



## **A PERFORMANCE STUDY OF PARTICIPATORY IRRIGATION MANAGEMENT IN EASTERN INDIA: OBJECTIVES, RATIONAL OF CONCEPT AND NEED**

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### **ABSTRACT**

Main motivations of this paper is to examine the functioning and otherwise of Water User Association (WUA) or Pani Panchayat promoted by the State and the local traditional irrigation institutions and to evaluate their functioning & characteristics in the context of local water management in the Hiraikud Command Area (HCA), of Orissa state in Eastern India. The specific objectives are; (1) to contrast the formal and informal institutions in terms of their formation, performance and success, (2) to examine about the peoples participation and their liveliness, (3) to recommend policy interventions to make the formal institutions more successful. The paper concludes that the Pani Panchayat as regulatory institutions in charge of water distribution on equitable basis, their performance has been reasonably weak and unsuccessful. Even though Pani Panchayat has been initiated and endorsed in the State for more than a couple of years, the acceptance of the model have been lethargic and scattered.

**Key Words:** Common Property Resource, Farmer Managed Irrigation System, Formal & Informal Irrigation Institutions, Orissa, India, Pani Panchayat, Participatory Irrigation Management, Water User Association, Water Management

### **I. CONTEXT OF THE STUDY**

Recently Pani Panchayat (Water Council) as an institution in irrigation management and research in the collective management of Common Property Resources (CPRs) has paying attention of many researchers and policy makers. The current paper deals with an evaluation of water management through community participation and emergence of Pani Panchayat in a case study of Vir Bajrang Bali Pani Panchayat under Lift Irrigation Project of the Hiraikud Command Area (HCA), of Orissa state in Eastern India. We are aware that, it is incredibly near the beginning to assess and evaluate the formal Pani Panchayat in the state, as the practice of implementation is just falling on the line.

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Irrigation Management Transfer (IMT) to the user farmers is being increasingly advocated and practiced the world over, to provide correctives to the distortions arising from the failure of the market as well as the state. The most common type of reform in the Indian irrigation sector in recent years has been the attempts to increase farmer's direct involvement in irrigation under the label of PIM. Such reforms are directed for improving the performance of irrigation by involving who have the greatest stake in irrigation, in the operation & management of systems.

Utmost painstaking efforts have been made in a number of countries worldwide to transfer the rights and responsibilities for irrigation management activities of an irrigation system from a Government agency to private or local organisations (Brewer *et al.*, 1999, Vermillion, 1997). Transferring responsibilities has come to be seen by policy-makers as a way to lessen pressures on thinly stretched Government finances, while at the same time, improving irrigated agricultural production and ensuring the long-term sustainability of irrigation systems (Geijer *et al.*, 1996, Kloezen and Samad 1995, Vermillion 1991). The Philippines (Wijayaratna and Vermillion 1994, Svendsen 1992), Indonesia (Soenarno 1995), China (Xu Zhifang 1995) and Sri Lanka (Ratnayake 1995) in Asia, Mexico (Johnson 1997) and Columbia (Garcia- Betancourt 1994) in Latin America, and other countries New Zealand (Farley 1994) and Turkey (Devlet su Isleri *et al.*, 1996), have foremost efforts in this track. One study on a survey of the impact assessment IMT was carried out by the IIMI and the IIMA (Naik *et al.*, 2002). Brewer *et al.*, study (1999) found that, in India, increasing user participation in the management of irrigation systems is being tried as a means to reduce the pressures on Government finances, improve the performance of irrigated agriculture, and ensure sustainability of irrigation systems. An analysis of scattered studies concludes that the various evidences shows a combination of positive and negative consequences, but the majority studies report positive results, particularly improvements in water distribution and finance (Vermillion 1997). But this review study also shows that, the different studies are not comparable, nor is it comprehensive.

