

CHAPTER-II

ECONOMIC SECTOR

Performance Audit on “Outcomes of Minor Surface Irrigation Schemes in Assam”

COMPLIANCE AUDIT

CHAPTER-II

ECONOMIC SECTOR

2.1 Introduction

The findings based on audit of the State Government departments/ offices under Economic Sector feature in this chapter. During 2018-19, against a total budget provision of ₹34,213.72 crore, 18 departments incurred an expenditure of ₹21,581.14 crore. Table 2.1 gives Department-wise details of budget provision and expenditure incurred there against by the 18 departments under Economic Sector during 2018-19.

Table 2.1: Department-wise details of budget provision and expenditure during 2018-19

(₹in crore)

Department	Grant No. and Name	Budget provision		Expenditure	
		Revenue	Capital	Revenue	Capital
Agriculture	48-Agriculture	1463.67	462.51	833.73	24.02
	67-Horticulture	105.47	8.00	55.41	--
Finance	10-Other Fiscal Services	3.00	--	2.07	--
	5-Sales Tax & other taxes	582.88	51.79	375.88	10.43
	13-Treasury & Accounts Administration	124.98	22.35	88.48	6.52
	66-Compensation and Assignment to LBs and PRIs	448.67	--	273.89	--
	7-Stamps and Registration	49.11	--	29.15	--
	68-Loans to Govt. Servant	--	75.99	--	70.00
	8- Excise and prohibition	74.65	0.50	56.54	--
	Public Debt and Servicing of Debt	4422.40	6330.31	4073.43	3589.36
Fishery	54-Fisheries	76.24	85.18	55.15	60.25
Water Resources	63- Water Resources	338.78	802.14	261.62	449.16
Forest and Environment	55- Forestry and Wild Life	590.25	10.39	425.54	0.57
Handloom, Textiles and Sericulture	59- Village, Small Industries, Sericulture and Weaving	359.96	30.38	221.51	9.69
Industries and Commerce	58-Industries	379.16	392.63	154.92	228.65
	60-Cottage Industries	90.86	0.42	53.48	--
Irrigation	49- Irrigation	567.06	1143.71	453.56	83.73
Mines and Minerals	61- Mines and Minerals	20.98	1.14	11.94	0.15
Power	62- Power (Electricity)	4053.61	898.58	1646.31	499.14
Public Works Roads	64- Roads Bridges	2130.41	6055.16	1082.92	5129.96
Science and Technology	69- Scientific Services and Research	40.60	12.40	30.76	3.07
Soil Conservation	51- Soil and Water Conservation	60.66	137.11	52.62	87.29
Transport	9-Transport Services	280.83	268.62	247.79	187.69
Tourism	65- Tourism	82.40	21.36	71.86	12.50
Animal Husbandry and veterinary	52-Animal Husbandry	413.47	94.57	269.23	35.59
	53- Dairy Development	32.68	2.89	20.94	1.84
Information Technology	75-Information Technology	72.99	1.00	15.95	--
Public Works Building and National Highway	17-Administrative and Functional Buildings	290.66	80.66	181.05	19.31
	21-Guest Houses, Government Hostels etc.	61.26	--	23.63	--
	33-Residential buildings	4.24	2.00	2.57	0.29
Total		17221.93	16991.79	11071.93	10509.21
Grand Total (includes Charged):			34213.72		21581.14

Source: Appropriation Accounts 2018-19

2.1.1 Planning and Conduct of Audit

During 2018-19, out of 603 auditable units under Economic Sector (Non-PSUs), we audited 199 units²⁴ based on risk analysis involving an expenditure of ₹17,604.18 crore (including expenditure of earlier years). This Chapter contains one Performance Audit (PA) on ‘**Outcomes of Minor Surface Irrigation Schemes in Assam**’ and two Compliance Audit paragraphs.

The major observations made in audit during the year 2018-19 are discussed in succeeding paragraphs.

PERFORMANCE AUDIT

Irrigation Department

2.2 Performance Audit on Outcomes of Minor Surface Irrigation Schemes in Assam

Government of Assam (GoA) is implementing irrigation schemes with the objectives of achieving outcomes of higher agricultural growth, increase in cropping intensity, raising crop yield and diversification of crops with the ultimate goal of providing better livelihood for the farming community.

Performance Audit on ‘**Outcomes of Minor Surface Irrigation Schemes in Assam**’ revealed that the expected outcomes from implementation of minor irrigation projects are yet to be achieved fully. It has not led to any significant increase in cropping intensity, productivity and agricultural income of farmers. Non-operational projects coupled with deficiencies in functional projects led to creation and utilisation of less irrigation potential than envisaged, and water supply could not be ensured to farmers, especially in dry season, to facilitate multiple cropping. Outcome of irrigation schemes also suffered due to lack of coordination with the Agriculture Department for provision of required support services and inputs to farmers.

Highlights

The total irrigation potential in Assam had reached 9,53,540 ha by the end of March 2017, of which 6,74,117 Ha (70.6 per cent) was through Minor Irrigation projects. The total IP created through Minor Irrigation projects during 2010-11 to 2016-17 was 1,37,442 ha, which was 77.4 per cent of the total IP created in this period in Assam. The Incremental IP created in the State during the period 2010-17 was 14.4 per cent for Major Irrigation Projects and 20.4 per cent for Minor Irrigation Projects.

Out of the 1,144 Minor Irrigation Schemes completed during the period January 2011 to March 2017 at a cost of ₹3,273.58 crore, audit selected 73 completed surface minor irrigation projects constructed at a cost of approximately ₹300 crore. No major

²⁴ High risk units: 69, medium risk units: 119 and low risk units: 11.

cost overrun was noticed in these projects and the average cost per project for the sample worked out to ₹4.11 crore.

Out of these 73 selected projects, 18 projects (25 per cent) were non-operational due to defective construction, damages/ wear and tear of projects and want of repairs, etc. In addition, two approved projects were found to have been diverted for non-Irrigation purpose, and three had construction defects causing significant reduction in the Irrigation Potential (IP).

Several Irrigation Projects (14 projects) suffered canal blockades and 25 projects showed broken canal embankment walls which adversely impacted flow of water and consequent loss of irrigation potential. The total investment in 62 discontinued/ dysfunctional projects was to the tune of ₹246.08 crore.

(Paragraphs 2.2.5.2 & 2.2.5.3)

Out of the sample, there were 18 non-operational projects, of which seven projects remained non-operational since completion and 11 projects became non-operational due to damage and want of repair during the previous three to four years. An expenditure of ₹74.74 crore had been incurred on the non-operational projects and irrigation potential lost was of 7,529 Ha.

{Paragraph 2.2.5.2 (i) & (iii)}

The Department had incurred an expenditure of ₹37.91 crore during the period 2014-19, on maintenance of irrigation projects and all the test checked Divisions had found the funds insufficient for upkeep of the projects, which is borne out by the dysfunctional projects noticed during the audit.

{Paragraph 2.2.5.2 (ii)}

The monthly reports of the Irrigation Divisions indicated that IP in the sampled projects were utilised primarily in Kharif season which also has monsoon water available to a large extent whereas utilisation in the dry seasons of Rabi-Pre Kharif was very low i.e., less than 10 per cent only. The main reasons for the low usage in non-Kharif season is sufficient irrigation water not being available, despite there being a demand for water.

(Paragraph 2.2.7.1)

The monthly reports for monitoring IP Creation and utilisation were prepared by the Divisions in a routine manner, with many of the projects showing null/ no-value, or with the same value repeated month after month and IP utilisation was also found reported against non-operational projects.

(Paragraphs 2.2.7 & 2.2.7.2)

Beneficiary Survey of 1,135 beneficiaries done by the audit found that Kharif Crops accounted for 90.4 per cent of the irrigation water usage, while Rabi crops accounted for only 12.4 per cent. 15 per cent of the farmers were following a cropping pattern with multiple crops grown through the year while 68 per cent of the beneficiaries had received water from the irrigation projects. However, only 23 per cent of the surveyed

farmers stated that they received irrigation water during the dry season (October to March).

Increased crop production was seen in paddy, Sali paddy with an average post-irrigation increase of around 18 per cent and Boro paddy increased by 37 per cent. Around 60 per cent of the respondents reported increase in their income post-irrigation during the last five years. However, majority of the farmers responded to the survey stating that their agricultural income was insufficient to manage their livelihood. This underscores the need for successful implementation of irrigation projects.

(Paragraph 2.2.7.2)

Maintenance of projects suffered for want of funds and Water Users' Associations whose role is to ensure participation of farmers in running of the Irrigation Schemes and their maintenance, were not functional. The State Government had not taken any action to review the outstanding dues of irrigation service charges, which has impacted maintenance of the Schemes.

(Paragraph 2.2.8.3)

2.2.1 Introduction

Assam has bountiful rainfall, yet very large fallow lands in post monsoon period. The State receives high rainfall of average per annum over 2000 mm. The intensity of rainfall in the State is very high from April to October which is the traditional monsoon season. If water shortage occurs early crop development and maturity gets delayed thereby adversely affecting crop yield. Similarly, moisture shortage in the late growing season affects quality of produce to a great extent. The twin challenges of large fallow lands and lower productivity on account of erratic rainfall can be addressed through assured irrigation which is also highly essential in the context of Assam for farmers to engage in double/ multiple cropping and improving crop yields.

