

CHAPTER – III
**MAINTENANCE AND
EVALUATION OF
IRRIGATION
PROJECTS**

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3.1 Maintenance

In order to properly maintain and operate an irrigation structure, pumping machineries *etc.*, it is necessary to have detailed operation and maintenance (O&M) guidelines. Expenditure on maintenance is met through the budget allotment by the GoM. We noticed several deficiencies in maintenance of pumping machinery and canals as discussed in succeeding paragraphs.

3.1.1 Maintenance of pumps and related records

The machineries installed in LIS projects require periodic care and maintenance. The entries of repairs and maintenance were required to be made in the prescribed log book and registers of regular Operation and Maintenance (O&M) depicting past performance, normal insulation level, air gap measurement, nature of repairs and interval between previous repairs and other important information. These records were required to be maintained by the divisions maintaining such machineries.

In all the three¹ projects the required records were not maintained and hence we are unable to come to any conclusion on the periodicity and effectiveness of maintenance. Further during joint physical verification (November 2019) we observed that in Sondyatola project only five out of nine pumps were operational and the remaining four were out of order for want of repairs. In the Wagholibuti project, only four pumps were installed instead of the required five pumps. One of these pumps was out of order since September 2018.

Government replied (November 2021) that in Haranghat and Wagholibuti projects history sheets and log books were maintained. In Sondyatola, regular maintenance of pumps and machineries was carried out as per the requirement.

Reply is not acceptable, as the prescribed records were not furnished to audit. Further, during joint physical verification some of the pumps were found to be out of order at Sondyatola and Wagholibuti projects.

