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*Research Note*

## **Economic Analysis of Transaction Cost on Kolaramma Tank Watershed in Eastern Dry Zone of Karnataka**

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### **Abstract**

The transaction cost incurred on the Kolaramma tank watershed in the Kolar district of Karnataka, with a geographical area of 6,570 hectares and covering 26 catchments has been found to be Rs 78,89,210. The decomposition of this transaction cost into information, contractual and enforcement costs has revealed that enforcement cost amounted to a vast share of 82.0 per cent, followed by contractual cost (13.6%) and information cost (4.4%) in the total transaction cost. Considering the overall transaction cost, the investment on information and contractual cost has been quite less. These need to be increased by economizing on the administrative expenses of the implementing agency. Any additional investment on information and contractual cost would greatly benefit the actual beneficiaries in the watershed.

### **Introduction**

In view of the limited land resources, the challenges of increasing demand for food, fuel and fodder can only be met by enhancing the productivity levels in agriculture on a sustainable basis. The increase in productivity in irrigated agriculture involves higher investments than those in the rain-fed agriculture (Ramanna, 1991). Therefore, concentrating on dryland agriculture can enhance the food grain production in the country. In India, the dryland agriculture contributes 44 per cent to the total food grain production. The productivity level in dryland agriculture can be enhanced by the adoption of watershed development technology. It is an integrated development of rain-fed areas by adopting suitable soil and water conservation (SWC) measures, such as farm pond, percolation tank, check dams, gully checks, ravine reclamation structures, etc.

Sustainable management of resources in the watershed is an issue to be addressed which involves transaction cost due to the existence of negative externalities induced by the society. Proper sharing of benefits and maintenance of resources in the watershed are essential for expanding the programme on a large scale. There are several government as well as non-governmental organizations operating in the watershed development, but their scale of operation, efficiency and cost effectiveness differ. Cost of an implementing agency, termed as transaction cost, is crucial for the successful implementation of a programme. In this regard, economic analysis of transaction cost in Kolaramma tank watershed in the eastern dry zone of Karnataka has been undertaken in this study.

### **Methodology**

This study, conducted during 2005 in Kolaramma tank watershed of the Kolar district (Karnataka), is based on the secondary data collected from the

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Office of Dry Land Development Board, located at Bangalore and Chikkaballapur.

**Transaction cost (TC):** It is the cost incurred on arriving at enforcing of a decision. According to Randall (1982), it is the cost on establishing one's bargaining position, bargaining process and arriving at a group decision. The transaction cost arises because of the existence of externalities induced by either an individual or a group. When a management group fails to act, interference by the government is warranted and it results in transaction cost, which is a market failure in conserving the natural resources. Transaction cost also arises as a result of divergence between social and private costs or social and private benefits (Maynard *et al.*, 1982). The transaction cost incurred in the watershed can be grouped into information cost, contractual cost and enforcement cost (Loksha, 1999). Some of the indicators used in measuring the forms of transaction cost in the context of watershed development programme (WDP) have been mentioned in the Table 1.

## Results and Discussion

The transaction cost in the context of WDP is one-time investment in most of the cases, and rarely involves yearly investments. The total transaction cost in the Kolaramma tank watershed amounted to Rs 78,89,210. The proportions of investment costs were as follows: information cost, Rs 3,48,000 (4.41 %); contractual cost, Rs 10,69,600 (13.56 %); and enforcement cost, Rs 64,71,610 (82.03 %), (Table 2).

In the total expenditure on information, cost of field visits to beneficiaries was maximum (Rs 1,72,000), followed by training of SHGs members (Rs 1,27,000) and PRA and awareness generation camps (Rs 49,000). In the total expenditure on

contractual cost, the entire amount (Rs 10,69,600) was spent on formation of SHGs and raising of funds from the beneficiaries in the watershed. The investment on enforcement cost was the major item of the transaction cost. In the expenditure on enforcement cost, the maximum amount was of administrative expenses of implementing agency (Rs 46,33,470), followed by cost on working personnel for carrying out different activities in the watershed (Rs 8,86,020), access to inputs by the beneficiaries like formation of FYM pits and alternate disease management of different crops (Rs 3,50,000), staff travelling expenses and maintenance of vehicles (Rs 1,84,600), investment on vehicle, office furniture and other equipments (Rs 1,79,000), office expenses (Rs 1,07,280), training of NGOs (Rs 80,000), and staff training on accounts (Rs 45,000). The transaction cost incurred per catchment in the watershed was found to be Rs 3,03,431. The transaction cost per hectare of the treated area was Rs 1,881, while the cost incurred per beneficiary in the watershed was Rs 105.