As of March 2019, Assam has a geographical area of 78.44 lakh hectare (Ha) with the ultimate irrigation potential (IP) being assessed at 27 lakh Ha. Out of this, 17 lakh Ha was proposed to be created through Minor Irrigation Schemes-10 lakh Ha from ground water and seven lakh Ha from surface water. The remaining 10 lakh Ha was planned to be covered through Major and Medium irrigation projects from surface water sources.

As of March 2019, out of 10.07 lakh Ha of IP actually created, 7.34 lakh Ha (78 per cent of the overall IP created) was through minor irrigation schemes. The State had fully exploited surface water as a source for minor irrigation schemes with respect to the ultimate irrigation potential assessed. The actual IP created in surface water minor irrigation schemes is 6.45 lakh Ha, which is 92 per cent of ultimate IP assessed and hence, audit considered it as the right time to assess the outcomes of surface water minor irrigation schemes in Assam.

Further, the coverage of Per Drop More Drop (Micro Irrigation) component of PMKSY (2017) in North Eastern and hilly region is low due to poor infrastructure and difficult

terrain. As per the Annual Action Plan for 2020-21 for the Micro Irrigation Component of Per Drop More Drop (PDMC) under PMKSY, the government has planned for Drip Irrigation and Sprinkler Irrigation system primarily for Horticultural crops like Strawberry, Vegetables, Sugarcane, Banana, Papaya, Assam Lemon, Ber, Litchi, Oil Palm, Cashew Nut, Flower, Mustard, Pulses, and Tea. In Assam, Micro Irrigation is not immediately planned for staple crops like Rice. The subject of our Audit, was Minor Irrigation projects based on Surface water, where Micro Irrigation Schemes are not implemented.

The State endeavours to double the farmer's income by 2022 and to increase the irrigation potential created to 27 lakh Ha by 2030.

2.2.2 Background information on Irrigation

The sources of Irrigation are (i) Surface Water (River and its tributaries) (ii) Ground Water and (iii) Rain fed or a combination of any of above sources. Rain-fed agriculture is most sensitive to variations in view of rainfall fluctuations. Irrigation purely dependent on ground water or a combination of ground water with rain is unreliable as wells may dry up if the groundwater levels fall too low. On the other hand, surface irrigation system is more reliable as it draws water from natural rivers or tanks/ reservoirs as source. The irrigation network would broadly include main canals, minor and sub-minor canals, and distributary network (up to field channels). The State's Surface Irrigation comprises of two types of schemes-

- i. **Surface Flow Irrigation Scheme (FIS)** is a type of Irrigation Scheme executed by constructing diversion weir²⁵ across the river to convey water through canal system by surface gravity flow.
- ii. **Surface Lift Irrigation Scheme (LIS)** is also taken up on surface water sources by lifting of water (through pump sets) from river, lake or pond, *etc.* and water is conveyed through canal system.

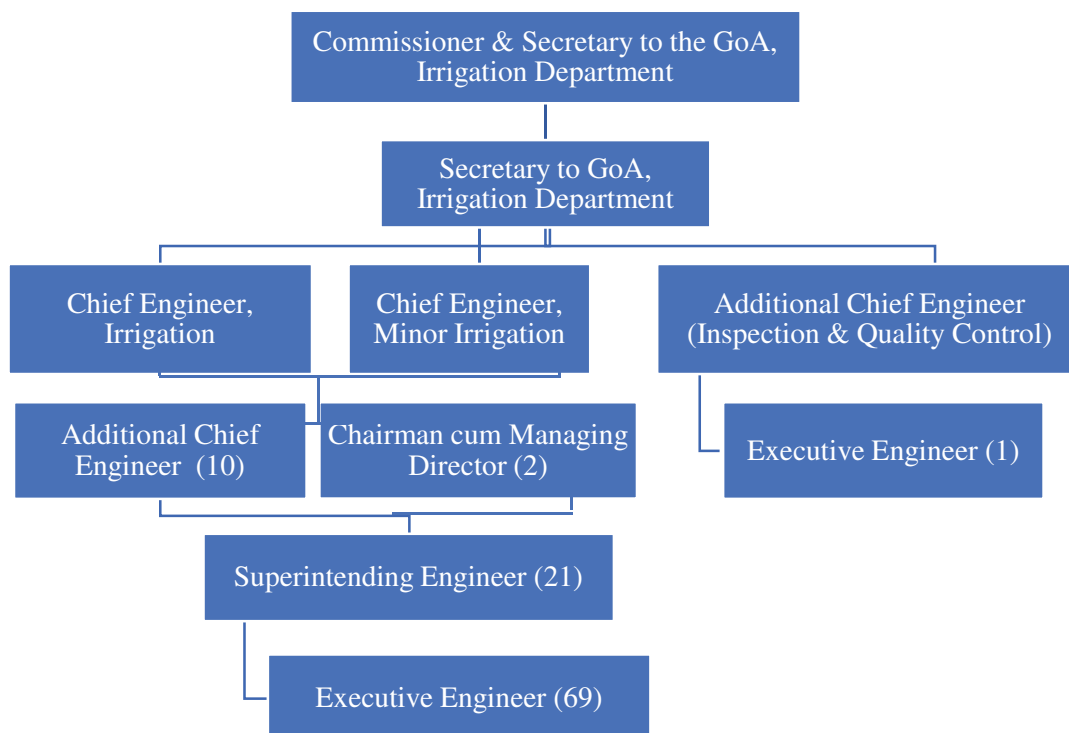
2.2.3 Department of Irrigation – Structure & Functions

The Department of Irrigation, Government of Assam (GoA) plans and implements irrigation schemes, classified as Major, Medium and Minor Irrigation Schemes based on the area²⁶ covered by the irrigation project, and is also responsible for their operation and maintenance. The Department's primary objective is to ensure the utilisation of created irrigation potential to increase agricultural production and also encourage multiple cropping by providing timely and assured irrigations. In execution of works undertaken by the Department, the Chief Engineer is assisted by various officers at different levels as shown in *Chart 2.1*.

²⁵ A weir or low head dam is a barrier across the width of a river that alters the flow characteristics of water and usually results in a change in the height of the river level.

²⁶ Major: Above 10,000 Hectares (ha), Medium: Between 2,000 and 10,000 ha, Minor: Below 2,000 ha

Chart 2.1: Organogram of the Department of Irrigation



2.2.4 Audit Framework

2.2.4.1 Audit Objectives

Audit on Outcomes in Surface Irrigation seeks an assurance that:

- Irrigation schemes were planned and executed effectively and economically;
- The Schemes were maintained properly and irrigation potential created was utilised efficiently;
- Coordination with all stakeholders was ensured at all stages for sustainable extension of scheme benefits to the targeted beneficiaries;
- Monitoring of IP creation and its utilisation was being done effectively.

2.2.4.2 Audit Criteria

The audit criteria was drawn from the following

- Assam Public Work Department Manual, APWD Code;
- The Assam Irrigation Act, 1983 and Assam Irrigation Rules, 1997;
- The Assam Irrigation Water Users' Act, 2004;
- Assam Financial Rules;
- Various irrigation scheme guidelines;
- Economic Survey Reports, Statistical Hand Books of Government of Assam;
- Other related circulars/ instructions issued by GoA, Ministry of Water Resources (MoWR), and Central Water Commission (CWC)

2.2.4.3 Audit Scope and Methodology

Outcomes in surface irrigation can be achieved and assessed only on completion of the project and hence the Minor Irrigation Schemes²⁷, which were completed between 01 January 2011 and 31 March 2017 were covered to evaluate the benefits accrued.

An entry conference (05 November 2019) with the representatives of the State Government Departments of Irrigation and Agriculture was held wherein audit methodology, scope of audit, audit objectives and audit criteria were explained. Test check of records for the period 2011-19 was carried out between August 2019 and March 2020 at the offices of the Chief Engineer (CE), Irrigation and Executive Engineers (EEs) of six Irrigation Divisions, selected by following the sampling methodology stated in the succeeding paragraph.

Apart from the Irrigation Department, audit also covered offices of the Director of Agriculture and District Agriculture Offices²⁸ in connection with selection of cropping pattern, supply of agricultural inputs, agricultural produce, extension and marketing services extended to farmers. We also conducted Joint site visits of sampled projects along with beneficiary surveys of farmers in the command area in order to assess the extent of achievement of anticipated outcomes at ground level.

Audit discussed (11 August 2020) the draft PA with the Government in the Exit Meeting and the views expressed by the representatives of GoA in the Exit meeting have been incorporated at appropriate places.

2.2.4.4 Sampling and audit coverage

Audit covered the minor irrigation projects completed during the period 01 January 2011 to 31 March 2017. Out of 2,134 minor surface irrigation schemes, 1,144 Minor Irrigation Schemes were completed during the audit period at the cost of ₹3,273.58 crore²⁹ creating IP of 3,86,009.18 Ha. Out of these, audit test checked 73 projects selected on the basis of Stratified Random sampling method as detailed in *Appendix 2.1*.

The sampling plan was formulated to arrive at a representative sample of projects which mirrors the geographical and agro-climatic diversity of Assam. Since each minor irrigation project is small, catering to a few villages, a stratified-clustering approach was followed for audit. The sample size is summarised in *Table 2.1 A*:

Table 2.1 A: Details of Sample Size

Total Irrigation Divisions in Assam	Irrigation Divisions selected	Projects completed during Audit period	Audit sample of completed projects	Total IP created in		Expenditure on 73 selected Projects (₹ in crore)
				1144 Projects	73 selected projects	
46	6	1,144	73	3,86,009 Ha	29,497 Ha	299.70

²⁷ Among Major, Medium and Minor schemes, only Minor Irrigation Schemes were completed during the period 01.01.2011 to 31.03.2017.