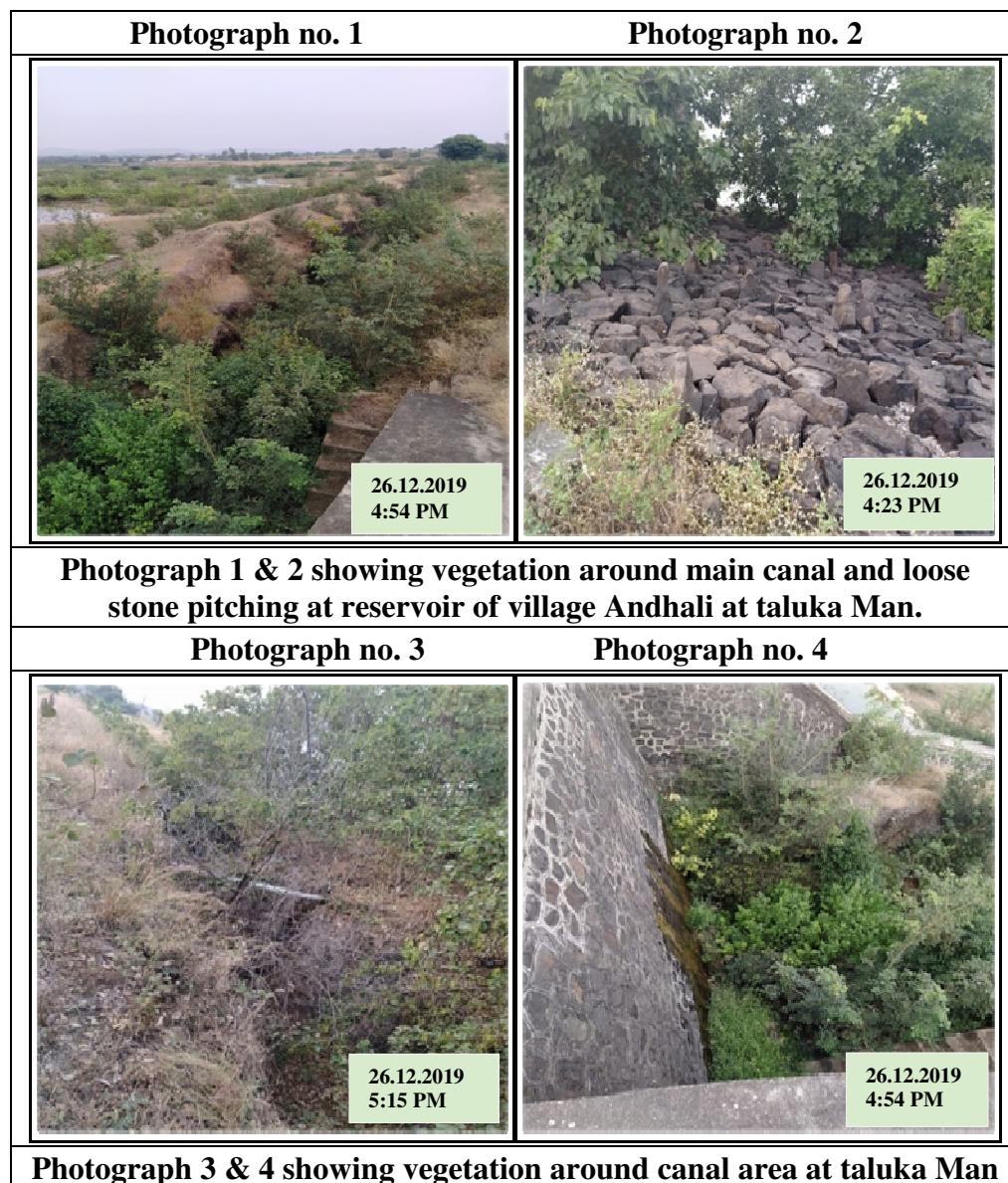
3.1.2 Maintenance of the canal system

Section 52(d) (iii) of the Maharashtra Management of Irrigation System by Farmers Act, 2005, provides for maintenance of the canal system before commencement of season is necessary. As such, the WRD is expected to maintain the canals and dams and prepare an Annual Programme for this work. The assessment is forwarded to Mechanical wing of the department which executes this work.





¹ Haranghat, Sondyatola and Wagholibuti

During physical verification of the canal systems of the six projects, Andhali and Wagholibuti LIS projects' canal systems were found to be poorly maintained by the respective management divisions.

Andhali - During joint physical verification (December 2019) of the project with the project division officials, loose stone pitching work and thick vegetation on it was noticed. Similarly, thick vegetation was noticed in the left and right bank canals and distributaries. The poor maintenance of the canal system is evident from the photographs below.



Wagholibuti - During physical inspection of the canal system of the project (September 2019) it was observed that the main canal was heavily silted and the branch canal and distributaries were blocked at various places as shown in the photographs below.

<p>Photograph no. 5</p>  <p>25.09.2019 4:47 PM</p>	<p>Photograph no. 6</p>  <p>24.09.2019 2:17 PM</p>
<p>Photograph 5 and 6 showing poor condition of Main canal at village Vyahad</p>	
<p>Photograph no. 7</p>  <p>25.09.2019 3:28 PM</p>	<p>Photograph no. 8</p>  <p>25.09.2019 3:28 PM</p>
<p>Photograph 7 and 8 showing poor condition of branch canal/ distributary at village Donala</p>	

It is evident from the above photographs that the canal system was not maintained properly affecting the discharge of water through the canal.

Government stated (November 2021) that in Andhali project canal maintenance was not done, as water availability in the dam was less. In Wagholibuti project, canals were cleaned every year.

The reply is not acceptable as the evidence from joint physical verification (as brought out in the above photographs) clearly indicates lack of proper maintenance leading to water not reaching the tail portion of command area, which was also confirmed in the beneficiary survey as discussed in **paragraph 3.2.1**.

Recommendation 7: The Government may ensure prompt and effective maintenance of pumping machineries and canal systems of the projects.

