation systems.
- The institutional framework of FMIS provides the direct method of generating resources for irrigation management. It has autonomy for labor or cash mobilization.
- Resource mobilization principles are agreed upon in the general assembly of the system. Fixed amount of cash or labor days except in few systems is not prescribed. Work to be done for the year is assessed and accordingly the mobilization of labor for O&M takes place each year.
- It is clear that FMIS treats their whole serviceable area as a single unit from the water sharing and resource mobilization points of view.
- The labor to be contributed for O&M in the system is not voluntary; it is the obligation of the membership in the system. The service area of the system is defined and the membership is also defined.
- It is usually collective decision making in FMIS. The general assembly makes the rules and regulations. The executive committee is to implement them. The statement of annual income and expenditure is to be presented in the general assembly.
- Labor is most important resource of the system. However, in some systems, cash mobilization has taken place to pay to the contractors where the social system has changed due to accessibility of villages to market system or the residence of the cultivators are away from the command area.
- Cash is collected either by the chairman or the secretary of the system.
- Cash is collected as a fine when the members fail to contribute labor or other obligations.
- Flexibility of rules and regulations is one of the important features of the FMIS. In a system, one sub-system follows one set of rules for resource mobilization. The other sub-system shall have entirely other rules.
- The internal resource mobilization in FMIS for O&M is substantial.
- Farmers seek government assistance in reducing the labor contribution and make the system reliable for delivery of water. The government is now playing the role of facilitator in promoting the FMIS.

## LEGAL ASPECTS OF ISF IN NEPAL

Review of the existing policy and legal framework has revealed following shortcomings that have to be overcome for the smooth implementation of ISF collection. These shortcomings are mainly concerning necessity of clarity in some matters regarding ISF and some controversies between the policy and the laws.

- No clearly defined principle of water pricing has been stated in the existing policies and law.
- Many provisions in the existing legal framework (especially, Water Resources Act, 2049 and Water Resources Regulation, 2050) have not yet been brought in practice. Considering the practicality of the statements of these laws, they have to be reviewed. Those parts that are important and practical have to be enforced and those that are impractical have to be modified.
- The existing Policy has many details that should actually have come in the Irrigation Regulation.
- Details regarding mechanism of collection are not found in the existing rules and regulation.
- Many details are available in the *Irrigation Regulation, 2045* but since that Regulation was formulated under the *Irrigation, Electricity and Related Water Resources Act, 2024*, an urgent need has been felt for the new irrigation regulation.
- The Policy mentions that ISF will be charged for each season whereas there is no rule that elaborates on the rate for each season.
- Since WUA has been recognized as the major institution responsible for the collection and utilization of ISF. Clear cut legal provisions have to be made for the empowerment of the WUA regarding enforcement of ISF. At the same time, rules should also define the authority of WUA so that the collected amount is properly utilized.

## FINDINGS OF CASE STUDIES

Notable findings of the case studies are summarized below:

- Annual resource mobilization requirements for O&M vary extensively over different irrigation systems (see table below).

**Table 11.1 O&M Requirements in NRs.**

<b>Irrigation System</b>	<b>O&amp;M costs in NRs/ha of irrigated area</b>	<b>Remarks</b>
Aandhi Khola	1,064	
Bangeri	115	
Chhattis Mauja	573	
Kankai	1,537	
Marchwar	1,782	Excludes farmers' contribution
Nepal West Gandak	187	For irrigated area of 9,000 ha. Excludes farmers' contribution
Pithuwa	117	

- There are many different bases for assessing the delivered irrigation service as summarized below:

**Table 11.2 Assessment of Irrigation Service and Corresponding Fees**

<b>Irrigation System</b>	<b>Basis for ascertaining the ISF</b>	<b>Rate fixing basis</b>
Aandhi Khola	Per share per season	Fixed rate based on pre-transfer assessment by AKWUA
Bangeri	Irrigated land area	Prorated to O&M requirements
Chhattis Mauja	Water share defined by outlet size	Prorated to O&M requirements
Kankai	Irrigated area under rice	Cash rate fixed, labor prorated to O&M requirements
Marchwar	Irrigated area for the maximum coverage in a year	Fixed rate
Nepal West Gandak	Irrigated area per crop for maximum of two crops	Fixed in West Gandak. Prorated to O&M requirements in Piparpati and Parsauni
Pithuwa	Irrigated area in a year	Prorated to O&M requirements

- In all irrigation systems, resources are mobilized from the recipients of the irrigation service. However, the extent varies from one case to other.
- Considerable variation was found in forms of resource mobilization in different cases. Similarly, the degree of flexibility in modes of payments was also found to be varying from one to other. In general three modes of resource mobilization practices are common: Cash, labor, and kind. A comparative summary is given below:

## Forms of Resource Mobilization and Modes

**Table 11.3 Forms of Resource Mobilization**

Irrigation System	Cash	Kind	Labor	Flexibility to pay in different forms
Aandhi Khola	Yes	No	No	No
Bangeri	Yes	Yes	Yes	Yes
Chhattis Mauja	Yes	No	Yes	No
Kankai	Yes	No	Yes	Cash is the must, but the labor portion can be paid in form of cash
Marchwar	Yes	No	No	No
Nepal West Gandak	Yes	No	Yes	No
Pithuwa	No	No	Yes	No

- Resource mobilization efforts have been more successful where water is delivered adequately, reliably and equitably. However, the effects of these factors are not the same. Equity in water distribution has been found to be the most sensitive one compared to the water reliability and least affected by water adequacy.
- It is often argued that willingness of farmers to pay ISF is closely related to their ability to pay, which is usually reflected in terms of incremental net benefit from irrigation. However, WUAs with better organizational capacities have been more successful in collection efforts irrespective of incremental net benefit from irrigation.
- There exist differential rates in different cases. ISF rates in different cases are given below:

### Irrigation Service Fee Rates

**Table 11.4 ISF Rates in Different Systems**

	Rate (in NRs./crop/ha)	Remarks
Aandhi Khola	450/crop/ha	for a maximum of 2 crops
Bangeri	115/ha/year	annual labor mobilization
Chhattis Mauja	573/ha/year	annual labor mobilization
Kankai	100/crop/ha	for rice crops only
Marchwar	180/ha/year	
Nepal West Gandak	60/crop/ha	for a maximum of 2 crops
Pithuwa	117/ha/year	annual labor mobilization



- The ISF collection mechanisms, especially cash collections and/or penalties, also vary from case to case.

**Table 11.5 Cash Collection Mechanisms**

<b>Irrigation System</b>	<b>Who collects?</b>	<b>When collected?</b>	<b>Where kept?</b>
Aandhi Khola	Directly by the WUA with help of office staff	No defined time	Bank account
Bangeri	Locally influential political leaders	During nursery for paddy, i.e. in Jestha	No cash balance is kept
Chhattis Mauja	By the WUA Treasurer	Before next year's water delivery	Bank account
Kankai	By the lower committees	By Jestha	Bank account
Marchwar	By the WUA main committee with the help of its hired staff	By Jestha	Bank account
Nepal West Gandak	By the lower committees	By mid Nov (for monsoon and by mid May for winter crops	Bank account
Pithuwa	By branch committees	Within a year	

- The organizational levels of the WUA which is most concerned with the water delivery activities and at the foremost contact of the ultimate beneficiaries have been relatively more successful in collecting ISF compared to those that are little afar.
- The most effective and efficient timing for collecting ISF against the delivered services has been before the delivery of water supplies in the main season.
- Transparency in ISF collections and expenditures were seen to be crucial for developing mutual trust among beneficiaries and consequently raising the collection efficiency.
- Most efficient means of controlling free riders has been through barring water to the non-payers. In cases where barring water individually is not practical because of insufficient water controlling facilities, the whole hydrological block is denied of water. In addition, ostracism has also been successfully adopted for controlling the free riders for example in Bangeri. Some systems also offer incentive of first irrigation service to the first ISF payer.

- The mobilized resources and O&M costs in the different cases also have wide variations as shown below:

**Table 11.6 O&M Cost and Resource Mobilization**

<b>Irrigation System</b>	<b>O&amp;M costs in NRs./ha</b>	<b>Resource mobilization in NRs./ha</b>	<b>Remarks</b>
Aandhi Khola	1,064	258	Six years' average for 282 ha irrigates area
Bangeri	115	115	Two years' average for 200 ha irrigated area
Chhattis Mauja	573	573	For 3500 irrigated area
Kankai	1,537	701	Inclusive of labor mobilization worth NRs. 671/ha and NRs. 30/ha by other means. Five years' average based on data till May for 7,000 ha irrigated area
Marchwar	1,752	29	Three years' average for 2,815 ha irrigated area
Nepal West Gandak	187	15	Five Years' average till March for average of 9,000 ha irrigated area
Pithuwa	117	117	For 618 ha irrigated area

- No irrigation systems allow for writing off the arrears unless it is verified that the individual farmers have really not received the irrigation service for which they have been charged.