In the entire transaction cost, the investment on enforcement of watershed activities was higher because these were the essential requirements and without which implementation of the programme would not be possible. Some portion of enforcement cost was passed on to the beneficiaries in the watershed in the form of formation of FYM pits and providing knowledge on integrated disease management in different crops. Some proportion of the money was also spent on training of the members of NGO, 'Ro-organization of Rural Economy and Society' (RORES), which was given the responsibility of community movement towards the implementation of the programme.

The contractual cost was the second major item, and was incurred on the formation of SHGs, which

**Table 1. Indicators to measure transaction cost in watershed development programme**

Type of benefit	Indicators used
Information cost	<ul style="list-style-type: none"> <li>• Cost on educating regarding the benefits of watershed development programme</li> <li>• Cost on conducting village level meetings to convince and motivate the farmers</li> </ul>
Contractual cost	<ul style="list-style-type: none"> <li>• Cost of bargaining to get the required or sanctioned fund from the sponsoring institutions</li> <li>• Cost of raising funds from the beneficiaries as well as establishing local level institutions</li> </ul>
Enforcement cost	<ul style="list-style-type: none"> <li>• Cost of imposing rules and regulations for rational utilization of natural resources</li> </ul>

**Table 2. Transaction cost incurred in Kolaramma tank watershed**

Sl No.	Particulars	Entire watershed	
		Total cost (Rs)	Per cent of total TC
<b>I</b>	<b>Information cost</b>		
	• Training of members of SHGs	1,27,000	1.61
	• PRA and awareness generation camps	49,000	0.62
	• Field visits to the beneficiaries	1,72,000	2.18
	• Sub-total	3,48,000	4.41
<b>II</b>	<b>Contractual cost</b>		
	• Formation of SHGs plus cost of raising funds from beneficiaries	10,69,600	13.56
	• Sub-total	10,69,600	13.56
<b>III</b>	<b>Enforcement cost</b>		
	• Cost on the personnel	8,86,020	11.23
	• Office expenses	1,07,280	1.36
	• Investment on vehicle, office furniture and equipments	1,79,000	2.27
	• Staff travelling expenses and maintenance of vehicles	1,84,600	2.34
	• Staff training on accounts CMGs, NRM, including honorarium	45,000	0.57
	• Staff meetings	6,240	0.08
	• Training of NGOs / WIT	80,000	1.01
	• Access to inputs		
	(a) Formation of FYM pits	3,00,000	3.80
	(b) Alternative pest and disease management	50,000	0.63
	• Administrative expense of implementing agency	46,33,470	58.73
	• Sub-total	64,71,610	82.03
	Grand Total	78,89,210	100.00
<b>V</b>	<b>Transaction cost per hectare of treated area (Rs)</b>	1,880.66	
<b>VI</b>	<b>Transaction cost per beneficiary (Rs)</b>	104.43	

Notes: CRM - Credit Management group.

NRM – Natural Resource Management

Total treated area in the watershed was 4194.91 acre.

made the beneficiaries to receive the benefits directly. In total, six SHGs were formed in the watershed, which were found functional. Information cost was the third important component of transaction cost and the beneficiaries directly received the benefits in the form of training, field visits and awareness generation campaigns.

Considering the overall transaction cost, investment on information and contractual cost was required to be extended by economizing on the administrative expenses of implementing agency, which amounted to 58.73 per cent of the total transaction cost. The additional investment on

information and contractual cost would directly benefit the actual beneficiaries in the watershed. Economizing on the part of administrative expenses of the implementing agency would ultimately help in extending the programme further and would also regenerate the vast rain-fed areas in the country and help in meeting the challenges in agriculture.

## Conclusions

The enforcement cost is the major component of transaction cost, which needs to be minimized by the implementing agencies, and the same has to be spent in terms of either information or contractual

cost. The government must consider the amount of enforcement cost being spent by different implementing agencies in assigning the task of implementing the watershed development programme.

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