3.2 EVALUATION**3.2.1 Assessment of deliverables of projects through farmers' survey**

A beneficiary survey of the farmers coming under the command area of six selected projects was also conducted by audit with the representatives of the Agriculture department as detailed in **Table 3.2.1** below:

Table 3.2.1: Details of beneficiary survey of the farmers

Sr. No.	Name of the Project	Total number of villages under command area	Survey conducted (number of villages)	Number of farmers surveyed	Number of farmers who demanded water (2014-15 to 2018-19)	Number of farmers who received water through canals		
						Kharif	Rabi	hot weather
1.	Andhali	3	3	16	16	0	0	0
2.	Pimpalgaon (Dhale)	6	4	22	22	0	0	0
3.	Purna	37	7	39	39	39	39	39
4.	Haranghat LIS	8	8	29	29	29	0	0
5.	Sondyatola LIS	40	8	24	24	24	0	0
6.	Wagholibuti LIS	20	5	28	28	0	0	0
	Total	114	35	158	158	92	39	39
<i>Source: Information obtained from farmers</i>								

From the table it can be seen that all the 158 farmers of the 35 villages, who were surveyed demanded water during the period 2014-15 to 2018-19. However, no water was provided through canal system during the period to 66 farmers of 12 villages of Andhali, Pimpalgaon (Dhale) and Wagholibuti projects. In respect of the Haranghat and Sondyatola projects, water through canal was provided during kharif season only to 53 farmers of 16 villages, who were surveyed. In Purna project, water was supplied in all the seasons through canal to 39 farmers of the seven villages, who were surveyed.

Government agreed (November 2021) with the survey of audit in Haranghat, Purna and Wagholibuti projects. In the case of Sondyatola project it was stated that the irrigation was done in all three seasons from 2013-14 to 2020-21.

The reply in case of Sondyatola project is not acceptable as the irrigation claimed to have been done in all three seasons includes irrigation through all sources viz., canal, well, river, nallas *etc.* while the survey related to surface irrigation through canals only.

3.2.2 Participatory irrigation management activities

Participatory Irrigation Management (PIM) activities are post project creation activities, which include handing over the project to Management division, formation of Water Users' Associations, Canal Advisory Committees and Co-ordination Committees *etc.* for proper maintenance and management of the

created asset so as to have an equitable and efficient distribution of water resulting in achievement of the project objectives as envisaged in the DPRs. We observed that the Water Users' Associations, Canal Advisory Committees and Co-ordination Committees *etc.* were not formed resulting in non-achievement of objectives of the PIM activities as discussed in the succeeding paragraphs.

3.2.2.1 Water Users' Associations

The Maharashtra Management of Irrigation System by Farmers Act (MMISFA), 2005 stipulates formation of Water Users' Associations (WUAs) for irrigation projects in the State. The Act mandates handing over of all completed irrigation projects to WUAs for irrigation management and maintenance with the prime objective of providing water from public canal systems on volumetric and equitable basis for improving agriculture productivity.

We observed that WUAs were not formed in two² projects and in four³ projects they were non-functional owing to non-handing over of the command area.

Government stated (November 2021) that in Andhali project the water storage in the dam was less and the farmers cultivated rain fed crops. Thus, the farmers were reluctant to form WUAs. In Pimpalgaon (Dhale) project, formation of WUAs was under process. In Haranghat project, all six WUAs had been formed and have started functioning. In Purna project, all 19 WUAs have been formed and three WUAs were functional. The handing over of command area to remaining 16 WUAs was under process. In Sondyatola LIS project, out of 23 WUAs, 22 WUAs were functioning and formation and handing over of remaining one WUA was under progress. In Wagholibuti LIS project, WUAs had been formed and have started functioning.

In the case of Sondyatola LIS, Haranghat LIS and Wagholibuti LIS projects, Audit could not ascertain the functioning of WUAs as no documents in support of conduct of meeting before each irrigation season, account statement of WUAs and details of water cess collected by WUAs were furnished.

The non-formation/non-functioning of WUAs defeated the objective of participatory irrigation management by the farmers.