## **SUGGESTIONS OF ISF WORKING TEAM MEETING**

In course of this study, a two-hour meeting of the working team was jointly organized by RTDB and IWMI in which about twenty people from different sectors participated. Mainly, the purpose was to have common understanding of the issues related ISF in Nepal and to build up a common vision for taking necessary measures to address them. Also, the intention was to seek input from peoples at policy as well as at implementation levels in the course of study itself. Some of key issues discussed in the meeting were as follows:

### *Key Issues*

- Anomalies related to different but related terms of irrigation service fees: water cess, irrigation fee, water charge, water tax, etc.
- Appropriateness for calling it "ISF" or "water cess" or should it be "management fees"?

- Financing irrigation management tasks such as operation, maintenance, monitoring, evaluation, etc. in jointly managed and turned over irrigation systems.
- Role of ISF in self-reliance, local governance, and sustenance of the WUA and the irrigation service itself.
- Need for an increased understanding about effective ways of ISF fixation, collection, and its use that are suitable to the given irrigation management attributes.
- Is ISF a form of government revenue or just the service charge in line with current Irrigation Policy?
- Division of responsibilities and jurisdictions between the government and the WUA regarding ISF collection rates and withholding, etc. related to the extent of management transfer.
- Appropriate ISF rates, assessment bases, and collection mechanisms pertaining to types and locations of irrigation systems.
- Concern over arrears and dues.
- Conceptual relationships among government subsidies, management transfer, farmers' obligations, and irrigation service fees.

The perceptions and suggestions that came out of the active discussion of the participants are summarized below:

### **Suggestions of the ISF Working Team Discussion**

- ISF be treated as a "Service Fee" and not as a "Tax"
- Major part of O&M costs be borne out of ISF
- Alternative income sources and use of ISF should not undermine the irrigation service and thereby, efforts of improving agricultural production
- No government subsidy in normal O&M costs
- No capital cost recovery through ISF
- O&M costs, ISF rates, and collection mechanisms be ascertained on system-by-system basis under the joint efforts of the WUA and the agency staff at the project level

- Payments of ISF immediately be after receiving the irrigation service
- Process for waiving the previous arrears should start at the project level
- The recommended mechanism be enforced from the date of endorsement

## ISF WORKSHOP

RTDB and IWMI, to present and discuss findings of the ISF study and to seek pertinent and effective recommendations for improving irrigation service fee scenario in Nepal, jointly organized a topic specific one-day workshop. Main concerns discussed in the workshop were as below:

### Concerns

1. What kinds of activities and associated costs be considered as Regular and Recurrent O&M costs?
2. What should be the principles and mechanisms for assessing the O&M requirements in an irrigation system?
3. When and how much time would be needed for the above said works?
4. How should the assessed O&M costs be met?
5. What should be the principles and mechanisms for assessing the delivered irrigation service by the irrigation system?
6. What principles and processes should be adopted for pricing the delivered irrigation services?
7. Should there be a minimal flat rate?
8. Can WUA be the best ISF collector?
9. How should ISF be collected?
10. When should ISF be collected?
11. In what form should ISF be collected? – Labor, Kind, Cash, or others
12. How can the full transparency in collections be maintained?
13. Should flexibility be given to pay in different forms?
14. Should VDC be involved in collection efforts?
15. What obligations would Department of Irrigation have?
16. How can the WUA be made accountable for collecting ISF?
17. How can the WUA control free riders?
18. How should the WUA collect arrears?
19. How can it be ensured that the WUA will utilize the ISF collections to finance the O&M costs?
20. What additional authority does the WUA need for becoming more effective?
21. What legal supports does the WUA need?
22. What additional incentives could be given to the WUA?
23. Will any training or orientation help in technical and institutional aspects?

# FINANCING OPERATION AND MAINTENANCE OF IRRIGATION SYSTEMS: A DISCUSSION

## Shift in Financing Mode through Management Transfer

The management transfer policy in many countries highlight a shift in the responsibility of financing the irrigation costs as the transfer of management takes place. The shift in O&M responsibilities through management transfer programs, essentially, means a shift in the financing mode for O&M activities. It is either the state or the concerned farmers themselves, who has to finance the O&M costs of the irrigation system. In state-managed condition, the state is expected to finance the O&M costs of the irrigation system. Similarly, in fully management transferred irrigation systems, farmers are expected to finance the O&M costs by themselves. In jointly managed situations, farmers and the state, both are expected to finance the O&M activities in the irrigation system.

In Nepal, "transfer of O&M responsibilities", has been synonym for "management transfer" programs. Nevertheless, the state, as envisaged by the irrigation policy, does not intend to vanish from the fully management transferred irrigation systems. In principle, even after the full management transfer, the state is expected to keep on extending needed supports in various forms, such as recouping with a catastrophe, technical supports in introducing innovative technologies, credit and marketing supports for their agricultural produce, etc. So, the main point of management transfer is, as envisaged by the irrigation policy, that the respective beneficiary farmers themselves will manage and finance the normal O&M costs of the irrigation system in return of receiving irrigation services. Thus, literally, the management transfer could be interpreted as a change in the management mode as well as a shift in the responsibility for the O&M of the system, i.e., shift in O&M responsibility from the state to beneficiary themselves.