## **FORMAL VS. INFORMAL IRRIGATION INSTITUTION**

Recently major debate is in the region of the subject matter of formal vs. informal institution. An effort has been taken to discuss both formal and informal traditional irrigation institutions or FMIS and its sustainability, importance and participation in the decision-making and the proper monitoring of the behavior of the members. Why focal point on institutions? Institutions could be arranged into two ways: formal and informal. A government agency is a formal institution as it has rules, which are officially laid down in a written form. Farmers' institutions could be both formal and informal. An institution which has written rules, is termed as formal, where as an institution, which does not have written rules, is an informal institution. In many of the informal institutions (FMIS) the rules are not in written form but they are practiced for a long period of time. They serve as a rule in their day-to-day interaction.

The management of irrigation systems requires strong institutions, because they have to manage the distribution of scare resources and this can lead to various types of conflicts. Ostrom (1992) points out conflict management as critical for self-governing irrigation systems, and Vermillion (1996) restates this as an important factor in the context of irrigation management transfer programs. The governance of FMIS can be studied by

looking at various rules in use. E.Ostrom (1992) observes institutions as rules-in-use, which define the rights and responsibilities of the water users. Ostrom (1990, 1993) characterize that an institution is the rules actually used (rules-in-use or working rules) by a set of individuals to organize repetitive activities that produce outcomes affecting those individuals and potentially affecting others. In a world of uncertainty they have been used human beings in an attempt to structure human interaction. They are rule of the game of a society and in consequence provide the framework of incentives that shape economic, political and social organization.

On the other hand North (1944, p.360) emphasize that, Institutions as a combination of “formal constraints (e.g. rules, laws, constitutions), informal constraints (e.g. norms of behavior, conventions, self-imposed codes of conduct) and their enforcement characteristics”. Enforcement is carried out by third parties (law enforcement, social ostracism), by second parties (retaliations) or by the first party. An institution is “... an enduring, complex, integrated, organized, behavior pattern through which social control is exerted and by means of which fundamental social desires and needs are met (Fairchild, 1955 cited in Dusseldrop, 1993; 56). Organisations can be defined as ‘groups of individuals bound by some common purpose to achieve objectives’ (North 1990: 5). They are identified by roles (Coward 1980; Uphoff 1992). Institutions are identified by the rules, shared understandings, or norms held by a group of people (Coward 1980; North 1990; Uphoff 1992). The most important of these sets of rules, from the standpoint of resource management, are those governing access, withdrawal, and, management, or those related to monitoring, enforcement, and sanctions governing resource use (Ostrom 1992).

Norman Uphoff (1986a) also opines that institution as composite of norms and behaviour that persists overtime by serving collectively valued purposes. An institution is a combination of roles, rules, procedures, a practice and a system of relations. These definitions emphasize different elements of institutions rules constituted in a group requiring a complex of practices and control. Besides, these definitions discuss the performance of the role by an individual and the rules that regulate actions of the individuals/groups. The action is always guided by the role expected by other members of the community and one is judged by the performance associated with the role. Coward (1985) alleges that this role expectation and role performance are the institutional and organizational dimensions respectively which are regulated by the rules. It has to be realized that institutions are not functioning in vacuum. Changes in the political environment and opening up of the villages are changing the strength of social control, which is of great importance for the functioning of the institutions. The well functioning institutions will have greater control on the use of resources and its distribution.

## **II. OBJECTIVES**

### **MAIN OBJECTIVE**

Broad objective of this paper is to examine the functioning and otherwise of Water User Association (WUA) or Pani Panchayat promoted by the State and the local traditional irrigation institutions and to evaluate their functioning & characteristics in the context of

local water management in the Hirakud Command Area (HCA), of Orissa state in Eastern India.

## SECONDARY OBJECTIVES

The secondary objectives are;

- (1) to contrast the formal and informal institutions in terms of their formation, performance and success,
- (2) to examine about the peoples participation and their liveliness
- (3) to recommend policy interventions to make the formal institutions more successful.

