



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Geographical Review Of Irrigation Projects In Bundi District

Dr. Ashutosh Birla

Associate Professor

Department of Geography,

Govt. Girls College, Bundi (Raj.)

Introduction -

In nature, all living beings require water to maintain their existence. The main source of water is rainfall. In the context of India, there is an urgent need for the proper utilization and conservation of the water received in the form of rainfall, because in India, rainfall mainly occurs during a few months of the year, from June to September, during the Monsoon season. However, its nature is uncertain, and its continuity and intensity are also variable. In an agriculture-based country like India, various irrigation projects have been developed for the proper utilization and conservation of rainwater. Bundi district in Rajasthan is also agriculture-based, where various medium and minor irrigation projects have been constructed to provide security and stability to agriculture against the fluctuating nature of rainfall. For the maximum utilization of rainwater, a geographical review of the district's irrigation projects is necessary. This research paper presents a geographical review of the district's irrigation projects.

Keywords – Irrigation projects, Rainwater Conservation, Agriculture, Bundi

Objectives – The main objectives of the research paper are:

1. To collect the information about the irrigation projects of the district.
2. To collect the information about the catchment and command areas of these irrigation projects.
3. To evaluate them and present the problems and suggestions for their resolution so that maximum benefit can be obtained from them.

Research Methodology – In the research study, information collected through field visits to irrigation project areas has been used as the primary source. Along with this, study materials published by various government departments, websites, etc., have been used as secondary sources.

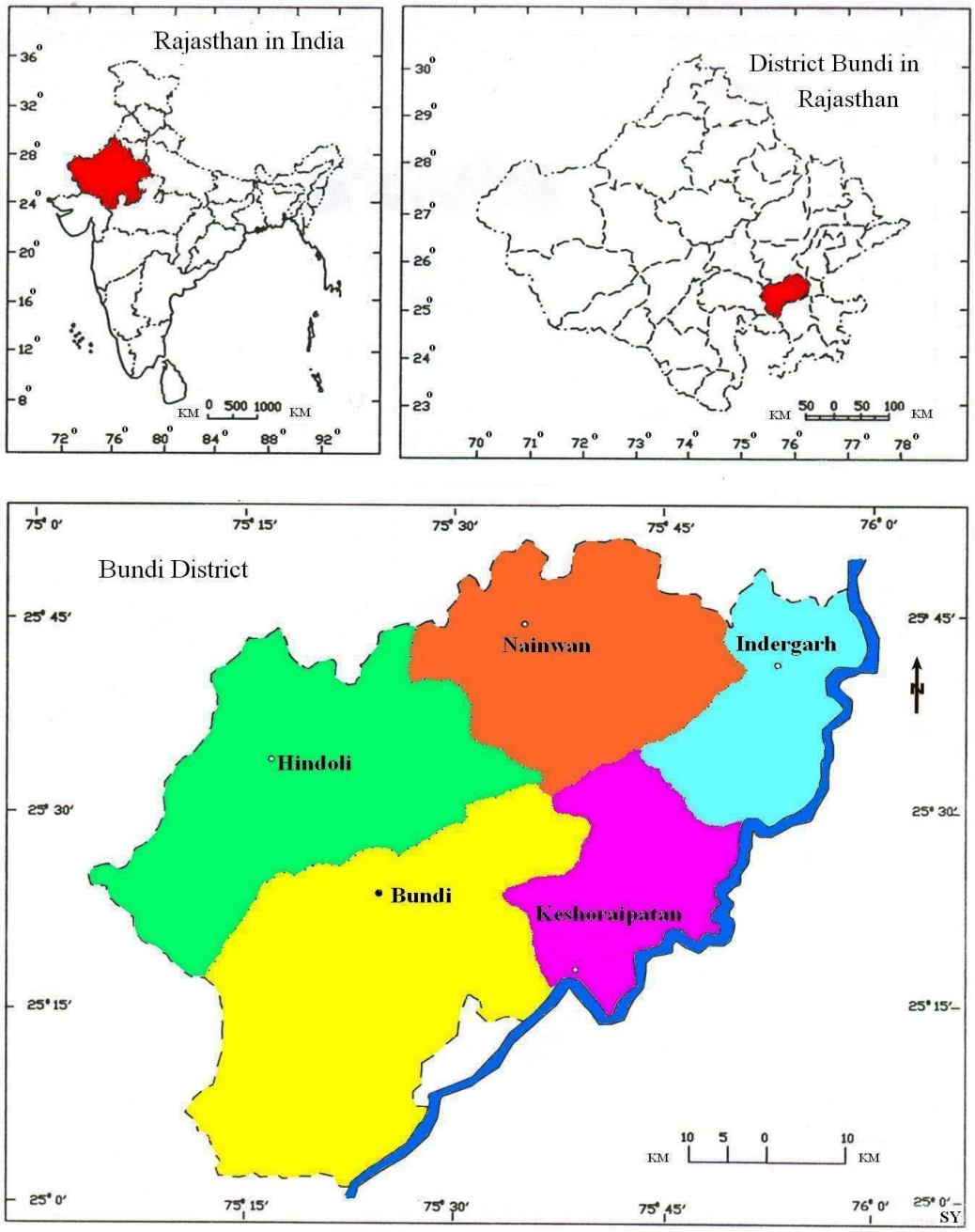
Study Area- Bundi district is situated on south-western part of Rajasthan between 24°59'11" to 25°53'11" North Latitude and 75°19'30" to 76°19'30" East Longitude, spread over an area of 5850 km². It shares borders with Bhilawara to the west, with Tonk and Sawaimadhopur to the north, with Chittorgarh to the south-west