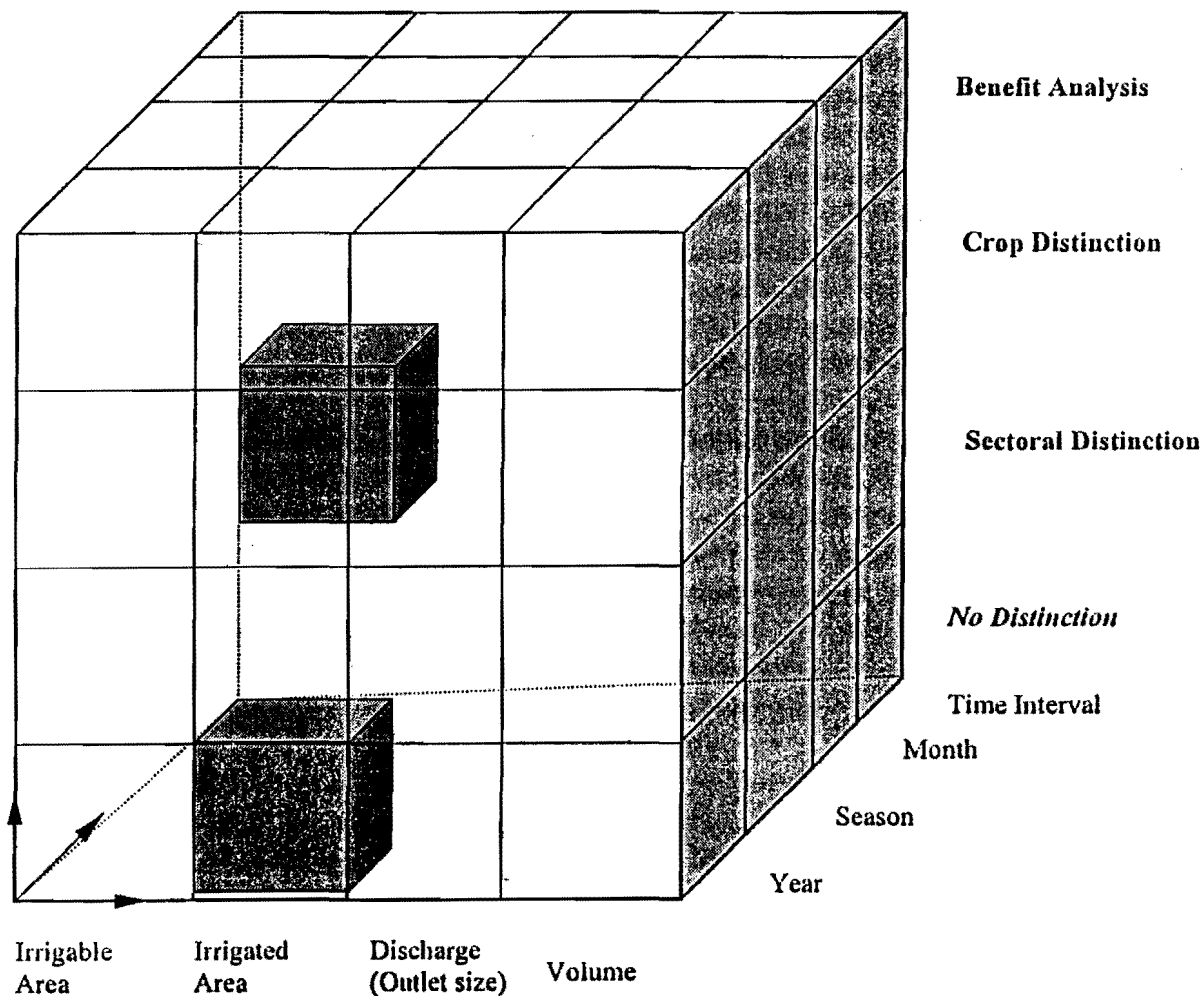
## PRICING STRUCTURE: SUMAN'S OPTION MATRIX

The fees if structured in such a way that the farmer's total water bill will vary according to his water use decisions will encourage farmers to be more efficient in their use of water. In reality, most systems of ISF in developing countries are not structured in this manner.

Essentially, three dimensions exist in the selection of a pricing structure. The first is the basic unit for measuring the delivered irrigation service, second the time and the third the use of irrigation water. In each of these dimensions, various options exit. In the units, we may have irrigable area, irrigated area, supply discharge or supply volume. In the time dimension, the options can be in terms of year, season, month or a shorter time interval (e.g. day, hour, minute or second). Similarly, in the use dimension, we can either have: no distinction between different uses, different types of uses (sectoral distinction), crop distinction, or benefit analysis. On the basis of this conceptual framework, Suman Sijapati has developed a matrix called Suman's Option Matrix.