## III. FUNCTIONING OF PANI PANCHAYAT/WUA

### IN HIRAKUD COMMAND AREA, ORISSA

The Hirakud Command Area Development Authority<sup>1</sup> reveals the fact that during 1999-2000, seven water user's Association (WUA) were organized and got registered under the societies Registration Act, 1860 in villages of *Kumelsingha*, *Babebira*, *Lahoula*, *Paharsirgida*, *Kulunda*, *Sahajbahal* and *Sulunda*. Of course regrets the CADA, these WUA could not be made operative in the absence of detailed functional guidelines of government. Information on the extent of farmer participation is illusory. The number of registered WUAs, often used as an indicator of participation, is ambiguous. Many registered WUAs exist only on paper in HCA. On the other hand, we have inadequate information on instances of real participation of users which have not resulted from any roles officially granted to them

## IV. RESEARCH METHODS

In order to examine the functioning and impact of transfer of irrigation management to the water users, a detail survey of 70 households (HH) has been done in a case study of *Vir Bajrang Bali* Pani Panchayat under Lift Irrigation Point (LIP) of the Hirakud Command area, Orissa. The Primary data has been collected from *Bandhapali* village of *Kardola* Panchayat in *Dhankauda* Block comes under Sambalpur district. The *Bandhapali* village is 32 KM away from the district headquarter Sambalpur. The nearest railway station is at Hirakud 24 KM far from the village. *Bandhapali* is a revenue village of *Kardola* Panchayat consists of one ward.

Both quantitative and qualitative information are obtained in order to observe the efficacy of different types of institutional arrangements. Qualitative information is obtained by way of Participatory Rural Appraisal (PRA) use such as focus group discussions, key person interviews like senior citizens, officials in the irrigation department. Discussion were also done with the office bearers of the concerned PP, in addition to those expelled from the PP i.e. woman and landless people. Two structured questionnaires; one related to WUAs and another related to households, were prepared

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1- Hirakud Command Area Development Authority (1999) – Annual Administration Report

to collect quantitative information. These interviews unscheduled, and carried out in variety of locations like in a school house or Panchayat building, on a temple veranda, under a tree, or in private homes. Before and after scenarios were exploited to evaluate the impact as there is no option for with and without scenario, as all the farmers getting irrigation water are covered under Pani Panchayat. The field work was conducted during the period 2004-2005.

## **V. MAJOR FINDINGS OF THE STUDY**

### **PEOPLE'S PARTICIPATION, INSTITUTIONAL AND ORGANISATIONAL ASPECTS**

We asked the PP member about the different aspect of PP such as knowledge about working group, user group and PP committee, and their views were described below.

#### **PANI PANCHAYAT WORKING GROUP IN THE VILLAGE:**

The committee of PP in Orissa shows that, they are formal in the sense that the Government recognise them as having the authority to enforce the Panchayat decisions. The Nepal experience on Farmer Managed Irrigation System (FMIS) shows that at the central level usually the organisation comprises a general assembly of beneficiaries and a committee consisting of members elected to carry out the decisions made by the general body.

#### **COMPOSITION OF THE PANI PANCHAYAT COMMITTEE**

The total number of members in a PP Committee varies from area to area depending upon the size of the command area, the complexity of the water distribution methods employed and the respective land holding of the farmers. Each of the PP constitutes a President, Secretary, Vice-President and a Treasure. Other members of the PP usually represent different areas of the system. Their functions are to help with water distribution and conflict resolution within their respective areas and to help mobilise resources for canal maintenance and repair.

#### **SELECTION OF MEMBERS**

The user group members usually elect the members of PP committee. Here when the Water User Association was registered in 1997 for the first time members were nominated by the Government officials. During the meeting held on 21<sup>st</sup> August 2002 the committee members were again changed and that too by nomination with the help of Government officials. In Nepal FMIS, generally the members have been selected on the basis of the Panchayat head, hereditary, land holding, rich people or head of the village. Whether a PP opts for a hereditary committee president or an elected one, influenced by so many factors like

1. The age of the PP
2. The number of beneficiaries

3. The size of the PP
4. Access to a road and
5. The number of levels in the PP.

From the Table-1 it shows that, the process of electing the president is through nomination as 100 per cent responded that it is through nomination. 79 per cent members responded that there is no political interference in the working of the PP committee (Fig-1). The wards of the village are politically demarcated boundaries; the hydrological boundaries of the PP may extend beyond. The various activities in the PP are taken over by the president. The landless farmers were 29 per cent satisfied with the functioning of the PP committee. Among the marginal farmers 34 per cent were satisfied with the committee, while majority 66 per cent are not satisfied. Majority of medium farmers (75 per cent) are not satisfied. 62 per cent of the small farmers are not satisfied with the functioning. On the contrary, only 17 per cent of the large farmers are not satisfied with the functioning of the PP Committee.