²⁸ DAO, Cachar, Chirang, Jorhat, Karbi Anglong, Kokrajhar, Morigaon and Udalguri

²⁹ ₹2,743.58 crore had been paid till March 2019, balance amount was to be paid.

The selected projects across six executing divisions covered seven districts (Kokrajhar, Chirang, Udalguri, Karbi Anglong, Morigaon, Jorhat, Cachar) out of 33 districts.

2.2.4.5 Audit Constraints

Proposals of irrigation projects have to be evaluated based on feasibility studies and field survey. After command area mapping, geotechnical investigation *etc.*, detail design estimate/ report are prepared for according technical sanction.

The Executive Engineer (EE) in the irrigation division has to prepare a Detailed Project Report (DPR) on the basis of feasibility studies and propose the minor irrigation project for Administrative Approval (AA) and Technical sanction (TS). Our scrutiny of DPRs of 73 sampled projects depicted that aforesaid feasibility studies were conducted based on which GoA had sanctioned the MI projects. However, supporting records³⁰ relating to the feasibility studies and field surveys were neither found on record nor produced to audit. As such, the technical feasibility of projects could not be verified in audit without the information relating to pre-project studies.

2.2.5 Audit Findings

2.2.5.1 Funding of Irrigation Schemes

The total expenditure on Irrigation³¹ during 2014-19 was ₹2,967.80 crore (₹2,043.30 crore under Revenue and ₹924.46 crore under Capital). GoA has tapped into multiple funding sources to develop irrigation potential of the State and achieve targets of increasing its irrigation potential. Minor irrigation projects are funded through schemes like Accelerated Irrigation Benefits Programme (AIBP), PM Krishi Sinchayi Yojana (PMKSY), assistance from Non-Lapsable Central Pool of Resources (NLCPR), Rural Infrastructure Development Fund (RIDF) of National Bank for Agriculture and Rural Development (NABARD), Command Area Development and Water Management (CADWM) schemes, North Eastern Council (NEC) schemes and from Assam Rural Infrastructure for Agriculture Services Program (ARIAS) funded by World Bank along with support from State Plan schemes. The total budget provision, during the period 2014-15 to 2018-19 was ₹7,219.48 crore and total expenditure was ₹2,922.97 crore under Medium Irrigation, Minor Irrigation and Command Area Development (CAD) and details of schemes are given in **Table 2.2**:

Table 2.2: Budget provision and expenditure

(₹ in crore)

Year		2014-15	2015-16	2016-17	2017-18	2018-19	Total	
Medium	Revenue	Allotment	120.38	121.89	112.74	117.32	120.72	593.05
		Expenditure	78.63	73.02	79.20	84.77	92.78	408.40
	Capital	Allotment	115.80	100.18	114.20	39.05	95.45	464.68
		Expenditure	69.67	55.02	7.09	1.36	2.94	136.08
Minor	Revenue	Allotment	432.80	421.58	376.92	446.65	441.00	2118.95
		Expenditure	308.55	292.56	315.22	343.24	356.78	1616.35
	Capital	Allotment	600.02	803.12	940.14	387.99	967.71	3698.98
		Expenditure	283.04	96.78	197.71	74.47	70.65	722.65

³⁰ Date of survey, location, source of river water data, rainfall data, persons engaged for conducting survey, *etc.*

³¹ Expenditure figures based on Grant No. 49 and 44.

Year		2014-15	2015-16	2016-17	2017-18	2018-19	Total	
CAD	Revenue	Allotment	4.09	4.42	4.09	5.16	5.33	23.09
		Expenditure	3.37	3.25	3.53	4.40	4.00	18.55
	Capital	Allotment	41.60	81.50	77.09	39.99	80.55	320.73
		Expenditure	1.79	0	6.27	2.73	10.15	20.94

In addition to above, an amount of ₹44.76 crore (capital expenditure) had also been spent out of NEC funds during the period 2014-19

Source: Detailed Appropriation Accounts

The scheme-wise expenditure for 73 sampled projects is given in **Table 2.3**:

Table 2.3: Scheme-wise expenditure of selected schemes

Sampled projects	Funding Source	Name of Scheme/ Funding Agency	Number of projects	Expenditure (₹ in crore)
73 Completed Minor Irrigation projects	Central	AIBP	52	246.42
		NEC	1	4.18
		NLCPR	1	19.14
	Institutional	NABARD	5	21.70
	State	SC Sub-Plan	11	6.76
		Tribal Sub-Plan	3	1.51
		Total	73	299.71

Source: Departmental records

As can be seen from the above data, as regards MI Schemes, the maximum source of funding was from the CS sponsored AIBP Scheme, followed by NABARD. The average cost of selected 73 Minor Irrigation Projects was ₹4.11 crore each. There was no cost variation noticed compared to the estimated cost. The cost of the sampled projects varied from ₹0.22 crore to ₹19.14 crore. The stratification of the projects by cost is shown in the table placed alongside.

Project Cost Slab	Number of Projects
Up to 2 crore	26
2-4 crore	11
4-6 crore	19
6-8 crore	8
8-10 crore	8
More than 10 crore	1
Total	73

2.2.5.2 Execution of Projects

The IP created through Government Irrigation Schemes by Irrigation Department was as under:

All figures in ha (Hectares)

Year	Major & Medium Irrigation	Minor Irrigation	Total
2010-11	4,426	16,456	20,882
2011-12	10,678	15,029	25,707
2012-13	270	9,485	9,755
2013-14	8,000	11,713	19,713
2014-15	16,170	38,774	54,944
2015-16	-	24,935	24,935
2016-17	640	21,050	21,690
Incremental IP Created in the 6 Year period	40,184	1,37,442	1,77,626
Total IP Created by end of March 2017	2,79,423	6,74,117	9,53,540
Incremental IP creation (in the period 2010-11 to 2016-17) share to total IP created up to March 2017	14.4 per cent	20.4 per cent	18.6 per cent



Source: Economic Survey Assam 2017-18 (Table 6-1, and 6-2)

It is evident from the table above that the total irrigation potential in Assam had reached 9,53,540 ha by the end of March 2017, of which 6,74,117 Ha (70.6 per cent) was through Minor Irrigation projects. The total IP created through Minor Irrigation projects during 2010-11 to 2016-17 was 1,37,442 ha, which was 77.4 per cent of the total IP created in this period in Assam. The Incremental IP created during the period 2010-17 was 14.45 for Major Irrigation projects and 20.4 per cent for Minor Irrigation Projects.

As per data provided by the Irrigation Department, there were 1,144 minor irrigation projects completed between January 2011 to March 2017. Audit selected, 73 completed minor irrigation projects of which, 52 projects were functional and 18 projects were non-operational. Further there were two projects³² were not related to irrigation as those were constructed for flood protection and redirection of river. Remaining one project³³ though shown physically completed in March 2016, was actually completed in June 2019 and put to use only in January 2020 due to non-construction of road culvert.

Out of 18 non-operational projects, seven projects remained non-operational since completion and 11 projects became non-operational due to damage and want of repair during the previous three to four years. An expenditure of ₹74.74 crore had been incurred on the non-operational projects and irrigation potential lost was of 7,529 Ha, the details of which are discussed in subsequent paragraphs.






(i) Projects lying non-operational since completion

<p>1. Bhorasora FIS (Kokrajhar district and Kokrajhar Division): The upstream right bank afflux bund³⁴ was breached at chainage 130 m in 1986. A fresh project was reconstructed including closure of the breach and completed in December 2013 incurring an expenditure of ₹8.83 crore. But, in August 2014 <i>i.e.</i>, during the subsequent rainy season, the newly constructed right afflux bund was once again breached at the same point and water flows under the aqueduct. The adjacent photograph shows dry aqueduct and the river flowing underneath.</p>	 <p>Latitude: 26.542342 Longitude: 89.911908 Elevation: 105.27m Accuracy: 1.6m Time: 11-05-2019 14:54 Note: Bhorasora FIS HW aqueduct</p>
<p>2. Joypur FIS (Kokrajhar district and Kokrajhar Division): The Head work was completed on 29 May 2012 at a cost of ₹2.43 crore with eight cross regulators and one canal head regulator. The canal structure beyond the canal regulator was not constructed. The upstream left afflux bund was found breached and river diverted through the breached portion resulting in non-operation of the project.</p>	 <p>Latitude: 26.565311 Longitude: 90.313955 Elevation: 63.43m Accuracy: 0.6m Time: 12-11-2019 13:22 Note: Joypur FIS</p>

³² Bega FIS, Tangla and Sluice Gate at Kharjan, Jorhat

³³ Mahamaya FIS, Karbi Anglong

³⁴ Afflux bunds are provided on upstream and downstream to provide flood protection to low lying areas as a result of floods due to afflux created by the construction of bridge/structure