The sequence of the options in each dimension is ordered from less to more precise one in terms of measuring the delivered irrigation service. A trade-off exists between precision and cost of collection. The more is the precision in the measurement, the higher is the cost associated with ISF collection. Hence, care has to be exercised in choosing an option, which strikes a balance between the cost of collection and the desired level of accuracy in measurements.

## Suman's Option Matrix



## CONCLUSIONS AND RECOMMENDATIONS

Various conclusions and recommendations derived on the basis of the study are presented below:

1. Prevailing ISF rates in government managed irrigation schemes in Nepal are far less than what is required to meet the O&M costs. ISF collection at present by DOI even with the low charge is extremely low (less than 2% of O&M costs). In addition, the costs of ISF collection have been found to be higher than what has actually been collected. If no steps are taken in this direction and collection is to remain at the present status, it may be economically wiser for the government to make irrigation service free of charge. Thus, thinking about capital cost recovery from the farmers is not possible at this point of time. *The major concern of the government now must be to generate the recurring O&M costs of irrigation systems.* However, the vision could be made even to recover the capital cost once the irrigation systems attain financial autonomy in financing their O&M costs. Meeting the O&M costs must be the start point.
2. *Increase in water charges, though a sensitive matter, is possible and viable though committed endeavors from all management levels.* As illustrated in an IIMI Report on Assessing the Impact of Irrigation Management Transfer (IMT) (Vermillion, 1996), several countries experienced a change in water charges following IMT. IMT in Indonesia led to a reduction in government subsidies,<sup>9</sup> which then increased water charges to farmers 5 to 7 fold (Johnson & Reiss, 1993). Studies on the Dominican Republic (Yap-Salinas, 1994), Mexico (Gorriz et. al., 1995) and China (Johnson and Vermillion, 1995) reported that farmers there have also experienced increases in their water charges. On the other hand, IMT in India has led to more efficient pump use, which has caused water costs to farmers to decrease (Pant, 1995). Other countries where water costs to farmers have decreased since IMT include the Philippines (Oorthuizen and Kloezen, 1995) and Egypt (Azziz, 1994).
3. *It is not necessary that the collection efficiency will decrease with the increase in the ISF rates.* International experiences have revealed that increase in ISF rate, in the long run, does not affect collection efficiency. In the Philippines with the increase in irrigation fee rates the collection efficiency dropped to 27% in 1975/76 from 40% in the period 1971/72-1974/75. Gradually, however, collection efficiency increased to 49% in 1984. The total ISF collection increased from Peso 6.4-15.6 millions in the period 1971/72 -1974/75 to Peso 38 millions in 1977 and to over Peso 98.9 millions in 1984. Similarly in Mexico, subsidy in O&M was 72% in 1988 and consequent increases were higher than 400%. At present, however, financial self-sufficiency has been attained in most of the transferred districts.

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<sup>9</sup> This was in order to reduce government expenditure in irrigation, a major motivation for IMT.

4. In general, it is seen that resource mobilization efforts have been more successful where water is delivered adequately, reliably and equitably. However, the effects of these factors are not the same. Equity in water distribution has been found to be the most sensitive one compared to the water reliability and least affected by water adequacy. Thus, *one of the pre-conditions for increasing the ISF rate and thereby increasing the collection is to improve the quality of services delivered in terms of assured delivery of water to the farmers and ensuring that water is equitably delivered in the entire service area.*
5. As WUAs have both direct knowledge of the situations of the individual farmers, and personal relationships useful in making the collection process more successful, *ISF collection can be improved by decentralizing the responsibility of levying and collecting fees to the WUAs.* This has been proved by higher collection percentage of ISF in some irrigation systems (viz. Mahakali, West Gandak, Khageri, Panchkanya and Kankai) under WUAs' initiative.
6. It is often argued that willingness of farmers to pay ISF is closely related to their ability to pay, which is usually reflected in terms of incremental net benefit from irrigation. However, WUAs with better organizational capacities have been more successful in collection efforts irrespective of incremental net benefit from irrigation. So, *it is vital that organizational capacities of WUAs be strengthened to improve water charge collection. WUA should be organized where they are not in existence and where they do exist have to be empowered with supporting rules, regulations and authority.*
7. As the WUA has been recognized as the major institution responsible for the collection and utilization of ISF, *a straight forward legal provision be made that empowers the WUA for collection and utilization of ISF for meeting O&M costs.*
8. Many shortcomings have been observed in course of implementing ISF collection in the prevailing legal framework. Details regarding mechanism of collection are not stipulated in the existing rules and regulation Also, the existing policy has many details that should actually have come in the Irrigation Regulation. Similarly, there is no clearly defined principle for water pricing and existing legal provisions have reflections of all the following principles:
  - "Water as a Commodity".
  - "Return of Investment in Water".
  - "O&M Cost Recovery".
  - "Taxation on Benefit from Water".
  - "No charge on Water".