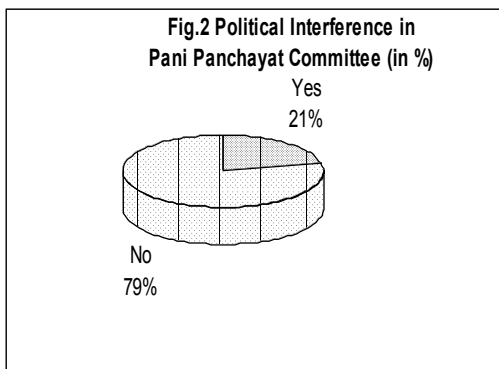
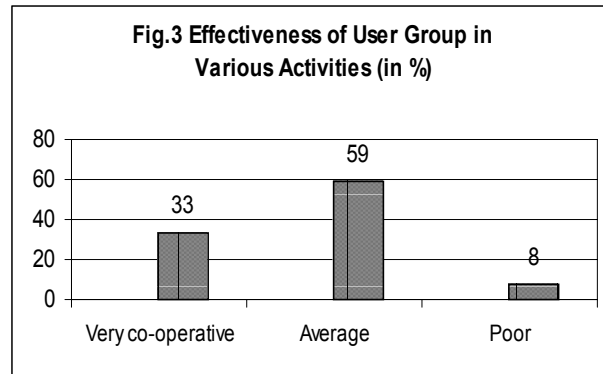
**Fig-1****Fig-2**

Table-1: Aspects on Pani Panchayat Committee

Size class of Land holdings HHs (in Acres)	No of HHs	Election Process			Political interference		Process of electing. President		Who takes over various activities			Are you satisfied with the function of PP committee	
		Voting	Nominated	Unanimous	Yes	No	Nomination	Election	President	Democratic process	Any other	Yes	No
1	2	3	4	5	6	7	8	9	10	11	12	13	14
0.00-0.00	7	-	100	-	20	80	100	-	100	-	-	29	71
0.01-2.50	24	-	100	-	17	83	100	-	100	-	-	34	66
2.51-5.00	20	-	100	-	22	78	100	-	100	-	-	25	75
5.01-10.00	10	-	100	-	16	84	100	-	100	-	-	38	62
10.01 & above	9	-	100	-	29	71	100	-	100	-	-	83	17
Overall	70	-	100	-	21	79	100	-	100	-	-	42	58

Source: Field Survey (2004-05)

Note: i) All Figures in the table indicate the responses in terms of percentages of the respective categories except in Col.2.

ii) Blank entries in the Table denote nil.

Table-2: Aspects of Pani Panchayat on User Groups (UGs)

Size class of Land holdings (in Acres)	No of HHs	Effectiveness of User group in various activities	If poor, Reasons for Non-cooperation among the members					Activities done by User Groups				
			Average	Poor	Caste conflict	Land disputes	Party politics	Any other	Plan/Design of construction work	Cost estimate of work	Maintain the account	
1	2	3	4	5	6	7	8	9	10	11	12	
0.00-0.00	7	22	69	9	38.58	18.28	-	-	No Comment	No Comment	No Comment	
0.01-2.50	24	25	63	12	28.01	15.68	-	-	No Comment	No Comment	No Comment	
2.51-5.00	20	29	62	9	21.08	-	-	-	No Comment	No Comment	No Comment	
5.01-10.00	10	32	64	4	15.02	-	23.85	-	12	30	58	
10.01 & above	9	59	37	4	10.09	-	28.09	-	22	39	39	
Overall	70	33	59	8	22.55	-	-	-	-	-	-	

Source: Field Survey (2004-05)

Note: i) All Figures in the table indicate the responses in terms of percentages of the respective categories except in Col.2.

ii) Blank entries in the Table denote nil.