<p>3. Shyamdasguri FIS (Kokrajhar district and Kokrajhar Division): The project was completed on 31 March 2012 at a cost of ₹6.66 crore. The adjacent villages get inundated due to low height of the upstream afflux bund and the villagers did not allow closure of shutter gates of headwork.</p>	 <p>Latitude: 26.530302 Longitude: 91.972885 Elevation: 92.02m Accuracy: 1.2m GPSTime: 29-11-2019 11:54 Note: Shyamdasguri FIS H W Powered by NoteCam</p>
<p>4. Dadra FIS (Chirang district and Kokrajhar Division): The project was completed on 31 March 2012 at a cost of ₹ two crore. During Joint site visit, it was noticed that canal head regulator was constructed on the right bank instead of left bank as per design of the project. Audit found that there was no command area adjacent towards the right bank of the river. As a result, the project remained inoperative due to execution of the project in violation of approved design.</p>	 <p>Latitude: 26.453035 Longitude: 91.465912 Elevation: 36.44m Accuracy: 1.8m GPSTime: 25-11-2019 15:01 Note: Dadra FIS Powered by NoteCam</p>
<p>5. Jhargaon FIS (Udalguri district and Tangla Division): The project was completed on 31 March 2013 at a cost of ₹6.80 crore. The project contained two main canals viz. left main canal (LMC) and right main canal (RMC). During joint site visit, it was observed that the canal embankments were constructed with sandy soil due to which the embankment frequently got damaged and the project remained non-functional. The photograph shows no sign of canal.</p>	 <p>Latitude: 26.651157 Longitude: 91.07179 Elevation: 120.44m Accuracy: 3.4m GPSTime: 02-01-2020 13:09 Note: Jhargaon FIS Right MC at 150m Powered by NoteCam</p>
<p>6. Chewni IS (Udalguri district and Tangla Division): The project was completed at a cost of ₹1.39 crore on 31 March 2010. The villagers of upstream villages did not allow the headwork shutter gates to be closed as ponding of water after closure of the shutter gates inundates the upstream villages overflowing the upstream left afflux bund. As such, the shutter gates of the headwork could not be closed and the project remained inoperative since completion.</p>	 <p>Latitude: 26.641435 Longitude: 91.801523 Elevation: 104.57m Accuracy: 3.5m GPSTime: 01-01-2020 13:10 Note: Chewni FIS Upstream Powered by NoteCam</p>
<p>7. Phuluguri FIS (Udalguri district and Tangla Division): The work was completed at a cost of ₹9.90 crore on 31 March 2013. The headwork shutter gates were smaller in breadth and the gates could not be closed completely to regulate water flow. Due to this, water could not be released to the command area and the project remained non-operational since completion.</p>	 <p>Latitude: 26.784407 Longitude: 92.292129 Accuracy: 2500.0m Time: 22-01-2020 11:49 Note: Phuluguri FIS BMC Powered by NoteCam</p>

(ii) Maintenance of Irrigation Schemes

The Chief Engineer (Irrigation), Assam incurred an expenditure of ₹37.91 crore under Maintenance for the period 2014-15 to 2018-19.




Year	Allocation	Fund released	Expenditure
	(₹ in crore)		
2014-15	9.19	6.97	6.97
2015-16	2.35	2.35	2.35
2016-17	12.22	12.22	12.22
2017-18	14.00	6.86	6.86
2018-19	18.59	9.51	9.51
Total	56.35	37.91	37.91

Source: Departmental figures

During audit, all the selected six divisions however, stated that funds under Operation and Maintenance (O&M) Plan were not received during 2014-15 to 2018-19. Audit also did not notice any expenditure incurred on maintenance by the selected divisions. The divisions also stated that O&M schedule was not prepared in the divisions. It was also noticed that 39 projects (out of 52 functional projects) could not utilise full irrigation potential due to want of repair of the broken and blockage of canal structure as discussed in the succeeding paragraph.

During Entry Meeting, the Government representative stated that funds under Maintenance and Repair needed to be increased for sustainability of the completed projects.



(iii) Projects lying non-operational due to damages

<p>1. Chandana FIS (Udalguri district and Tangla Division): The project was completed on 31 March 2012 at a cost of ₹4.99 crore. During joint site visit, canal was found filled with earth due to flood. The project remained inoperative since 2017.</p>	 <p>Latitude: 26.773333 Longitude: 92.01195 Elevation: 129.47m Accuracy: 2.8m GPS Time: 11-01-2020 13:37 Note: Chandana FIS MCM near 10km</p>
<p>2. Threeganga FIS (Cachar district and Silchar Division): The project was completed on 05 February 2014 at a cost of ₹4.98 crore. The headwork shutter gates were damaged in June 2014 due to flash floods. RMC was found not executed for 10m-15m at Ch.50m and Ch.70m respectively. LMC was found broken at Ch.30m.</p>	 <p>Latitude: 24.83875 Longitude: 92.91701 Elevation: 79.83m Accuracy: 5.6m Time: 15-02-2020 10:52 Note: Threeganga FIS RMC at 50m</p>
<p>3. Kadabil FIS (Udalguri district and Tangla Division): The project was completed on 31 March 2012 at a cost of ₹5.03 crore. The upstream of the headwork was found full of siltation due to flood. Canal embankments were not found existing at various chainages and water not released from the headwork since 2017.</p>	 <p>Latitude: 26.870679 Longitude: 92.281969 Accuracy: 3.000m Time: 22-01-2020 14:27 Note: Kadabil FIS</p>

<p>4. Maima Bund FIS (Udalguri district and Tangla Division): The project after incurring an expenditure of ₹1.16 crore was completed on 31 March 2016. The right upstream guide bund³⁵ was completely washed away/damaged for a length of 20 m due to which, the project was inoperative.</p>	
<p>5. FIS from Ullarkhal in Kaiajani (Cachar district and Silchar Division): The project after incurring an expenditure of ₹4.99 crore was completed on 20 February 2011. During joint site visit, the project was found inoperative. The right main canal was not found after ch.60 m and the left main canal was found damaged at various chainages.</p>	
<p>6. FIS from Rokonala at Rokopur (Cachar district and Silchar Division): The project after incurring an expenditure of ₹4.49 crore was completed on 20 January 2014. The project is inoperative since August 2015 due to damage by heavy floods.</p>	
<p>7. Chaita Cherra nala FIS (Cachar district and Silchar Division): The project was completed on 30 June 2013 after incurring an expenditure of ₹0.40 crore. The project remained inoperative since 2015 as the canal system was severely damaged. During joint site visit, the canal system was found non-existent at many chainages.</p>	
<p>8. FIS from Sundaranala in Baintyapur (Cachar district and Silchar Division): The project after incurring an expenditure of ₹0.65 crore was completed on 15 April 2013. The project remained inoperative since 2016 due to wear and tear damage of the canal system at various chainages.</p>	
<p>9. Udori ELIS³⁶ (Morigaon district and Morigaon Division): The project after incurring an expenditure of ₹0.44 crore was completed on 31 March 2011. It was found from records that the project was not functioning since 2016 due to drying up of source and breakdown of transformer.</p>	

³⁵ Guide bunds are provided for the purpose of guiding the river flow past the diversion structure without causing damage to it and its approaches. Afflux bunds extend from the abutment of guide bund.

³⁶ Electrical Lift Irrigation Scheme

<p>10. Improvement of Alternative FIS (Kokrajhar district and Kokrajhar Division): The project after incurring an expenditure of ₹8.75 crore was completed on 31 March 2012. It was noticed from the records that the headwork was damaged by flood in July 2018. The project was found inoperative during joint site visit.</p>	
<p>11. Rajagadhowa ELIS (Morigaon district and Morigaon Division): The project was completed on 31 March 2012 after incurring expenditure of ₹0.85 crore. During site visit, it was found that all of four pump sets were not in working condition and the canal structure was broken at various chainages. Local farmers stated that the project was inoperative for last three to four years.</p>	

(iv) Incorrect Reporting on Operational Status of Projects

The Executive Engineers (EE) of irrigation divisions prepare and submit a monthly progress report of the irrigation schemes to the Chief Engineer (CE), Irrigation which contains details such as the status of schemes, expenditure incurred and irrigation potential created and utilised. As per the monthly progress reports³⁷ made available to audit, the reports pertaining to 12 of the above 18 non-operational projects were showing that these projects were providing irrigation benefits. However, as explained above, they were not providing the desired irrigation benefits and outcomes and the monthly progress reports were invalid and incorrect. Further, the divisions and the Department were yet to decide on revival of the projects to regain the lost irrigation potential and salvage the investment. Division-wise break-up of non-operational projects is given in **Table 2.4**:

Table 2.4 Division-wise non-operational projects

Name of Division	Total Sampled Projects	Number of non-operational projects			
		Since completion	Due to damage	Total	Per cent
Tangla	25	3	3	6	24.00
Kokrajhar	22	4	1	5	22.73
Morigaon	6	0	2	2	33.33
Silchar	5	0	5	5	100.00
Karbi Anglong	12	0	0	0	0.00
Jorhat	3	0	0	0	0.00
Total	73	7	11	18	25

³⁷ All the monthly reports were not made available to audit. Records made available division-wise are: Tangla–Monthly progress report of all 25 selected projects (December 2019); Kokrajhar–three out of 22 selected projects (Flood Damage report); Morigaon–Monthly progress report of all six selected projects (March 2019); Silchar–Monthly progress report of all five selected projects (January 2020); Jorhat - Monthly progress report of all three selected projects (March 2019).

As seen in the table above, a high percentage (25 per cent) of sampled projects have become non-operation and in particular, all the sampled projects in Silchar division were non-operational.

It is recommended that the Department of Irrigation take steps to revive the projects wherever feasible and advise EEs of the concerned divisions to report facts correctly on status of the projects.

During Exit Conference, the Deputy. Secretary, Irrigation Department assured (August 2020) to take up the matter with all the Divisions.