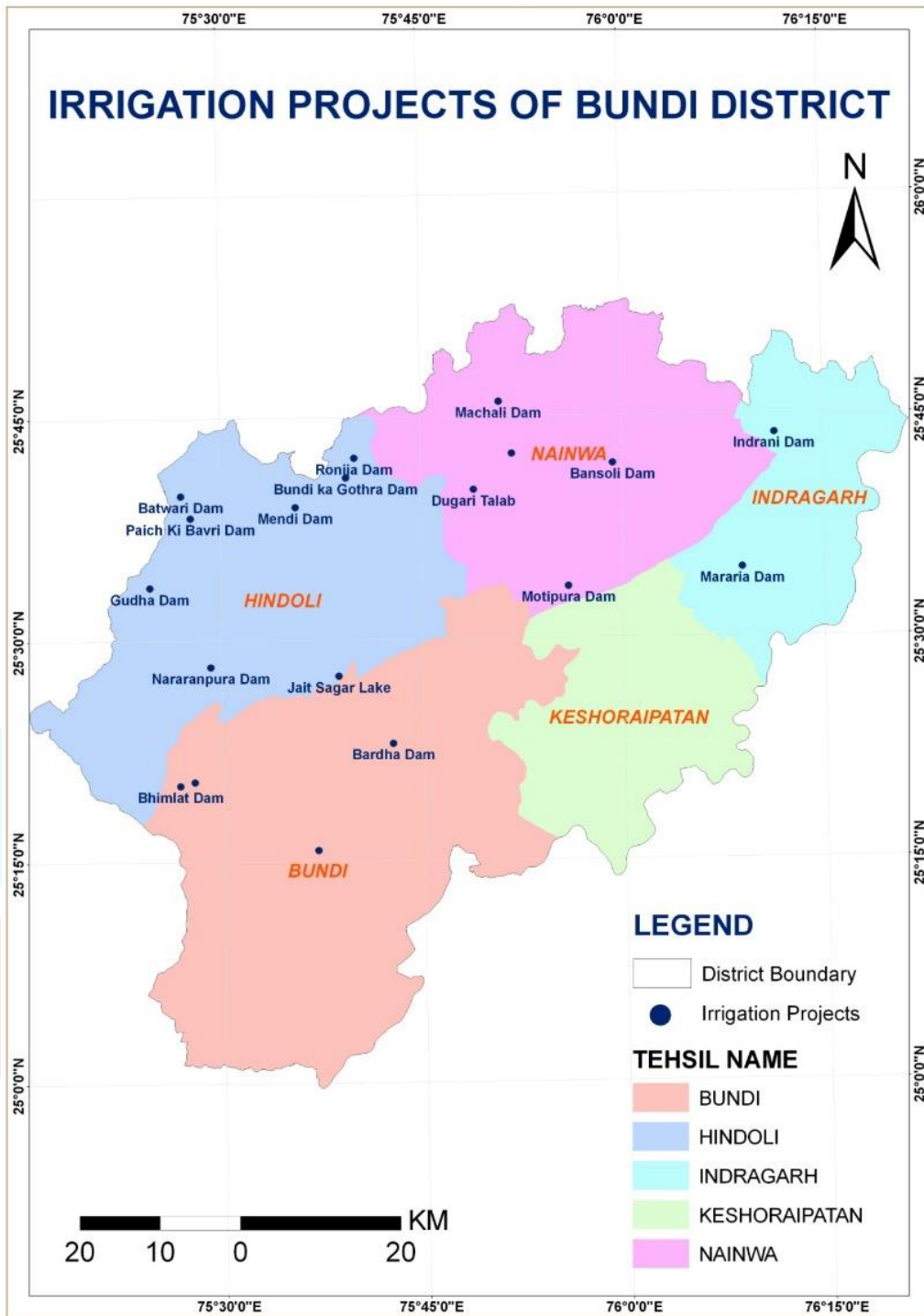
and with Kota to the south. The Chambal River separates Bundi from Kota in the south. Mej, Mangli, Ghoda Pachhad, Chandrabhaga and Kural are also important rivers traversing the district. Aravali and Vindhyan ranges, which are separated by great boundary fault, also traverse the Bundi district. Climate of the area is semi humid. Average annual rainfall is 809 mm with 90 percent rainfall between months of June to September. **Present Status and Discussion** – To accelerate agricultural and industrial development in Bundi district, there are 20 medium and minor irrigation projects have been constructed on various rivers flowing through the district for the maximum utilization of water resources. These are-