## ACCOUNTABILITY OF THE COMMITTEE OF THE PANI PANCHAYAT

The Committee is responsible for keeping accounts, distributing water in accordance with directives of the Governing body, implementing decisions made during the general meeting and resolving conflicts. The day-to-day affairs of the 'Association' shall be governed by the management committee. The executive body is consisting of president, Vice-president, Secretary, Treasurer and all members of the Chak Committees. The Secretary keep up a register of all transactions related to PP. The Secretary of the concerned PP is having a trading business as his main profession, leaving little time to take charge of water distribution. There are different function and power of the executive body such as

- a. The executive body shall have powers and duties necessary for the administration of the affairs of the 'Association' in keeping with the provision of the bye-law.
- b. Designate employ on remuneration and dismiss personal necessary for the operation and drainage system.
- c. They take care of, upkeeps and surveillance of irrigation and drainage systems in the area if operation of the 'Association' and the common areas and facilities.
- d. Levy charges for operation maintenance and repairs of irrigation and drainage system.
- e. Collect water rates/ charges contributions from owners and remit Government dues.
- f. See that cash book is written promptly and is signed by the treasurer.
- g. Sanction working expenses, count cash balance, engage labour, organize labour contribution from land owners or award contracts for O & M of irrigation and drainage system.
- h. Educate farmers in cropping pattern, water management, optimal and efficient use of water and inputs for increasing agricultural production yields and their profits through trained Irrigation Community Organised (I.C.O.)
- i. Inspect irrigation and drainage system, distribution of water.
- j. Scrutinise accounts kept by Secretary and/ or Treasurer and examine the registers and accounts books and take steps for the recovery of all sums due to the 'Association'.
- k. Allow Chak committees and others to organize and carry out repairs of irrigation and drainage systems under their respective outlets, if so desired by themselves through labour and materials contributions.

If the committee will not function properly the powers will be delineated, and also if any member other than the office bearers of the executive body without sufficient reasons given in writing to the executive body will automatically ceased to be a member of the executive body. Office bearers can also be removed upon and affirmative vote by a majority (more than 50 per cent of the member present) of members of the general body of the 'Association' any of the office bearers may be removed with cause and his successor elected as per procedure laid down.

## USER GROUP

A Water User's Association is an 'Association' of all persons owning land within a hydrological delineated portion of the command area varying in size from 300-600 Ha. It may be for each distributary or minor or sub minor canal area including direct outlets clubbed to them. The association will be formed and registered after enrolment of minimum 51 per cent of members. The entire land owner within the jurisdiction of 'association will have right to become members of the association'. The activities of the user group is

1. Ensure collective and community responsibility of the farmers to collected water charges from water users and payment to government from time to time.
2. Demonstrate and practice improvements on farms' water management, method for improve field operation efficiency in the individual firm's field.
3. To maintain and operate the minor/ Distributary/ laterals, FCI/FDC etc including lining earth work, structures etc. Already turned over by government to the control of "Association" by meeting the expenditure from out of the operation and maintenance (O and M) fund created by "Association".
4. The "Association" will resolve disputes among farmer's in respect of water distribution and allied matters.
5. Develop the sense of economy in water use amongst the users.

The user group is formed on the basis of location, activities, pre-location technology. It is also based on limit of area and budget. The group has no president, the whole group is unanimous. It has been argued that uniformity of social economic conditions prevalent in a co-operation conversely neutral differentiated groups tend to re-enforce the differentiation. Access to potential benefits of the scheme by the members of the collective is discriminatory. This constitutes a disincentive for co-operation effort by those who perceive the benefit as beyond their reach. Unless specific measures are taken to redress this imbalance, it discourages the reproduction of the co-operative spirit. Due to this the field study shows that majority of the members (59 per cent) are medium average co-operative and 33 per cent are very co-operative and only 8 per cent are less or not or poor co-operative (See Table-2 and Fig-2). The field work also shows that landless farmers are 69 per cent co-operative in average scale, among the marginal farmers 25 per cent are very co-operative and 76 per cent are average. Among the small farmers 9 per cent are not at all or we can say poor co-operative and 62 per cent are co-operative averagely. On the contrary, majority (59 per cent) of the large farmer responded that, User groups are very co-operative. Thus the study shows co-operation increases with increase in farm size. Table-2 depicts that, those 9 per cent from small farmer groups which are less or poor co-operative, are due to caste conflict. There were no comments in relation to the UGs co-operation regarding planning/design, supervision of construction work, cost estimation of works etc. The UG is very co-operative and active because they are from the same or near by village and they are the relative or neighbours to the person concern.