2.2.5.3 Other Irregularities in Project Execution

(i) Defective construction of canal system

Audit observed defective construction of canals in three out of 52 functional projects as discussed below:

- a. **Dalkona FIS:** Height of bed crust of RMC was more than the LMC level. Moreover, the height of RMC was also above ponding level of water at the headwork site. As a result, water flows only through LMC and command area under RMC were not getting any water from the project. The project was constructed between June 2010 and March 2013 at a cost of ₹6.52 crore.
- b. **Kulshik FIS:** The LMC up to the chainage of 500 meter was constructed without maintaining gradient of the canal. As such, the canal was unable to carry water and thereby depriving the farmers covered under LMC due to non-release of water through the canal. The project was constructed between June 2012 and December 2014 at a cost of ₹19.14 crore.
- c. **Mahilapara FIS:** Water was overflowing the shutter gates although the shutter gates of headwork were closed. Despite overflow, water was not flowing through the RMC which was found dry and full of bushes and siltation. The project was constructed between February 2010 and March 2012 at a cost of ₹7.25 crore.

Further, audit also observed blockade of canals with soil, weed, garbage, etc. in case of 14 projects³⁸ (constructed between November 2008 and March 2016 at a cost of ₹56.71 crore) and breach of canal embankment walls in case of 25 projects³⁹ (constructed between February 2008 and March 2017 at a cost of ₹78.03 crore). These defects adversely impact the flow of water and leads to under-utilisation of irrigation potential. The Department should take effective steps to repair the defects and ensure full utilisation of irrigation potential.

³⁸ Amrit Dong, Dakhingaon Dable, Gilwbwr, Huntherlangso Lishing, Murakhat, Improvement of Polashguri (P-II) and Suresh Bund FISs, Chelabor (P-II), Kakijan (P-II) and Kangthilangso ISs, Improvement of Dongabari and Khudradal PCs, Kamandanga ELIS.

³⁹ Athaibari (P-III), Bairali Tablaijhora, Banderguri, Bhutia Pukhuri, Borjan(P-II), Brahmapara, Gargella Merbenchuba, Garobasti, Kahibari, Khangkhraimari, Longa (P-IV), Maojjihora, Mina, Patakata, Prasad Bund, Raijam Pai (P-II), Sapkata (P-II), Singrimari, Swapangaon and Tamadingdinga FISs, Khristanpara Dong Bund IS, Lakhnabari and Makrapara ELISs, Thengbhanga PC No.5, Borjari PC-2.

During Exit Conference, the Deputy Secretary, Irrigation Department stated (August 2020) that Assam being a flood-prone State, very little fund was available for M & R.

(ii) *Diversion of irrigation projects for other than irrigation purposes*

Two out of 73 sampled projects were not irrigation projects but incurred expenditure from irrigation schemes. During joint site visit, it was found that one project⁴⁰ which projected 390 Ha of IP creation was for flood protection and another⁴¹ which projected 380 Ha of IP creation was for redirecting the flow of river and the villages to be benefited as mentioned in the DPR were three to four km downstream of the headwork and canal system works were not carried out. The above two approved projects sanctioned to provide irrigation facilities to the command area were found to have been diverted for other than irrigation purposes.

During Exit Conference, the CHD Kokrajhar, Irrigation Department stated (August 2020) that to revive the projects, another scheme was taken up.

2.2.6 Expected Outcomes

2.2.6.1 Outcomes of minor irrigation projects

The expected outcomes of minor irrigation projects are detailed in the DPRs of each project which are primarily an increase in crop production by way of creating new command area or extending the previous coverage area, availability of irrigation water in all seasons, increase in cropping intensity by adoption of multiple cropping, increase in crop yield and the resultant increase in income of farmers. Other outcomes like economic uplifting of farmers and command area, replacing the traditional temporary earthen dam across rivers, renovating the old projects were also mentioned in the DPRs.

2.2.6.2 High Benefit-Cost ratio Assumptions

Second Irrigation Commission, 1972 GoI, first endorsed the use of benefit cost ratio (BCR) for judging the economic soundness of irrigation projects. It is calculated by dividing the net annual benefits by annual cost. The net annual benefit is the difference of benefit accrued from pre and post irrigation calculated on the value of agricultural produce *minus* cost of production. Annual cost includes annualised capital cost of irrigation project, depreciation on capital cost and repair-maintenance cost. A project is considered beneficial if the BCR is more than one⁴².

Audit examined the DPRs of 62 of the sampled 73 projects that was made available, to see the assumptions which had gone into the computation of BCR. This was done with the aim of subsequently validating these assumptions through field audit and

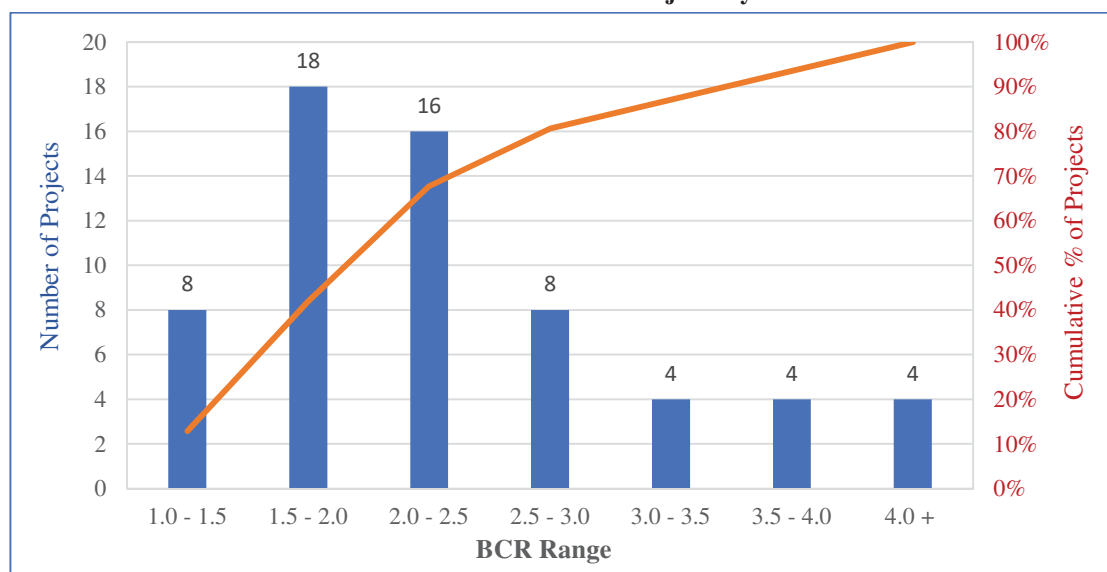
⁴⁰ Sluice Gate at Kharjan under SCSP 2011-12 (completed in March 2016 at the cost of ₹2.54 crore).

⁴¹ Bega FIS under AIBP 2008-09 (constructed between September 2009 and March 2012 at the cost of ₹1.15 crore).

⁴² Second Irrigation Commission, GoI recommended BCR of 1.5 for normal areas and 1 for Drought prone areas. However, AIBP guidelines recommends sanctioning of projects with BCR of more than 1.

beneficiary survey as to assess the extent to which the planned outcomes had materialised. The stratification of projects by the estimated BCRs at the time of Project approval can be seen in *Chart 2.2*.

Chart 2.2: Stratification of Projects by BCR



While the project selection criteria was for BCR to be greater than one, it can be seen that almost 60 per cent of the projects had projected a BCR more than Two, and 20 per cent projects had projected a BCR even greater than three.

(i) Assumed increase in farmer's income in DPR

The quantifiable financial benefits of these irrigation projects, which were leading to high BCRs, were on account of an assumed increase in farmer's income. We analysed this projected increase in farm income recorded in the DPRs, and noted that on average, the sampled projects assumed that the farmer's income would increase by 13.78 times *i.e.*, show a 1378 per cent increase. When considering the increase in median income, this estimated increase was of 5.57 times or 557 per cent. The district-wise projected increase for the selected projects is in *Table 2.5*:

Table 2.5: Income Increase Estimated in DPRs

District	No of Projects	Multiple (Average Income)	Multiple (Median Income)
Cachar	2	4.70	4.70
Jorhat	3	92.60	4.81
Karbi Anglong	10	21.06	20.88
Kokrajhar	22	6.16	5.62
Morigaon	5	4.98	4.84
Udalguri	17	9.10	4.40
Overall	59	13.78	5.57

As per the DPR, the increase in income of farmers was primarily on account of the following two anticipated benefits flowing from the implementation of the projects, *viz.*, 1) Increase in area under cultivation and 2) Increase in the yield of the crops cultivated. In addition, the DPR also assumed that non-cereal crops would also be cultivated.

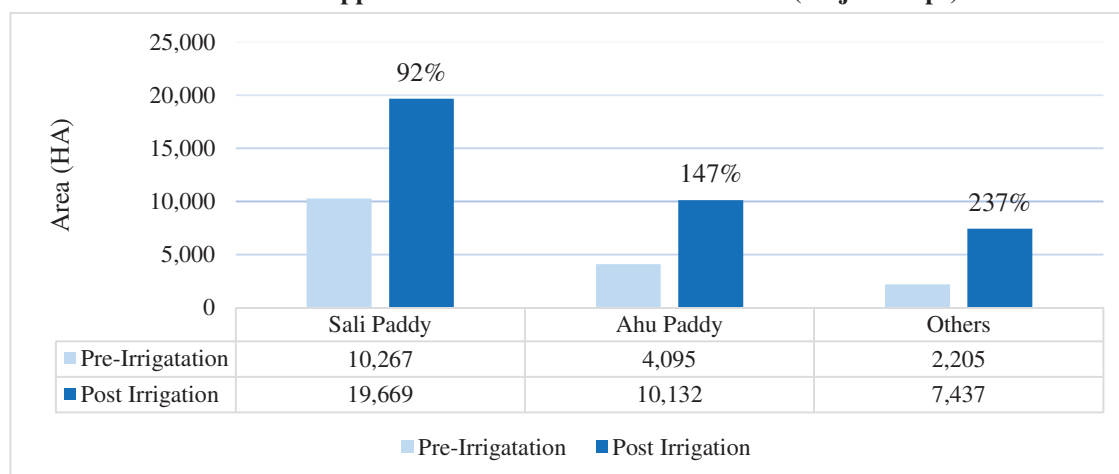
(ii) *Assumed increase in area under cultivation in DPR*

Overall, the DPRs assumed that the area under cultivation would increase by 125 per cent. Among the paddy crops, the largest percentage increase was estimated in case of Ahu Paddy—a Rabi-Pre Kharif crop by 147 per cent, and in crops other than paddy by 237 per cent.