3.2.2.2 Canal Advisory Committee

In order to ensure the participation of cultivators for efficient irrigation management, the GoM instructed (August 2000), to form Canal Advisory Committee (CAC) at sub-division level of each irrigation canal covering beneficiary area between 1000 *ha* and 10,000 *ha*. This committee shall consist of:

² Andhali and Pimpalgaon (Dhale).

³ Haranghat, Purna, Sondyatola and Wagholibuti.

- two Government members (BDO, ZP: Agriculture Development Officer, ZP or his representative) and
- non-Government members comprising
 - one representative of local sugar factory;
 - two representatives of local bagayat holders⁴;
 - local representative of ZP members from beneficiary region;
 - representative from bagayat land holders of scheduled caste;
 - representative from bagayat land holders of scheduled tribe;
 - representative from bagayat land holders of minorities;
 - representative from economically backward and small farmers of *bagayat* land holders.

The main objective of CAC was to;

- assess quantity of water available,
- ensure water rotation, crop sowing, and creation of awareness among the beneficiaries,
- gather information regarding new crop breeds, supply of seeds, pesticides/insecticides and
- communicate with existing pani panchayats, to attend all the appeals/requisitions received from pani panchayats *etc.*

We noticed that no such committee was formed in any of the six projects. Hence, participation of cultivators in efficient management of the irrigation system could not be ensured.

Government stated (November 2021) that in Purna Project the committee was formed and in remaining five projects the same would be formed.

3.2.2.3 Co-ordination Committee

The GoM instructed (March and November 2014) formation of Co-ordination Committee for optimum utilization of available water in the irrigation projects for implementing various schemes of the Agriculture Department and reducing the gap between IP creation and its utilization. This committee is to be chaired by the Divisional Commissioner with members from WRD, Agriculture Department, Zilla Parishad and Co-operation Department. The committee is required to prepare:

- irrigation programme and implement cropping pattern envisaged in the DPR based on water availability in an irrigation project;

⁴ refers to irrigated landholders.

- to plan/reserve water from project for drinking and industrial purpose (non-irrigation);
- to plan increase the yield from the available water in hot weather season etc.

This committee was required to be formed at state, division, district and taluka levels. The number of meetings to be conducted at each level was also prescribed therein.

We observed that no such committees were formed in any of the projects at any level. In the absence of these committees the gap between IP created and its utilization could not be reduced as the percentage of IP utilized to IP created ranged between zero and 85.94 *per cent* in respect of all the six projects as discussed in the **paragraph 2.2.2**.

Government stated (November 2021) that Co-ordination committee at divisional level was formed and functioning in Purna project while in remaining projects no such committee was formed.

The reply in respect of Purna Project is not acceptable as no records of the formation of the committee were produced to audit.

Recommendation 8: Participatory Irrigation management activities may be ensured by formation of WUAs, CACs and Co-ordination committees at various levels.

3.3 Other observations

3.3.1 Recovery of water cess

The Maharashtra Management of Irrigation Systems by Farmers Act, 2005 stipulates that the Water Users' Association (WUA) should collect water cess from every beneficiary as per the volume of water used.

In view of the non-formation and non-functioning of the WUAs as discussed in **paragraph 3.2.2.1**, water cess was being prescribed and recovered by the WRD from the farmers on the basis of actual area (in *ha*) cultivated by them instead of actual volume of water utilized.

Audit observed that the outstanding water cess recovery at the beginning of 2014-15 was ₹ 3.28 crore. Further, WRD assessed water cess of ₹ 7.02 crore for the years 2014-15 to 2020-21. Out of which water cess of ₹ 2.63 crore (37.46 *per cent*) only was recovered leaving a balance of ₹ 7.67 crore unrecovered. Thus, the recovery of water cess by the WRD was unsatisfactory.

The trend of outstanding water cess at the end of each year and its recovery is shown below in **Chart 3.3.1** and **Table 3.3.1** respectively.