## VI. CONCLUDING OBSERVATIONS

An analysis on various aspects of Pani Panchayat Committee from the farmers view points showed that many farmers had no idea about the PP Programme. The landless farmers were 29 per cent satisfied with the functioning of the PP committee. Among the marginal farmers 34 per cent were satisfied with the committee, while majority 66 per cent are not satisfied. Majority of medium farmers are not satisfied. 62 per cent of the small farmers are not satisfied with the functioning. On the contrary, only 17 per cent of the large farmers are not satisfied with the functioning of the PP Committee. Our field study analysis of Pani Panchayat on User Groups showed that majority of the members are medium average co-operative and 33 per cent are very co-operative and only 8 per cent are less or not or poor co-operative. The field work also revealed that landless farmers are 69 per cent co-operative in average scale, among the marginal farmers 25 per cent are very co-operative and 76 per cent are average. Among the small farmers 9 per cent are not at all or we can say poor co-operative and 62 per cent are co-operative averagely. On the contrary, majority of the large farmer responded that, User groups are very co-operative. Thus the study showed, co-operation increases with increase in farm size.

We can conclude that the PP as regulatory institutions in charge of water distribution on equitable basis, their performance has been reasonably weak and unsuccessful. This endures unfavorably on their capacity to generate resources through collection of water cess. Researchers have drawn up a strategy for policy makers to ensure IMT programs become more pro-poor stressing the need to clearly define the rights of farmers, raise awareness of these rights, reform the election process, and monitor participation in water user authorities.<sup>1</sup> Despite the fact that the irrigation agency in Orissa has taken policy decision to encourage farmer's participation and attempts are underway to motivate farmers to form WUAs, the farmer's response in this regard is not up to the level of satisfaction (Swain; 2000: 128). The State should act as a facilitator not controller. PP do not imply that the state would completely withdraw from irrigation, but would continue to provide critical services, particularly water supply at main delivery points, providing information, training and accounting are required to support PP.

Even though PP has been initiated and endorsed in the State for more than a couple of years, the acceptance of the model have been lethargic and scattered. There is no promptly accessible data to evaluate this performance. As a whole PP is an unexecutable and unacceptable. PP is not in the interest of the people. There are so many constraints like selfishness, illiteracy, no interest due to big landowners, which hinder for the improvement of PP.

A detailed action plan should be prepared in consultation with the water users through Participatory Rural Appraisal method. A feasibility study should be under taken by examining the caste class conflict, groupism, political differences and history of confrontation and conflict if any. It is necessary to apply bottom-up approach instead of top-down for sustainability. There must also be mechanisms to ensure that the benefits of the project are equally distributed to all concerned stakeholders. The Government

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1- For detail discussions, see The Water Policy Briefing Series ([www.iwmi.org/waterpolicybriefing](http://www.iwmi.org/waterpolicybriefing)).

should review its decision of making the availability of irrigation water conditions to the formation of PP. Many registration actions of PP are complex and long, raising the costs of participation for the farmers. Simpler procedures are needed that still provide the PP organisations with sufficient legal standing to deal with government agencies, contract with private firms, contractors, and control resources within the group.

## APPENDIX

### PROFILES OF THE SELECTED PANI PANCHAYAT (PP)

Name of the PP: Vir Bajrang Bali Pani Panchayat (Lift- I & II)

Location: Village: Bandhapali Gram Panchayat: Kardola,  
Post office: Chiplima Block: Dhankauda District: Sambalpur,  
State- Orissa, Country- India

Age of the system: Old registration 1996-97 as WUA, Newly  
formatted in 2001-02 as PP

Type of the system: Lift Irrigation (LI)

Total No of LI Points: Lift I and II

Name of the Source: Mahanadi River

Area in acre (ayacut): 123.66 Acre

Horse Power Used: 15 HP (Horse Power)

Office Bearers: Total No. of PP members: 63 No. of Committee members: Four

President Election: Nomination

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