Table 2.6: Cropped Area Increase Estimated in DPRs

Crop Group	Crop Name	Pre-Irrigation (Ha)	Post Irrigation (Ha)	Projected Increase (per cent)
Paddy	Ahu Paddy	4,095	10,132	147
	Sali Paddy	10,267	19,669	92
Sub Total		14,362	29,801	107
Other than Paddy	Wheat	375	1,457	288
	Jute	661	2,168	228
	Mustard	503	1,363	171
	Oilseeds	547	1,218	123
	Potato	20	260	1200
	Pulses	98	845	760
	Vegetables	0	126	-
Sub Total		2,205	7,437	237
Overall		16,567	37,238	125

Chart 2.3: Cropped Area Increase Estimated in DPRs (Major Crops)



During Exit Conference, the Deputy Secretary, Irrigation Department did not provide (August 2020) any specific reply.

(iii) *Assumed increase in Crop Yield in DPR*

The second factor leading to anticipated increase in farmer’s income post-irrigation project implementation was on account of the increase in yield of the crops cultivated. We analysed the data given in the DPR of the sampled projects, and noted the following assumed increase in yield:

Table 2.7: Crop yield increase estimated in DPR (Quintals per Hectare)

Crop Group	Crop Name	Avg. Pre-Yield	Avg. Post Yield	Average Increase (per cent)	Median Pre-Yield	Median Post-Yield	per cent Increase (Median)
Paddy	Sali Paddy	23.3	47.5	104	30.0	48.0	60
	Ahu Paddy	20.9	47.2	126	20.0	45.0	125
	Jute	16.0	26.5	66	20.0	30.0	50

Crop Group	Crop Name	Avg. Pre-Yield	Avg. Post Yield	Average Increase (per cent)	Median Pre-Yield	Median Post-Yield	per cent Increase (Median)
Other than Paddy	Mustard	12.0	28.8	141	15.0	30.0	100
	Oilseeds	3.4	9.3	173	1.5	8.0	433
	Potato	4.0	130.0	3150	0.0	135.0	-
	Pulses	1.5	12.4	727	0.0	7.0	-
	Vegetables	0.0	200.0	-	0.0	200.0	-
	Wheat	10.8	27.3	152	18.0	25.0	39

As can be seen in **Table 2.7**, significant increase in yield has been assumed in the DPR. If we look at only the two paddy crops, which are the main crops cultivated in the State, the average increase in yield has been taken as 104 per cent for Sali Paddy, and 126 per cent for Ahu Paddy. The percentage of increase of area and yield for All India and Assam for the period 2009-19 against the projections made in the DPR for Sali paddy was as under:

Table 2.8: Percentage increase of Paddy Area and Paddy Yield in DPR, Assam and All-India

Particular	All-India ⁴³			Assam ⁴⁴			DPR (62 projects)		
	2009-10	2018-19	per cent change	2009-10	2018-19	per cent change	Pre-Irrigation	Post-irrigation	per cent change
Paddy Area (’000 Ha)	41,920	43,790	4.5	2529	2425.18	-4.1	10.27	19.67	92
Paddy Yield (Qt/Ha)	21.25	26.59	25.1	17.66	22.71	28.6	23.3	47.5	104

Comparing the projections in DPR with actual increase in crop area and yield between the period 2009-10 and 2018-19 for Assam and All-India, it is observed that the DPR projections are unrealistic and the assumptions are high by any standard.

During Exit Conference, the Deputy Secretary, Irrigation Department stated (August 2020) stated that on the basis of comments of Agriculture Department, the DPR was prepared by the Irrigation Department. However, the Irrigation Department will check and instruct all to get the DPRs more realistic.

2.2.7 Assessment of Outcomes

2.2.7.1 Irrigation potential created and Irrigation potential utilised

Irrigation potential created is the total area which can be irrigated from a project on its full development and irrigation potential utilised is the actual irrigated area from a project during the period under consideration. As per DPRs of the 73 sampled projects, a total Net Irrigated Area of 29,497 Ha was planned to be created through the execution of the projects.

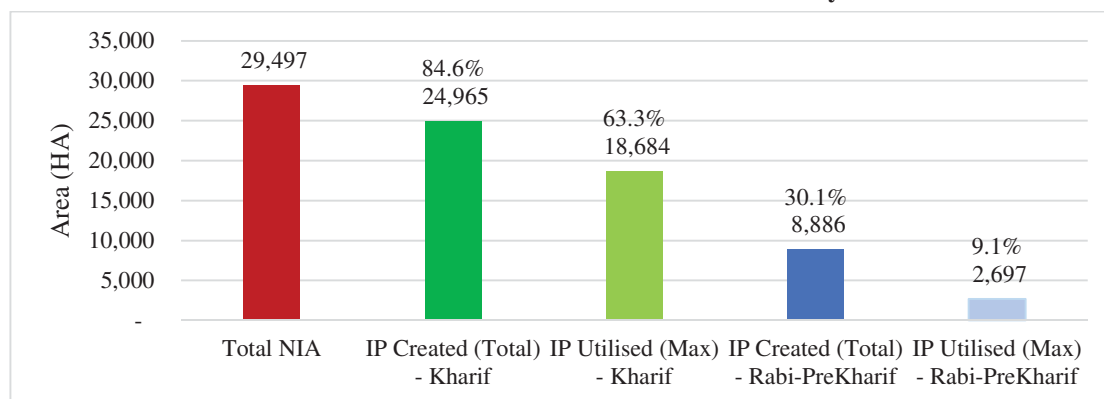
Audit examined the monthly reports rendered by the irrigation divisions for the two year period of April 2017 to March 2019 to see the extent of Irrigation Potential created and actually put to use for cultivation of various crops by the beneficiary farmers. It was

⁴³ Source: Agriculture Statistics at a glance, 2019 - Ministry of Agriculture and Farmers Welfare, GoI

⁴⁴ Statistical Handbook of Assam, Directorate of Economics and Statistics, GoA

found that the monthly reports were being prepared in a routine manner, as many of the projects were being reported with null/ no-value, or with the same value repeated month after month. However, for the purpose of analysis, we have taken conservative figures⁴⁵ for IP Created and Utilised. The summary of IP created and utilised for Kharif and Rabi-Pre-Kharif season is shown in **Chart 2.4**:

Chart 2.4: IP Creation and Utilisation Summary



Source: Departmental records

As can be seen in the chart, the stated IP Creation is at 84.6 per cent of the NIA for Kharif, and 30.1 per cent in case of Rabi-Pre Kharif season. The actual IP Utilisation, was at 63.3 per cent in case of Kharif, but for Rabi-Pre Kharif it was low 9.1 per cent. The low reported IP Utilisation in Rabi-Pre Kharif season, in a season when irrigation water is most required adversely impacts benefits of increased cultivation of crops.

Out of 73 sampled projects, we found that 18 projects were non-operational due to various reasons as explained in **paragraph 2.2.5.2**.

The IP Created and Utilised was also being reported against these non-operational projects, as shown in **Table 2.9**:

Table 2.9: IP created and utilised being shown in non-operational projects

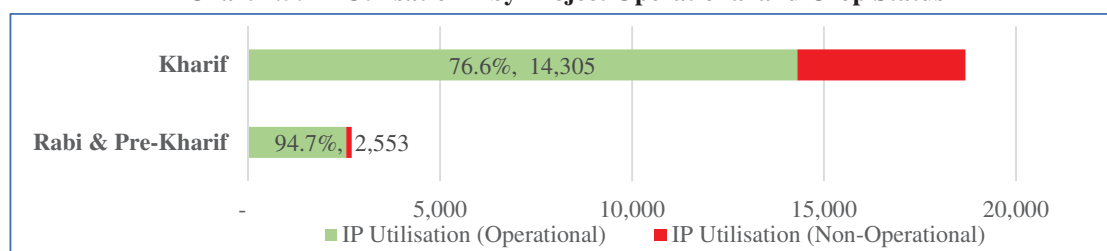
Report Season	Operational Status Group	Operational Status	No of Projects	Area NIA	IP Created (MAX)	IP Utilised (MAX)	IP Utilised (MEDIAN)
Kharif	Operational	Operational (Total)	52	20,808	19,347	14,305	11,038
	Non-Operational	Non-Operational (Total)	21	8,689	5,618	4,379	2,941
		Non-operational since completion	7	4,392	1,727	1,370	695
		Non-operational due to damages	11	3,137	3,686	2,861	2,117
		Others (Non-Irrigation Use)	2	770	205	148	129
		Delayed completion (June 2019)	1	390	0	0	0

