

Sustainable Financing Irrigation Improvement under Revolving Fund System and Participatory Management

A Case study of FAO SPFS in Banjar, West Java, Indonesia

By

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Abstract

Water management and irrigation is one of the key components for strengthening food security, because water is the primary production factor for food production. This means sustaining irrigation service would lead to sustainable food production.

However, in a country under transition like Indonesia, irrigation sector is facing serious problem in maintaining performance existing irrigation system. The problem in fact originates from decreasing capacity of government to provide adequate budget for irrigation service.

One of the strategies to cope with the problem is by sharing the burden of irrigation operation and maintenance cost with the beneficiaries. This strategy, although nice in theory, however, it is quite difficult in its practice. Previous practice and experience indicate that sustainability of irrigation system is determined by involvement and participation of the beneficiaries. However, encouraging participation of the farmer is the most difficult part of the effort.

SPFS Indonesia adopts the concept and principle of participatory irrigation management by turning over the system operation and management to the Water User Association. Experience shows that under participatory approach, the burden on operation and management are solved. Key success is laid on the authority of the WUA in generating and managing financial capacity from their own source.

I. Introduction (Background)

Water management and irrigation improvement is perceived as one of key component for strengthening food security. Therefore, water management and irrigation improvement is selected as one of component of Special Program for Food Security in Indonesia.

Present issues regarding irrigation in Indonesia are related to lack of participation and contribution of farmer and water user in operation and management. Up to

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now, government still takes dominant role in irrigation management and development. Irrigation is treated as public infrastructure/utilities that shall be managed by the government. Farmer and water user are situated as beneficiaries. As a result, farmer and water user association tends not to be responsive and ignorant to the system condition.

Along with the financial problem and economic crisis, the Government of Indonesia has deteriorated its capacity to cover cost for operation and maintenance of the irrigation system. As a result, more than 60% of the irrigation system is decreasing its performance.

The deterioration of irrigation infrastructure becomes a concern of FAO SPFS Indonesia, therefore revitalization of irrigation infrastructure is considered as important strategies for strengthening food security. In revitalizing irrigation system, SPFS Indonesia adopts the concept of participatory irrigation and water management. Principally, the water user association is allowed and given authority to manage their own system.

Further analysis SPFS concluded that key factor of sustainability is laid on the presence of sustainable financial source (and support) for operation and maintenance. Relying on government budget is impossible, while instantaneous budget from donor will also not be sustainable solution. A different strategy for financing irrigation operation, maintenance and investment shall be sought.

In relation to the problem, SPFS perceives that the budget for irrigation improvement shall come from the beneficiaries. Unfortunately, irrigation fee that in the past is collected by government in many cases had been misused due to unclear management. This condition leaves a trauma and upset among farmers that lead to refusal of paying water fees.

Reactivation of WUA was placed as initial step taken by SPFS. This was done by giving incentives to WUA in the form of authority to WUA to manage the collected water fees by themselves. The incentive was highly appreciated by the WUA but it was opposed by village administration because water fee is part of village financial source. However, a multi stakeholder meeting solved the situation in line of agreement on different roles of stakeholders in irrigation improvement program and its management. In general the district irrigation authority is responsible for providing technical aspect; the WUA contributes to free labor while FAO SPFS will cover cost for material as well as bigger structure construction. Following up the implementation, the WUA is fully responsible for operation and management. Meanwhile, FAO SPFS in collaboration with District Authority are responsible for providing continuous capacity building and technical assistance of WUA through farmer field school.

II. Revolving Fund System of Irrigation Investment

As mentioned previously that sustainable financial capacity is the key factor determining the sustainability of irrigation service. SPFS Indonesia perceives that water collection fee in fact is a marginal financial source, because its value is very small. It can only cover operational cost and maintenance. Meanwhile, irrigation system will also need budget for depreciation, rehabilitation and other necessary cost that may emerge in the future.

Dealing with the situation SPFS Indonesia decided that improvement cost that in fact is a grant from donor (*Trust Fund of FAO-Government of Japan*) shall be recovered and the recovery budget shall be used for strengthening financial capacity of WUA. This means improvement cost now is not free but it has to be paid by the WUA. However, the recovery cost is not returned back to donor (FAO) but it goes to cash box (account) of WUA and to be managed by WUA. This concept was introduced with name Revolving Fund System for Irrigation.

Further, SPFS Indonesia imposed the WUA that the water fee shall be divided in two parts, one part is for operation and maintenance, and another part shall be kept as repayment of the improvement cost. Experience indicates that ideal composition of the use of water fee is 60% for operation maintenance and 40% is for cost recovery.