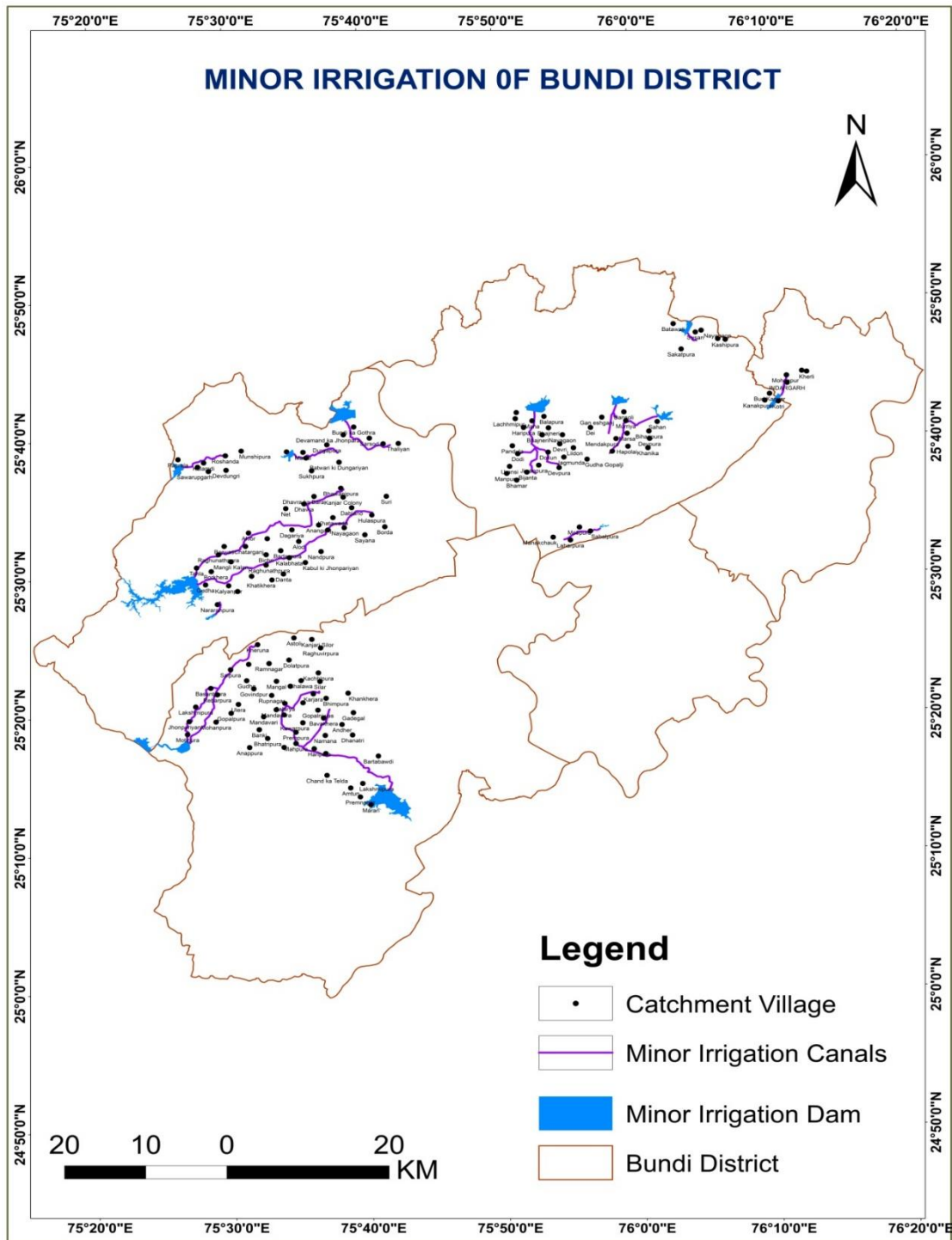
1. Gudha Dam
2. Gothra Dam of Bundi
3. Dugari Dam
4. Bhimlat-Abhaypura Dam
5. Bardha Dam
6. Paibalapura Dam
7. Pech Ki Bavdi Dam
8. Ronija Dam
9. Bakyan Ka Khal Dam
10. Maradiya Dam
11. Narayanpura Dam
12. Mendi Dam
13. Bansoli Dam
14. Batawadi Dam
15. Motipura Dam
16. Indrani Dam
17. Machhli Dam
18. Jaitsagar Dam
19. Chanda Ka Talab Dam
20. Gararda Dam