⁴⁵ For IP Created – the Maximum stated value, (which is the also same as the Minimum in most cases) has been taken. For IP Utilised, this has been taken as the Maximum Utilised value, though the median value is also being reported here

Report Season	Operational Status Group	Operational Status	No of Projects	Area NIA	IP Created (MAX)	IP Utilised (MAX)	IP Utilised (MEDIAN)
Rabi & Pre-Kharif	Operational	Operational (Total)	52	20,808	7,556	2,553	1,247
	Non-Operational	Non-Operational (Total)	21	8,689	1,330	144	52
		Non-operational since completion	7	4,392	578	58	22
		Non-operational due to damages	11	3,137	592	60	18
		Others (Non-Irrigation Use)	2	770	160	26	12
		Delayed completion (June 2019)	1	390	0	0	0

The breakup of IP Utilisation on Operational and non-Operational projects among the 73 sampled projects can be seen in the following chart. The IP utilised on account of operational projects in case of Kharif season was around 76.6 *per cent* of the total IP created. The recorded reasons for less utilisation of IP were general wear and tear of the projects, natural calamities, erratic power supply, change of river course, damage of canal system, lack of demand from farmers, *etc.*

Chart 2.5: IP Utilisation – by Project Operational and Crop Status



Analysis of the IP Utilisation report shows that the Irrigation Potential has been created and utilised primarily during the Kharif Season. The low IP utilisation in the Rabi-Pre Kharif season in the sampled projects being less than 10 *per cent*, would have a detrimental effect on the efforts in increasing cropping intensity through cultivation of crops successfully in the dry seasons of Rabi-Pre Kharif.

During Exit Conference, the Chief Engineer, Irrigation Department did not provide (August 2020) any specific reply.

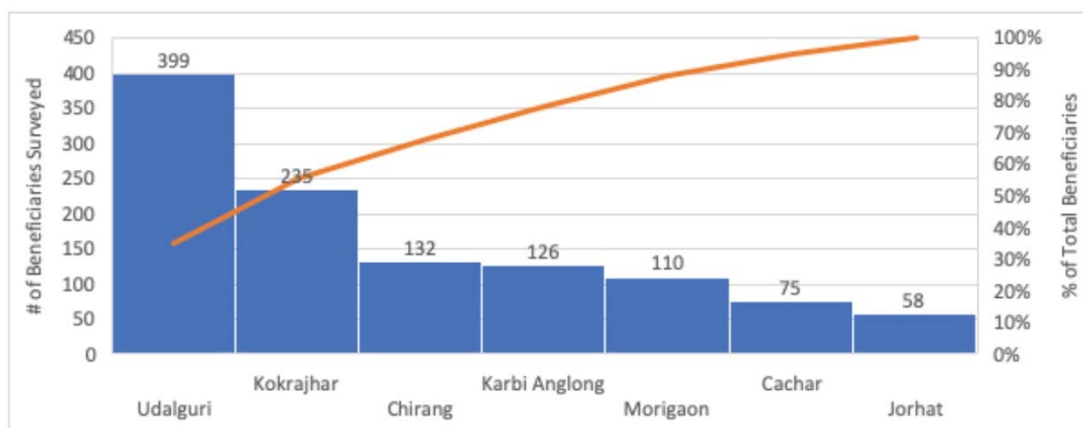
2.2.7.2 Impact of Outcomes on Beneficiaries

The 73 sampled projects considered for assessment covers a net irrigated area of 29,497 Ha providing benefit to 20,899 farming families in 415 villages surrounding the command area. We surveyed 1,135 Beneficiaries across seven Districts⁴⁶ of Assam where water from the sampled Minor Irrigation Scheme projects was being provided. The beneficiaries were selected based on audit's judgement of accessibility and availability of farmers. The beneficiary survey proved to be a vital tool for audit in absence of the basic project-wise and crop-wise records in the sampled offices of GoA.

⁴⁶ While sampled projects were selected from six Irrigation Divisions, Beneficiary Survey includes seven Districts, as Chirang District comes within Kokrajhar Division, one of the six Sampled Divisions

The beneficiaries were surveyed on various parameters and outcomes relating to irrigation and the results are discussed in succeeding paragraphs.

Chart 2.6: Surveyed Beneficiaries



(i) Profile of Beneficiaries

The surveyed farmer beneficiary had an average land holding of 14.4 Bighas⁴⁷. Larger average landholding was seen in Udalguri. Almost 60 per cent of the farmers surveyed had Marginal or Small landholdings of less than two Hectares or 15 Bighas. Around 92 per cent of the landholding was put under cultivation by the surveyed beneficiary farmers. Of this cultivated land, Kharif Crops accounted for 90.4 per cent of the usage, while Rabi crops accounted for only 12.4 per cent of the usage as given in **Table-2.10**:

Table 2.10: Land under Kharif and Rabi crops

District	Number of Beneficiaries	Total Landholding	Land Cultivated (per cent)	Land Used for (per cent)	
				Kharif Crop	Rabi Crop
Cachar	75	837.5	97.4	96.6	6.6
Chirang	132	1,667.5	76.3	94.1	6.2
Jorhat	58	680.5	99.9	65.6	34.3
Karbi Anglong	126	1,282.0	98.8	99.1	0.1
Kokrajhar	235	2,521.5	88.0	90.7	15.2
Morigaon	110	1,402.0	82.2	35.2	94.5
Udalguri	399	7,982.7	95.7	98.1	0.9
Overall	1,135	16,373.7	91.9	90.4	12.4

The land usage for Kharif and Rabi crops by District, and also by landholding size is shown in **chart 2.7**:

⁴⁷ 1 Hectare = 7.475 Bighas

Chart 2.7: Kharif and Rabi crops land usage by District

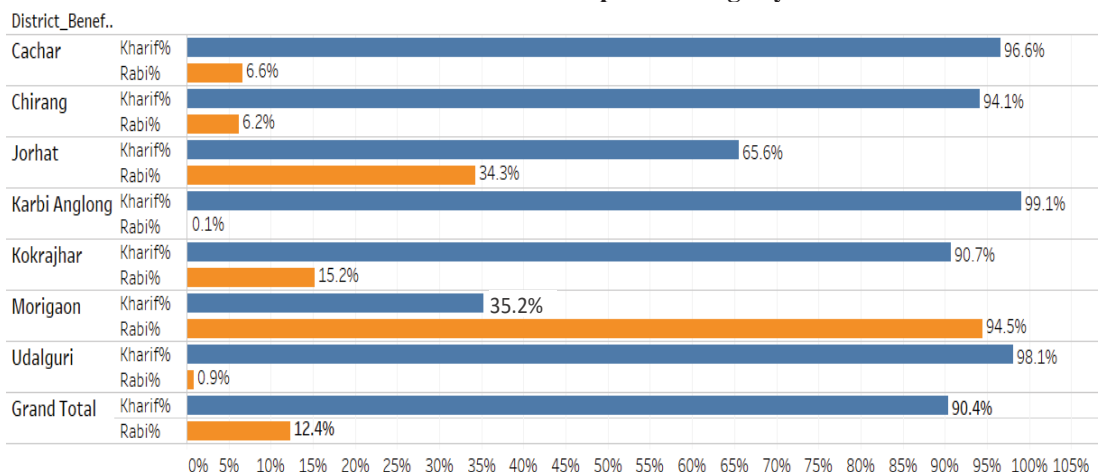
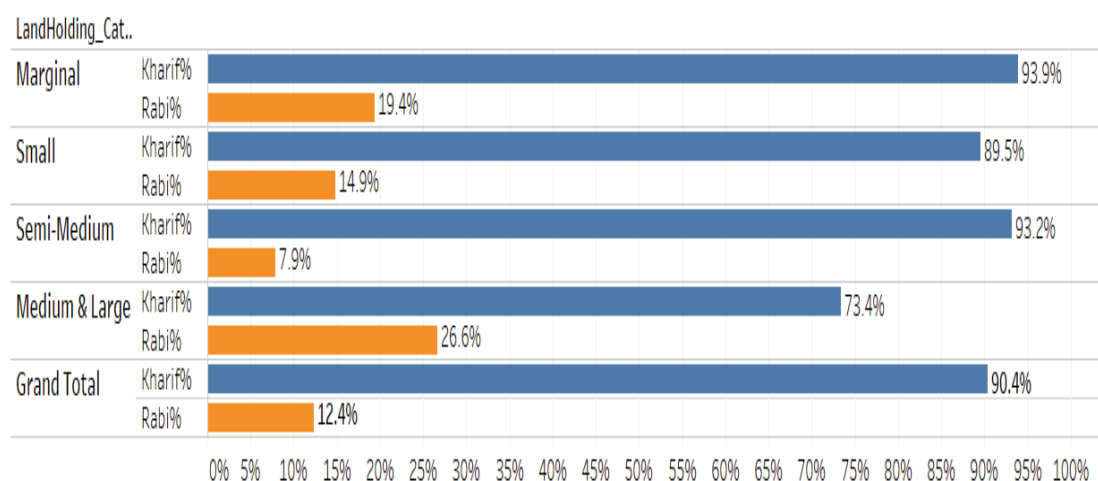


Chart 2.8: Kharif and Rabi crops land usage by Landholding size



Thus, the above charts indicate that irrigation had not led to greater production of Rabi crops, with most districts showing Rabi crops land usage of less than 10 *per cent*, and Kharif crops remaining the principal crop.

