

Performance Evaluation of Itiadoh Irrigation Project
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Performance, Project Efficiencies, Agro-economic, Socio-economic, Environmental Impact
<u>ABSTRACT</u> The Itiadoh Irrigation Project is a major irrigation project located in the eastern region of Maharashtra State and is a part of Wainganga basin. The project is in operation since 1980. The design irrigable command area of the project is 17,980 ha. The main crop grown in the command is low land paddy. The Post Project Performance of the Itiadoh Irrigation Project is therefore evaluated with reference to the set objectives and targeted benefits envisaged in the Project Report. The status of water distribution network, overall project efficiency, irrigation management practices, agro-economic, socio-economic and environmental impact are evaluated with respect to the Itiadoh Irrigation Project on the basis of primary and secondary data and presented in this paper.

Introduction:

Water resources projects are primarily meant to stimulate socio-economic development and improve the living standard of the people. Periodic performance evaluation and impact assessment studies are mandatory requirements to assess project performance and various project impacts on social, economical and environmental aspects. The findings can also be utilized as base work for benchmarking studies.

In the water resources sector, performance evaluation and impact studies are yet to gain momentum, although the apex bodies of policy makers at national level had emphasized for the same in the past. More recently, the Revised National Water Policy, adopted in April 2002 endorses this view as well.

Maharashtra occupies main portion of the Indian Sub-continent. The geographical location of Maharashtra is bounded between latitude 16.4° to 22.1° N and longitude 72.6° to 90.9° E and has an area of 307.71 thousand Sq. Km. Which is about 9.4 percent of the total geographical area of India. Maharashtra stands first amongst the major states in India in income and growth rate. The eastern region of Maharashtra State is consisting of Wainganga Basin. Itiadoh Irrigation Project is located at the Eastern side of Wainganga Basin. The annual weighted mean monsoon rainfall in the catchment of Itiadoh Project is 1336 mm. The main crop grown in the command area is Low Land Paddy. The irrigable command area is 17980 ha out of 22751 ha. CCA. Itiadoh Irrigation Project located in Gondia District of Maharashtra State is evaluated for its post project performance. The project was commissioned in the year 1971 – 72 and is in operation since then. The evaluation was carried out with respect to following:

- (a) System Performance
- (b) Agro-Economic Impacts
- (c) Socio-Economic Impacts
- (d) Environmental Impacts

Methodology:

The post project evaluation of Itiadh project is taken up with an interdisciplinary approach. The primary and secondary data of the project is collected from the various Government Organizations involved in the activities proposed under evaluation studies. Field observations on the irrigation project are also taken for the collection of field data pertaining to irrigation and allied sectors, which directly or indirectly affect the performance of irrigation project.

Field observations on the distribution network is taken up by selecting three distributaries or minors each in the initial reach of 0 to 40 Kms. of main canal, Wainganga branch canal and 40 to 72 Kms. length of main canal.

Field observations and measurements have been carried out in the field during the Irrigation period of project. The Project officials, farmers, WUA officials etc. are interviewed with structured questionnaires.

The procedure, nature and the type of the data to be collected in the formats was developed by WALMI, Aurangabad which in turn was utilized by the field staff for collecting the data. All the data collected from the field observations, primary and secondary sources is compiled by WALMI, Aurangabad and analyzed.

Performance Evaluation Study:

I) System Performance:

a) Project Infrastructure and canal network

Sr. No.	Infrastructure / Canal Network	Conditions
1	Dam	Good condition
2	Main / Branch Canal	Condition is found to be good and delivering the water satisfactorily. However, few patches needs maintenance / restoration.
3	Distributaries / Minors	Sections are mostly widened are disturbed. Heavy moderate siltation and vegetation is observed. Selective lining is provided and the structures are found to be intact and in good condition.

b) Evaluation of Measuring Devices

Sr. No.	Type of Measuring Device	Location	Present Status
1	S.W.F.	Main Canal	Functioning, but needs calibration
2	C.T.F.	Minors	Functioning, adequately installed

c) Evaluation of Structures

Most of the structures on distribution network are intact and needs minor repairs. Outlets are also in good condition. However, minor repairs are necessary for gates etc. S.R. Outlets are provided on some of the minors for delivering the constant discharge of 30 lps. However, observations show the variations in the discharge due to improper setting of sill levels.

d) Canal Capacities:

Sr. No.	Type of Canal	Design Capacity Cumecs	Present Capacity	% variation
1	Main Canal			
	a) Head reach	39.64	33.3	84
	b) Middle reach	13.11	11.80	90
	c) Tail reach	5.77	5.57	96
2	Wainganga Branch	14.88	11.33	76.14
3	Minors	Capacities are found to be comparatively higher than the design delivering the water satisfactorily.		