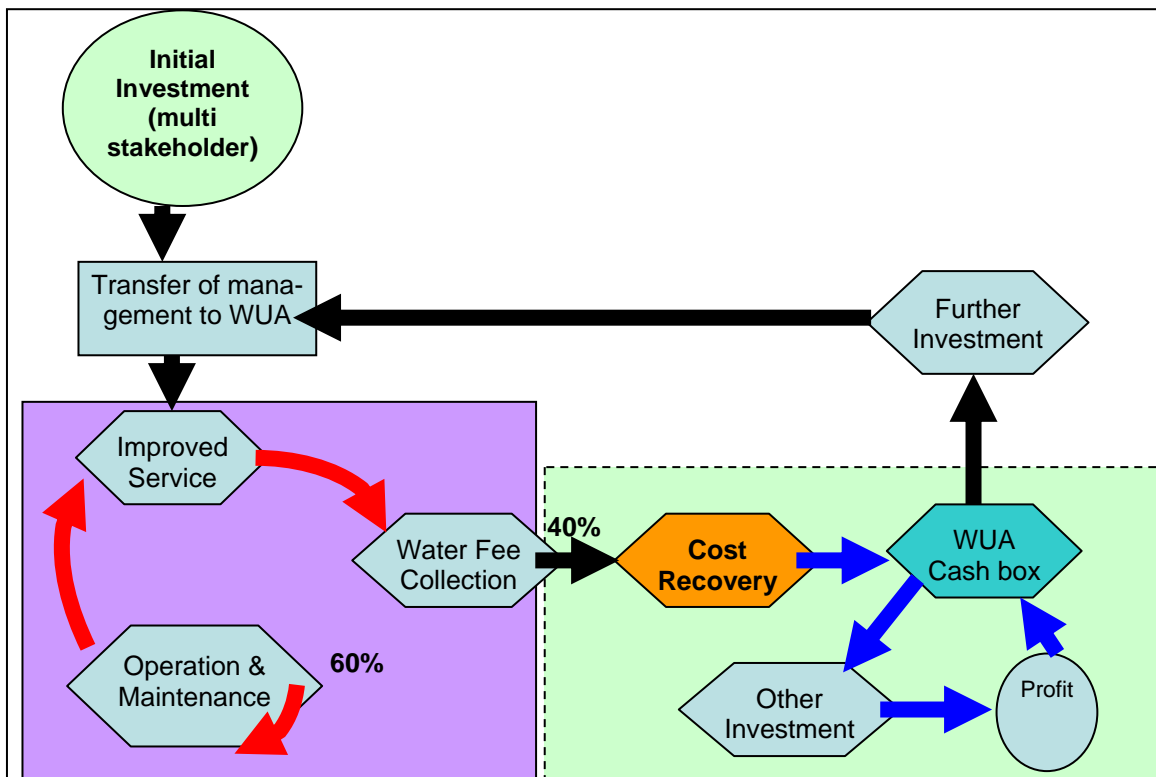


Chart 1 Management of Revolving Fund System of Irrigation Investment

III. Case Studies of RFS Implementation in SPFS Project Sites Banjar

One of project sites of SPFS in Indonesia is Banjar Municipal, West Java. In Banjar, SPFS involves in improvement of an old irrigation system which developed at early seventies and further developed in early eighties. The system covers around 1300 ha paddy field with source of water mainly from diversion of Citanduy River.

In 2001, SPFS started the program. Initially, a Rapid Appraisal Procedure (RAP) was done by evaluating overall system in term of performance, service level, as well as institutional aspect of irrigation system. The appraisal concluded that the system run on poor performance that indicated by:

- vast damage or malfunction of structures (gates, flume, etc)
- less participation of water user association,
- lower productivity (in compare to the potential yield).
- Unreliable and uneven water distribution.

Participation of water user was started since appraisal process and problem identification Participatory Rural Appraisal (PRA) and Farmer Group Development Plan (FGDP). Based on the appraisal, WUA was guided to find solution of their problem and formulate action plan. Draft of action plan then was discussed on a multi stakeholder meeting which is conducted and attended by four parties, i.e. WUA, District Irrigation Office/Authority, Village Administration and FAO SPFS. The meeting in particular was to discuss role and contribution of each party as well as to synchronize the action plan with local government program. The meeting concluded with agreed role of each party, sharing resources and incentives of each other. For example, agreed role of each stake holder in Banjar are as described in Table 1.