It becomes necessary that *ambiguities and controversies in policies and the laws that conflict with the concept of self-financing of irrigation service (treating ISF as the means for fully recovering the O&M cost) are removed.*



9. *For the long-term sustainability of self-financed irrigation service, ISF rates and collection should be directly related to O&M expenditures. Both incomes and expenditures from and on other sources should be kept to a minimum possible level and the dependency on alternative source of income should not replace ISF and consequently, should not deteriorate irrigation service itself.*
10. *The rate for ISF should be determined separately for each system depending upon its system's attributes by a committee composed of government representatives and WUA representatives. It would not be effective to establish uniform ISF. The objective is to mobilize resources internally at least to meet fully the O&M cost of each system. Initially, at the joint management stage, the government should be involved in such activities. However, eventually, the government should pull itself out after the full management transfer.*
11. *The practices of assessing the O&M requirements and delivered irrigation services are necessary for meeting the O&M costs from the recipients of irrigation service. In majority of cases, such activities are found to be lacking. It is mostly because insufficient attention given to plan of actions for O&M activities. So, *WUAs and the irrigation agency should be made to incorporate activities of estimating O&M costs and assessing the delivered irrigation services in their basic duties and responsibilities.**
12. *Regarding principles and mechanism for assessing the delivered irrigation service within the system; for rainy season the net command area should be delineated on ground and on map and a flat rate per hectare of land within the command area be fixed. For other crops, ISF be charged based on actual irrigated area under the said crop. However, for this purpose, WUA would provide the details of irrigated areas under different crops to the agency management. For deep tube well, the case would be different and the charges should be fixed on volumetric or hourly bases. In general, two third of the O&M costs should come from the charges in the rainy season and the remaining from the other crops. For each scheme, this proportion have to be analyzed and their weightages adjusted, separately. Rates could be different for different crops.*
13. *In systems under joint management, O&M requirements should be assessed separately for different systems depending upon their specific characteristics and scope of O&M works. The agency officials and the concerned WUA/WUG should jointly make assessment after closure of canals, at least two times a year. The scope of works under O&M should include all the works from head to tail and the command area that have been created under the project (headwork, canals, canal structures, and other facilities). Operation costs should include salary and wages of all staffs, office expenses, overhead charges, operation of gates and outlets, painting and greasing of gates, cost incurred in the collection of water service fees, etc. Similarly, maintenance should include regular maintenance works that can be planned in advance and emergency repairs excluding catastrophic/calamity damages. Deferred maintenance would not be considered for ISF*

determination as it is already accounted for, only not done and is accumulated. The assessment of repair and maintenance works should be completed within one week of the closure of canals. In larger systems, the assessment should be compiled in one month for the whole system.

14. *No irrigation systems should allow for writing off the arrears unless it is verified that the individual farmers have really not received the irrigation service for which they have been charged.*
15. Generally in FMIS, there exists flexibility in the modes of ISF payments. ISF may be deposited in terms of cash, kind or labor. These three are easily convertible and the conversion factor is determined by the WUA. However, in jointly managed irrigation systems, collection in other modes besides cash may result in a lot of complications and hence *full flexibility in payment mode should not be allowed. In systems where labor contribution is vital, ISF can be made payable in terms of labor in lieu of cash ISF.* However, this will require careful and transparent accounting procedures.
16. The most effective and efficient timing for collecting ISF against the delivered services has been before the delivery of water supplies in the main season. In Nepal's context, collection can be done once or twice a year. *It should be collected in Poush (Mid December) for rainy season crops and in Jestha (Mid May) for winter crops.* If the deadline for paying the charged irrigation service fee exceeds, the due amount should be accrued with some penalties.
17. *To expedite collection process, proper incentive structure should be devised for both the farmers paying ISF and the person involved in the task of collection.* Incentive structure for the farmers can be delivery of water in the 'first pay first serve basis' as in Bangeri Irrigation System, or a system of discount for paying ahead of time and penalty for late payers. Most efficient means of controlling free riders has been through barring water to the non-payers. In cases where barring water individually is not practical because of insufficient water controlling facilities, the whole hydrological block can be denied of water. Similarly, incentive structure for collectors can be the payment of certain percentage of the collected amount.
18. For improving the collection, *help should be sought from local VDCs and records of irrigated and un-irrigated land area should be made available to VDC offices.* VDCs and the WUA may make agreement on collection efforts and fix the share to be given to VDC if needed.
19. In case of not fully transferred irrigation systems, *WUA should deposit the stipulated (See Box 3.6) share of ISF in the bank account of project office at the field level by the end of Ashadh (Mid July).*
20. It has been observed that in many FMIS farmers keep the collections in jointly operated bank accounts and submit the expense details in the general assembly