e) Project Efficiencies

- Inflow Efficiency : Varies between 89 to 100%
- Storage Efficiency : 87% (Av. of last 12 years)
- Conveyance Efficiency
 - Main Canal : 78.3%
 - Branch Canal : 78.84%
 - Minors : 73.8%
- Conveyance Losses (Cumecs/Mm²)
 - Main Canal : 7.39 as against 7.00
 - Branch Canal : 10.18 as against 7.00
 - Minors : 10.13 as against 7.00

II) Agro-Economic Impact:**a) Crop and Crop Pattern:**

Project was designed with cropping intensity of 142.27%. Project Crop intensity observed is closed to the design intensity. However, the existing crop pattern is Kharif Paddy followed by Rabi Hot weather Paddy. Average return from existing crop pattern estimated to be Rs. 20,587/- per ha. which is comparatively low. In order to improve the productivity and water use, diversified crop pattern with 151% crop intensity is proposed. The estimated return of the proposed crop pattern will be Rs. 39,940/- per ha. which is almost double of the existing average return with improved water use due to curtailment of paddy area in Rabi Hot Weather season.

Cropping Pattern of Itiadh Irrigation Project (1982) by

Agriculture Department, GOM

Sr.No.	Crops	Area (ha)	Percent area w.r.t. total area
1	Perennials (Guava citrus etc.)	360	02
2	Kharif paddy	16541	92
3	Kharif / Rabi Seasonals and Vegetables (viz. Chilly, Tomato, Cotton, etc.)	1079	06
	Total	17980	100
4	Followon H.W. Paddy, Wheat, Cowpea etc.	7600	42.27
	Total	25580	142.27

Proposed Cropping Pattern for Itiadh Irrigation Project Irrigable Command Area :

Sr.No.	Crops	Area (ha)	Percent area
I	Perennials:		
1	Orange / Guava	540	03.00
2	Sugarcane	360	02.00
II	Kharif Seasonals		
3	Paddy	13485	75.00
4	Soyabean	2697	15.00
5	Green manuring /Fodder maize	899	05.00
III	Rabi Seasonals		
6	Wheat	1798	10.00
7	Gram	1798	10.00
8	Linseed/Mustard	899	05.00
9	Vegetables	719	04.00
IV	Hot Weather Seasonals		
10	Paddy	2679	15.00
11	Chillies	360	02.00
12	Ground – nut	899	05.00
	Total	27,133	151.00

b) Agricultural Assets & Extension Facilities

Sr. No.	Assets / Extension facilities	Status
1	Farm Equipments	83% farmers are having small harrows / ploughs and 24% are having bullock carts.
2	Agricultural Extension facilities	Most known source of information reported by the farmers is Gramsevak, Talathi & Canal Inspector
3	Land Holding	44% farmers are having land holding up to one ha. and 43% posses 1 to 2 ha.
4	Animal Husbandry	59% farm families posses bullocks, 50% poultry birds, and 34% cows.
5	Farm Income	Average income is found to be Rs. 37396/- per family.
6	Non-Farm Income	Average non-farm income is found to be Rs. 29791/- per family
7	Economy	Economy is predominantly based on agriculture.

III) Socio-Economic Impact:**a) Social Impact:**

Sr. No.	Social impact	Status
1	Farm Employment	65% : Farmers, 35% : Agricultural Labourers
2	Non-Farm Employment	Found in Bidi business
3	Literacy	72.2% for project command as against 71.9% of state.
4	Migration pattern	Refugees from Tibet and Bangladesh rehabilitated in project command.
5	Rehabilitation & Resettlement	18 villages affected, Rehabilitation & resettlement package was effectively executed.
6	Education	Adequate facility of primary to High School level education
7	Standard of living	Considerable post project improvement in houses hold items
8	Marketing facility	Agricultural produce marketing committee (APMC) is the only public Agency.
9	Consumption and savings	Around 50% farmers are found to have saving practices
10	Civic amenities	92% villages are having drinking water facility, Tap water is available in 21% villages, Street-light facility available in 72% villages, 65% villages are having internal kachha roads and 35% having metal and cement roads. 100% villages are having drainage facility.

b) Economic Evaluation:

Economic Evaluation

Benefit -Cost ratio	(present)	:	0.86
IRR	(present)	:	8.89%

IV) Environmental Impact:

There has been no adverse environmental impact was found in the command of Itiadoh Irrigation Project. Even the project has regulated the floods of the area and mitigated the drought and flood situation in the command.

References:

- (1) Project Report of Itiadoh Irrigation Project
- (2) Data and information provided from the Project Authorities and the different reports of the Project
- (3) Post Project Performance Evaluation Study Report of Itiadoh Irrigation Project, WALMI, Aurangabad.