Key Map of Bundi District







STATUS OF MAIN IRRIGATION PROJECTS IN BUNDI, DISTRICT

S.NO.	Name of project	Tehsil	Type of project	Year of Start	Year of Completion	No. of Village to be benefitted	No of sc beneficiaries families	No of st beneficiaries families	No of Gen. beneficiaries families	Gross Catchment Area in km	GCA in Hec.	CCA in Hec.	Designed Irrigation intensity in %	ICA in Hec.	B.C.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Gudha	Hindoli	Medium	1954	1958	60	892	753	5512	745	18141	11380	98.50%	11380	1.53:1
2	Bundi ka Gothra	Hindoli	Medium	1954	1957	17	503	473	2271	310.8	8112	5560	50.00%	5560	1.51:1
3	Pal Balapura	Nainwa	minor	1954	1957	9	267	196	1117	153.6	2490	1899	67.00%	1899	1.52:1
4	Pech ki Baori	Hindoli	minor	1954	1958	6	229	185	1327	72.5	1725	1037	80.00%	1037	1.51:1
5	Roonija	Hindoli	minor	1963	1965	3	193	166	1015	28.8	1693	1200	57.00%	1200	1.55:1
6	Bankiya khal	Hindoli	minor	1982	1986	3	111	56	275	28.89	497.3	377.86	65.00%	377.9	1.52:1
7	Mardia	Hindoli	minor	1985	1995	3	132	105	561	13.7	804.7	792	69.70%	792	1.55:1
8	Narayanpura	Hindoli	minor	1987	1996	2	71	52	263	16.69	392.7	352.5	86.87%	352.5	1.62:1
9	Mandi	Hindoli	minor	1991	1998	3	125	98	313	26.54	731	579	60.00%	579	1.51:1
10	Dugari	Nainwa	Medium	State	State	6	375	306	1715	112.66	2877	2251	70.00%	2251	1.54:1
11	Bansoli	Nainwa	minor	1966	1972	3	205	121	910	41.44	1404	1012.1	60.00%	1012	1.53:1
12	Batawadi	Nainwa	minor	1964	1968	5	95	58	471	26.94	527.4	527.43	60.00%	527.4	1.51:1
13	Motipura	Nainwa	minor	1960	1965	2	71	49	326	66.3	578.6	477.43	80.00%	477.4	1.58:1
14	Indrani	Indergarh	minor	1979	1984	8	118	95	722	29.27	866	832	70.00%	832	1.52:1
15	Machhali	Nainwa	minor	1995-96	2008	6	115	87	685	73.13	983	796	91.00%	796	1.55:1
16	Jet Sagar	Bundi	minor	State	State	-	-	-	-	23.99	-	-	-	-	-

17	Chanda ka Talab	Bundi	minor	1986	1997	3	586	288	874	39.53	583	484	91.00%	436	1.72:1
----	-----------------	-------	-------	------	------	---	-----	-----	-----	-------	-----	-----	--------	-----	--------



Through these irrigation projects, the irrigation facilities developed and the resulting rise in groundwater levels have brought changes in the district's cropping pattern. Crop production has started taking place in both the Kharif and Rabi seasons. Rice, oilseeds, and sugarcane have become the major crops. Along with the continuous expansion of the agricultural area in the district, agricultural productivity has also increased. The increase in agricultural production has led to the development of agro-based industries as well, which has accelerated the district's economic development. Bundi has acquired a distinctive position in the rice and oilseed industries. But due to the lack of proper maintenance to these irrigation projects over time, several problems associated with them have arisen, as a result of which the desired benefits of these projects have become limited. The major problems encountered during the study are as follows—

1. Leakage in dam embankments – 17 medium and minor irrigation projects have been constructed on the rivers flowing through the district, most of which were built between the 1960s and the mid-1980s. At that time, the dam embankments were made of soil and the main embankments of some dams are also made of soil. Over time, due to lack of proper attention, trees have grown on the embankments, and soil erosion has weakened them. During the monsoon season, when these dams fill with water, the pressure causes several holes to develop in the embankments of many dams. Water continuously leaks through these holes from the stored water in the dams. As a result, on one hand, water cannot remain stored in the dams for a long time, and on the other hand, there is always a danger of the embankments collapsing. This has been happening almost every year. Even after receiving information and being aware of the leakage, only temporary measures are taken, while long-term and permanent efforts are not made. This is adversely affecting the utility of the dams.

Due to leakage, even after the dams are filled, they become empty by September–October. As a result, the availability of water for irrigation of the rabi crop, which mainly depends on irrigation, decreases. This leads to a reduction in rabi crop production.

2. Waterlogging and Reduction in Capacity – Most of this irrigation projects constructed in the district are now 40–50 years old. During this period, due to the absence of proper cleaning arrangements for these dams, a large quantity of soil also flows in with the rainwater during the monsoon season. This soil and silt are continuously accumulating at the bottom of the dams, causing a reduction in their storage capacity. Even when the dams are filled, they do not actually hold water equal to their real capacity because excessive soil and silt have accumulated, which reduces the actual availability of water and the desired irrigation targets are not achieved.