meetings. As transparency in ISF collections and expenditures is crucial for developing mutual trust among beneficiaries and consequently raising the collection efficiency, *this practice of maintaining transparency should be promoted and legal provisions have to be made for sanctions such as cancellation of their registration, withdrawal of support programs, etc against those WUAs not doing so.* WUAs must keep up-to-date records, do regular auditing, publishing notice of people who have paid ISF and not paid and so on.

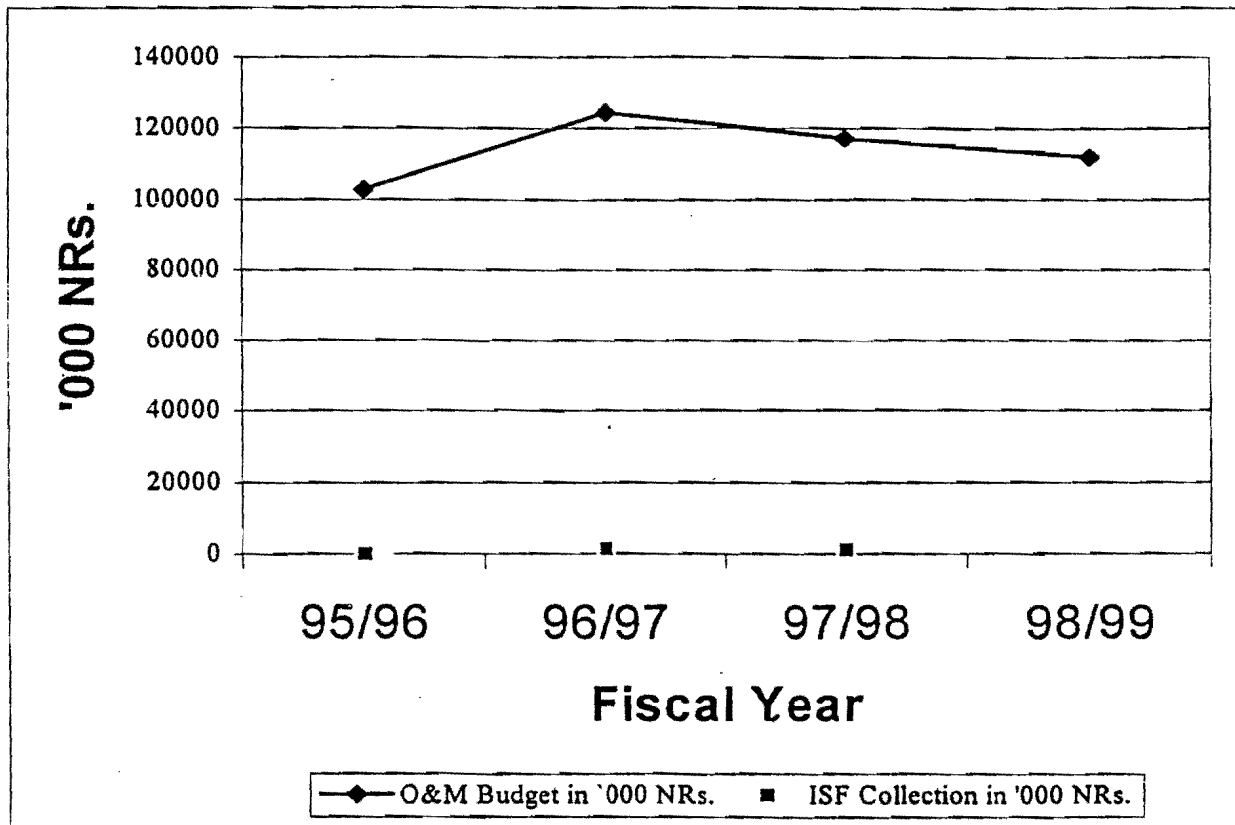
21. The legal provisions in Nepal so far have projected ISF as water tax. Making ISF as government revenue has been proved unable to collect the required amount. The collections should be utilized within the system for O&M. So *the ISF collections should be kept at the project level and should not be deposited in the Consolidated Fund of HMG.*
22. As the Irrigation Regulation, 2045 was formulated under the Irrigation, Electricity and Related Water Resources Act, 2044, soonest promulgation of *a new irrigation regulation based on Water Resources Act 2049 is suggested.*
23. ISF is closely related to management transfer. Attainment of financial self-sufficiency should precede management transfer as it could provide an incentive for farmers for taking over the management. So, *the efforts of promoting resource mobilization to fully meet the regular O&M costs at the system level itself should not be delayed.*
24. Attainment of financial self-sufficiency should be planned as a gradual process. However, while promoting financial autonomy it is necessary to ensure long-term political support, including careful planning and a provision for a transition period during which some funds for irrigation O&M continue to flow to the irrigation agency from the government.
25. A Shift in paradigm adopting DOI's role as of a facilitator, not an administrator, in the O&M of the irrigation systems is required in improving ISF for financing O&M. DOI should provide the needed training to the WUA officials, provide parcellary maps to the WUA, help WUA in getting various supports from the agriculture related agencies.