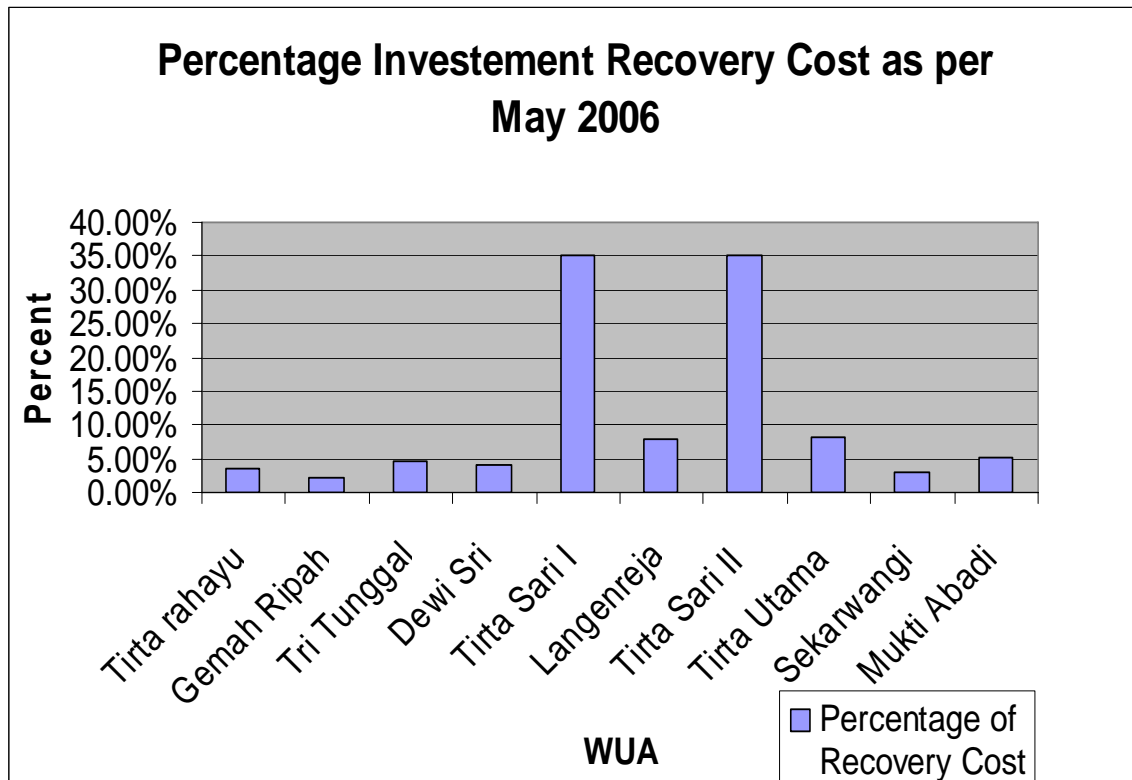
After two year implementation, the modality in water management and irrigation improvement has shown a pleasing progress. The WUA has been able to take over regular operation and maintenance of the system while in parallel their financial capacity is also improving. Improved financial capacity enables the WUA to finance further investment particularly to improve their owned system.

The improved capacity of the WUA can be seen from the growing financial status of the WUA. In average, the recovery of irrigation improvement cost now has reached about 7.34%. This means, annually the farmers (WUA) are able to recover around 3-4% of investment cost aside of operation and maintenance cost. This trend indicates that under Revolving Fund Scheme (RFS) investment in irrigation can be sustainable.

Table 1. Agreed Stakeholders role and resource sharing for Irrigation Improvement in Banjar, West Java

Farmer	District Authority	Irrigation	Village Administration	SPFS FAO
<ul style="list-style-type: none"> • Reactivation/ Establishment WUA • Water Fee Collection • Partially implementing the improvement work • Self managing the system • Revolving the investment cost 	<ul style="list-style-type: none"> • Technical Assistance • Transfer of Management • Complementary Program at Secondary/Pri mary Level 	<ul style="list-style-type: none"> • Reduction of Village tax 	<ul style="list-style-type: none"> • Technical Assistance • Budget for Improvement • Capacity Building • Complementary Program (intensification and diversification) 	

Chart 2. Percentage of Cumulative Recovery Cost in 10 WUAs in Banjar



Impact on food production

Participatory irrigation and water management that applied in Banjar has improved irrigation performance in term of reliability and equity which enables higher productivity and expansion of harvesting area. Moreover it also enables dry season farming which lead to a supplementary income generation to farmer.

More reliable of water is resulted of better water conveyance to all the beneficiary area. Water now can flow without any significant constraint and losses can be minimized. Therefore the crops may receive adequate water for healthy grow. Comparison of farming before and after program in four water user association (tertiary block) is depicted in Table 2.