Chart 3.3.1: Outstanding water cess at the end of each year

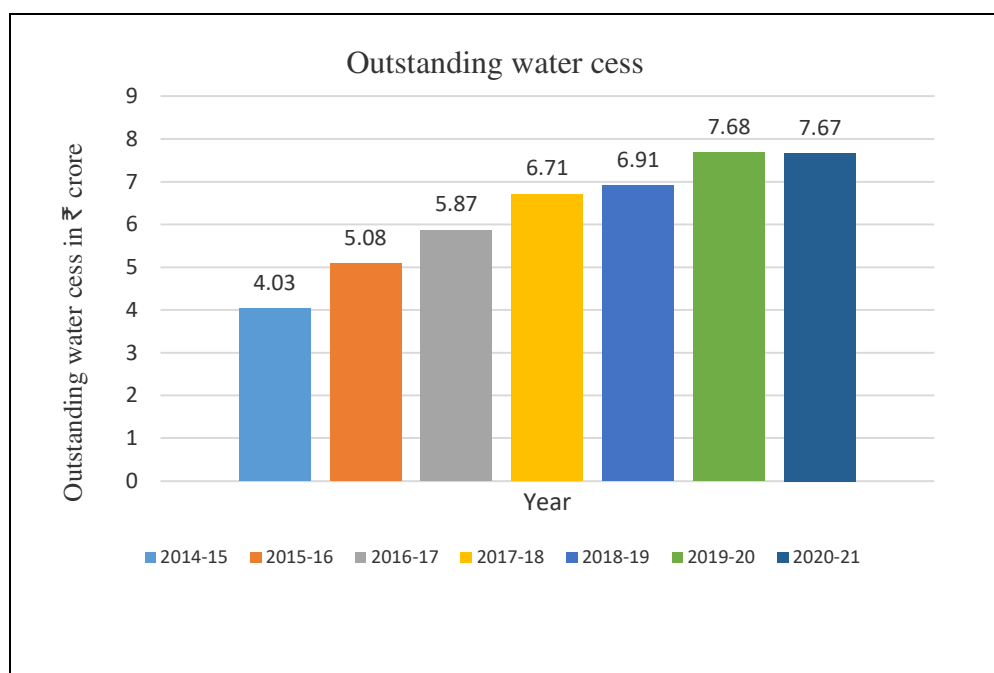


Table 3.3.1- Recovery of water cess during 2014-15 to 2020-2021

(₹ in crore)

Name of the Project	Opening balance	Water cess assessed	Water cess recovered	Outstanding/ Closing balance (water cess)
Wagholibuti LIS	0.90	1.47	0.52	1.85
Sondyatola LIS	1.52	2.93	1.32	3.13
Haranghat LIS	0.77	1.74	0.63	1.88
Purna	0.09	0.88	0.16	0.81
Total	3.28	7.02	2.63	7.67

Government accepted (November 2021) the short recovery and stated that the efforts were being made to recover the water cess.

Recommendation 9: *The collection of water cess from the beneficiaries of the projects needs to be streamlined and it may be utilized towards maintenance.*

Conclusion

Participatory Irrigation Management activities which are post project activities, include handing over the project to Management division, formation of Water Users' Associations, Canal Advisory Committees, and Co-ordination Committees etc. for proper maintenance and management of the created asset so as to have an equitable and efficient distribution of

water. We noticed that in most of the divisions Water Users' Associations were not formed and those formed were non-functional. The CAC and CC were not formed in any of the projects.

We conducted a survey of 66 farmers in 12 villages of Andhali, Pimpalgaon (Dhale) and Wagholibuti projects and found that no water was provided to the farmers through canal system. During the survey of 53 farmers in 16 villages of Haranghat and Sondyatola projects it was found that the water through canal was provided in kharif season only.



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The 19 September 2022

Countersigned



(GIRISH CHANDRA MURMU)
Comptroller and Auditor General of India

New Delhi
The 20 September 2022