**Table 11.7 O&M and ISF Figures by System Type**

Surface Irrigation Systems:											
S. N.	Irrigation Systems	Command Area in ha	O&M Budget (in 1000 NRs.)					ISF collection (in 1000 NRs.)			
			98/99	97/98	96/97	95/96	Avg.	96/97	95/96	94/95	Avg.
1	Kankai	8,000	5,013	3,638	7,170	5,617	5,360	238	295	182	238
2	Sunsari Morang	66,000	13,460	21,975	15,590	5,285	14,078	788	880	49	572
3	Chandra Canal	10,500	1,158	2,712	1,665	2,120	1,914	78	d.n.	d.n.	78
4	Kamala	25,000	6,603	8,363	7,459	4,916	6,835	26	d.n.	d.n.	26
5	Manusmara	5,200	1,140	1,649	1,175	1,162	1,282	12	d.n.	d.n.	12
6	Jhanjh	2,000	300	490	200	200	298	0	0	0	0
7	Narayani	28,700	20,873	19,520	27,793	25,225	23,353	0	0	0	0
8	West Gandak	10,300	2,215	4,138	1,528	1,319	2,300	178	111	99	129
9	Bulingtar	240	190	136	230	124	170	d.n.	d.n.	d.n.	d.n.
10	Banganga	6,200	1,248	1,709	1,770	2,173	1,725	d.n.	d.n.	d.n.	d.n.
11	Dunduwa	1,250	480	371	311	244	352	d.n.	67	d.n.	67
12	Mohana + Pathraiya	4,000	957	1,105	900	889	963	0	0	0	0
13	Chaurjahari	600	493	345	690	594	531	0	0	0	0
14	Rampur Phant	755	684	557	3,270	2,508	1,755	0	0	0	0
15	Aanpchauf Coffee	50	55	40	265	114	119	d.n.	d.n.	d.n.	d.n.
16	Phalebas + Gyadi	440	300	211	690	533	434	0	0	0	0
17	Pokhara Jalupayog + Hemja + Phewa	1,680	1,155	814	2,465	2,625	1,765	0	0	0	0
18	Bijaypur + Begnas	1,860	1,268	897	1,643	1,482	1,323	0	0	0	0
Sub total		172,775	57,592	68,670	74,814	5,7130	64,552	1,320	1,353	330	1,123
			Average budget in NRs/ha = 374					ISF Collected in NRs/ ha = 6.5			
Lift Systems:											
1	Koshi Pump	25,000	24,845	22,823	22,835	18,715	22,305	d.n.	11	d.n.	11
2	Narayani lift	4,700	16,756	15,617	15,955	17,866	16,549	d.n.	143	d.n.	143
Sub total		29,700	41,601	38,440	38,790	36,581	38,853	0	154	0	154
			Average budget in NRs/ha = 1,308					ISF Collected in NRs/ ha = 5.2			
Groundwater Systems:											
1	Sagarmatha Nalkup	700	2,128	1,528	1,455	1,281	1,598	0	0	0	0
2	Mahottary Nalkup	1,000	2,313	1,613	1,973	1,563	1,866	0	0	0	0
3	Narayani tube well	2,800	4,660	4,383	4,603	4,140	4,447	d.n.	75	d.n.	75
4	Kapilbastu Nalkup	200	2,668	1,648	1,816	1,397	1,882	0	0	0	0
5	Kailali+Kanchanpur tube well	556	1,011	928	958	810	927	0	0	0	0
Sub total		5,256	12,780	10,100	10,805	9,191	10,719	0	75	0	75
			Average budget in NRs/ha = 2039					ISF Collected in NRs/ ha = 14.3			

Source: Department of Irrigation

Graph 11.2 ISF Collection versus O&M Budget



Graph 11.3: O&M Budget in NRs./ha: Four Years' Average