Table 2. Comparison of farming activities and output before and after irrigation improvement program in SPFS project sites Banjar

Season		Before program				After Program			
		MA	GR	TR	TT	MA	GR	TR	TT
Season I: Paddy	Harvesting Area (Ha)	78	106	193	25	78	106	193	25
	Yield (ton/ha)	2.8	2.8	3.5	4.9	5	3.5	4.9	5.5
Season II: Paddy	Harvesting Area (Ha)	78	66	180	25	78	106	193	25
	Yield (ton/ha)	2.8	2.1	3	4.2	5	2.8	4.3	5
Secondary crops	Harvesting Area (Ha)	2	3	5	20	8	20	16	20
	Yield (ton/ha)	0.5	0.35	0.7	0.5	0.7	0.7	1	0.56

Note: MA = WUA Mukti Abadi, GR = WUA Gemah Ripah, TR= WUA Tirta Rahayu, TT = WUA Tri Tunggal

Impact on Water User Strengthening

As a follow up of the water improvement, a consistent farmer field school and extension in the aspect of water user strengthening is carried out. The focus of the extension is to enable farmer to manage the system by themselves in a sustainable manner. It covers technical skill on hydraulic, simple construction, and WUA/group administration including financial management. WUA is also encouraged to open account in local bank.

Consistent facilitation to the WUA has successfully stimulated further development and operation the system by WUA. In all WUA, water fee has been collected although it does not still reach the ideal level. At present the water is determined based on acreage with amount equal to 70 kg paddy per hectares. In compare to potential yield that reaches 4. ton per hectares it counts only 1.16%. Although it is still a quite small, the accumulated recovery cost has

significantly strengthened capacity of the WUA. With the fund, WUA has more flexibility in handling minor development of their system.

Table 3. Position of financial capacity of WUAs in Banjar

No.	WUA	Cumulative Recovery Cost in Rp	Percentage of Recovery cost
1.	Tirta Sari I	4,300,000	35.15
2.	Dewi Sri	1,125,000	3.95
3.	Tirta Utama	2,000,000	8.16
4.	Sekarwangi II	1,785,000	3.08
5.	Tirtasari II	18,816,000	34.98
6.	Langenreja	1,035,000	7.84
7.	Mukti Abadi	2,800,000	5.28
8.	Tirta Rahayu	4,842,000	3.64
9.	Gemah Ripah	2,390,000	2.19
10.	Tri Tunggal	3,020,000	4.65

Besides improving financial capacity, group dynamic is also improved as indicated by existence of group meeting. However, unfortunately, as the water fee has been collected, the farmer tends to refuse any other in kind contribution such as free labor through communal works that previously quite usual. Farmer tends to perceive that their “social” responsibility has been transformed into “value of money” in the form of water fee.

Flexibility of Further Irrigation Improvement by WUA

One of the important benefits of the adoption of revolving fund system on irrigation improvement is the stimulation of capacity of WUA in handling further improvement. Now, WUAs are able to identify the need of further improvement of their system and finance the required activities. In Banjar, after the program, WUA had been able to do significant improvement that lead to better services. It is noted that after two year WUAs has self financed some improvement works covering:

- Canal lining : up to 615 m
- New distribution box construction : 4 units
- Culverts improvement : 10 units

- Canal normalization : 5,000 m
- Drainage canal normalization : 1,500 m

The achievement is considered very significant because it rarely happens in the past.

Furthermore, in order to improve financial capacity of the WUA, it is planned that beside from water fee collection, the WUA members are encouraged to do saving to the group that will also be managed by the WUA. Every season, after harvesting farmers are encouraged to allocate 5-10% of the net benefit to be saved in WUA cash box. The saving will hopefully enhance the financial capacity of the WUA particularly for financing further improvement. Saving activity also functions as tool to maintain affinity among WUA members.

IV. Lesson Learnt and Conclusion

Experience in implementing Revolving Fund System under participatory irrigation in SPFS project sites Banjar West Java leads to some conclusion as follows:

- In fact, cost for irrigation improvement/development program can be shared among various stakeholders. The main important stakeholder is the farmer (water user) as beneficiaries.
- Implementation of Revolving Fund System (RFS) for irrigation ensures financial sustainability of operation and maintenance. RFS may generate adequate budget under control of WUA that in turn can give more flexibility on further development and improvement.
- The fact indicates that under RFS, cost for irrigation investment at a certain proportion can be repaid by the beneficiaries directly, not in the form of tax, levy, etc. This modality will relieve the government burden in repaying loan or cost of money for its development.

Beside conclusion as above, some lesson learnt can be drawn from experience, including:

- Key factor for sustainability of irrigation system is determined by:
 - Capacity of WUA to generate fund from internal source (lead to flexibility O&M)
 - Adoption concept of water is not free by beneficiaries (farmer)
- Concept of revolving fund system for Irrigation draw a rule of thumb that:
 - Water Fee shall cover O&M cost and farmer managed Cost Recovery. Therefore it shall not too small. Furthermore, management of water fee shall be in the hand of WUA.

Further Information about FAO Special Program for Food Security in Asia

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