Although this problem exists in almost all the dams of the district. The gap between the created irrigation capacity and the actual availability is continuously increasing, which raises questions about the future of these dams.

3. Dilapidated Canal System – Along with these irrigation projects constructed in Bundi district, the main canal, its sub-branches, distributaries, and drains were also built for irrigation, so that the maximum possible area could benefit from these projects and agricultural development in the district could gain a new dimension. At the time of construction of the irrigation projects, canals, branches, sub-branches, and distributaries were also constructed. However, due to lack of maintenance and proper care, the entire canal system has become dilapidated, because of which its actual objectives have remained far from being achieved.

4. Inappropriate Management – Along with the other problems of irrigation projects, their inappropriate management is also an important issue. Disputes keep arising between the officials of the responsible department and the farmers of the region regarding when water should be released for irrigation. Due to shortcomings in the management of these projects, the benefits obtained from them are continuously decreasing.

Suggestions -

- The main wall of the dam should be made strong.
- Stones should be used on the dam side of the embankment wall.
- The gates installed at the water release points of the dam should be regularly inspected.
- The spillway should be constructed keeping in mind the possibility of excessive water inflow.
- Repair and inspection of the dam embankment should be completed before the Monsoon.
- Canals, branches, and distributaries should be solid to prevent seepage losses of water.
- Obstructions in catchment areas should be removed.
- Encouraging irrigation of crops in proper quantity and at the proper time.
- Allow farmers in the head reach area to take water only after water has reached the tail end area, so that water supply to the tail end is also ensured.
- Proper maintenance of the irrigation system and increasing public participation in it.
- Encourage farmers to choose crops according to water availability.
- Increase the participation of farmers and the public in water management.

Conclusion - A geographical study of these irrigation projects located in the district has been conducted and their evaluation has also been carried out. Due to the old age of irrigation projects and lack of proper inspection and maintenance, the benefits currently derived from them have decreased. This has also been analyzed. Efforts have also been made to identify the reasons due to which the problems that have arisen have led to a reduction in the capacity of these projects. After analyzing the causes, suggestions have also been presented. If these suggestions are taken into consideration, these irrigation projects of the district will certainly become a milestone in the development of the district.

References -

1. Das D.K. Mangaraj, B.K. and Acharya R.C. (2003) 'Multi-Perspective Monitoring and Evaluation of PIM (Pani Panchayats) in Orissa: An Analytical Approach' Proceedings of Tenth National Water Convention, Ministry of Water Resources, Govt. Of India, pp. 339-348.
2. Das, D.K. Mangarj, B.K. and Acharya R.C. (2004) 'Performance 'Monitoring of Irrigation Management Reform (Pani Panchayat) in Orissa: 'A Multi-perspective Approach' 45th Technical Annual Institution of Engineers (India) Orissa State Centre pp. 425-431.
3. Das D.K. (2005a) 'Participatory Irrigation Management – A perspective from Pani Panchayat Programme in Orissa' Proceedings of World Water Day 2005 Central Water Commission, Bhubaneswar, Govt of India pp. 126-149
4. Das D.K. (2005b) Irrigation Management Transfer to Farmers in Orissa: Experiences and Lessons Proceedings of conference on Irrigation Management: Policies and Practices European Commission and Govt. of Orissa a Bhubaneswar, 20-21 June 2005.
5. JBIC (2003a) Evaluation of ODA Loan Project Upper Indravati Irrigation Project, India; Report on web site of, JBIC
6. Kato K. and Singh, M.P. (2005) Irrigation Management: JBIC's Policy & Experiences in India: Presentation of JBIC in the conference on Irrigation Management: Policies and Practices, European Commission and Govt. of Orissa at Bhubaneswar, 20-21 June 2005