(ii) Cropping pattern

One of the objectives of providing irrigation is to enable increased cropping intensity, with the farmer being able to cultivate multiple crops in a year on the same stretch of irrigated land, thereby increasing agricultural output and income. Audit found through the beneficiary survey that only around 15 *per cent* of the farmers were following a cropping pattern with multiple crops grown through the year as shown in **Table 2.11**.

Table 2.11: Cropping Pattern followed by Surveyed Beneficiary Farmers (SBF)

Cropping Pattern	Number of SB Farmers	per cent of SBF
Single	966	85.1
Double	149	13.1
Thrice	13	1.1
Multiple (>3)	7	0.6
TOTAL	1,135	100.0

This finding is in keeping with fact that near 84*per cent* of the surveyed farmers reported that they were cultivating the crops for less than six months as shown in **Table 2.12**.

Table 2.12: Number of Months cultivated by SBF

Months Cultivated	Number of SB Farmers	per cent of SBF
Three Months	6	0.5
Six Months	942	83.0
Nine Months	97	8.5
Twelve Months	90	7.9
TOTAL	1,135	100.0

In response to our question from farmers who were cultivating only a single crop as to whether they desired to cultivate multiple crops, an overwhelming majority⁴⁸ of nearly 88.4 per cent of the farmers said they were willing to do so, and gave the following reasons for not being able to go for multiple cropping:

Table 2.13: Reasons for Inability to do Multiple Cropping

Reason for Multiple Cropping Inability	Number of SBF	per cent of SBF
Water scarcity/ Irrigation water not sufficient from the project	780	91.3
Irrigation water not available during dry season from the project	775	90.7
Assistance from Agriculture Department not received	728	85.2

Thus, over 90 per cent of the farmers stated inadequacy of irrigation water, and insufficiency of water in dry season as the primary reason for not doing multiple cropping, despite their willingness to do so. Most of these farmers (85.2 per cent, 728 respondents) also stated they had never been encouraged by the Agriculture Department or State Irrigation Department to adopt multiple cropping methods.

(iii) Availability of Irrigation water

As per our Survey, over 68 per cent of the Beneficiary Farmers stated that they are receiving irrigation water from the projects. This varied across the districts, as given in **Table 2.14**, with a high of 92 per cent in Udalguri, and a low of four per cent and 5.2 per cent in Cachar and Jorhat respectively.

Table 2.14: Status of Receipt of irrigation water during Rainy Season

District	Yes: Receiving	No: Not Receiving	Null Response	Total SB Farmers	per cent Receiving Irrigation Water
Cachar	3	72		75	4.0
Chirang	76	53	3	132	58.9
Jorhat	3	54	1	58	5.3
Karbi Anglong	98	28		126	77.8
Kokrajhar	174	60	1	235	74.4
Morigaon	54	56		110	49.1
Udalguri	367	32		399	92.0
Grand Total	775	355	5	1,135	68.6

However, only 23.2 per cent of the surveyed farmers stated that they received irrigation water during the dry season (October to March), with the highest percentage being reported in Morigaon at 67.5 per cent. District wise response is shown in **Table 2.15**:

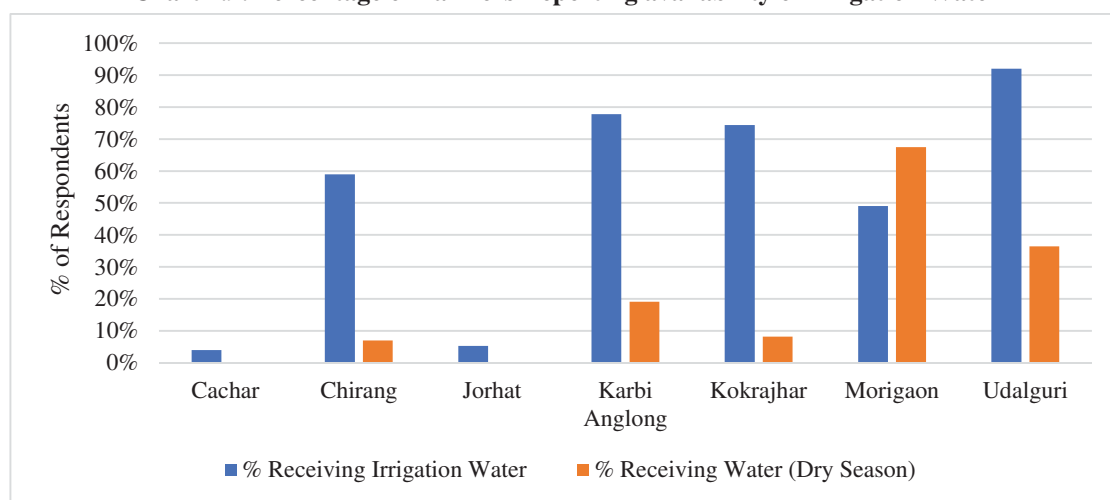
⁴⁸ 854 out of the 966 SBF with Singe Cropping

Table 2.15: Status of receipt of Irrigation Water during Dry Season

District	Yes: Receiving	No: Not Receiving	Null Response	Total SB Farmers	per cent Receiving Water (Dry Season)
Cachar	0	75		75	0.0
Chirang	9	121	2	132	6.9
Jorhat	0	40	18	58	0.0
Karbi Anglong	22	93	11	126	19.1
Kokrajhar	19	213	3	235	8.2
Morigaon	54	26	30	110	67.5
Udalguri	144	251	4	399	36.5
Overall	248	819	68	1,135	23.2

Chart 2.9 shows the percentage of surveyed farmers stating availability of irrigation water.

Chart 2.9: Percentage of Farmers Reporting availability of Irrigation Water



The non-availability of irrigation water during dry season was further borne out by the farmers in their response to specific queries on timeliness and sufficiency of irrigation water during the two primary crop seasons of Kharif, and Rabi-Pre Kharif. While around half of the respondents stated that water availability was timely and available during Kharif season, this was only around 20 per cent in case of Rabi-Pre Kharif season. District wise summary of responses in percentage terms is given in Table 2.16.

Table 2.16: Timeliness and Sufficiency of Irrigation Water

District	Kharif (per cent)		Rabi -Pre Kharif (per cent)	
	Timely	Sufficient	Timely	Sufficient
Cachar	2.7	2.7	0.0	0.0
Chirang	54.5	40.9	3.8	1.5
Jorhat	0.0	0.0	0.0	0.0
Karbi Anglong	66.7	43.7	14.3	11.1
Kokrajhar	63.0	47.2	9.4	5.5
Morigaon	36.4	36.4	48.2	46.4
Udalguri	72.7	49.1	32.8	29.8
Overall	56.0	40.4	20.2	17.5

While Timeliness and Sufficiency of supply of irrigation water has been less than satisfactory, the situation is far worse in the Rabi-Pre Kharif season, when water is needed the most to enable multiple cropping.

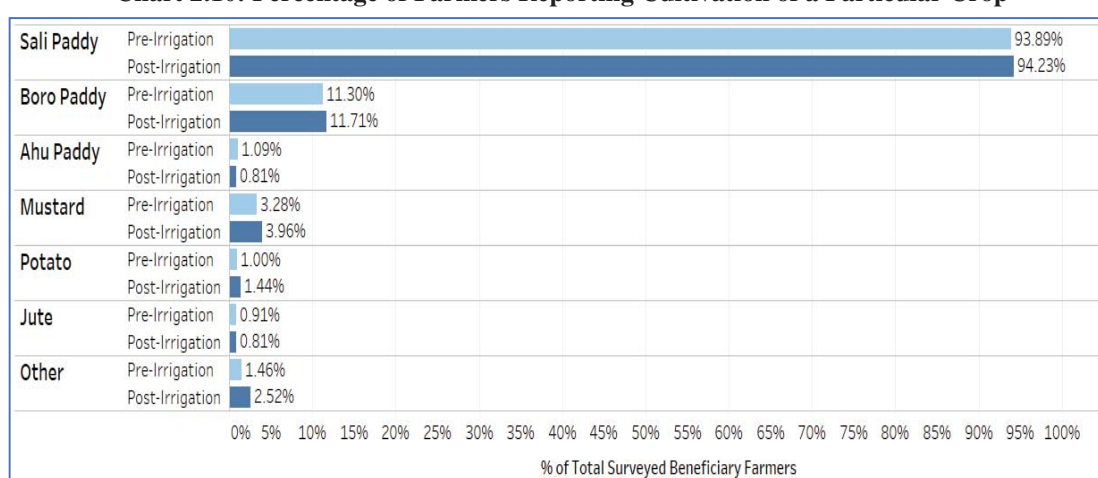
(iv) Assessment of increase in Productivity due to Irrigation

One of the primary intended outcomes of implementing the Minor Irrigation Schemes was the increase in yield of crops leading to an increased income of the farmers. Each of the selected project had a BCR of greater than 1, based on an assumption of increased farmer income through increased yield, increased cropping intensity, diversification of crops, and increased area brought under cultivation.

Audit asked the farmers about the crops and their yield before and after availability of irrigation water from the project. The following findings flow from an analysis of their response.

The mix of crops grown by the farmers remained virtually unchanged before and after the implementation of the irrigation scheme. This can be seen in **Chart 2.10**:

Chart 2.10: Percentage of Farmers Reporting Cultivation of a Particular Crop



Paddy remained the staple crop of the farmers, with Sali paddy remaining the predominant crop. There was no increase seen in the cultivation of Boro and Ahu paddy, which are grown in other than the Kharif season—an area where significant gains were expected through the implementation of the irrigation schemes. Further, there has not been any significant uptake in cultivation of other crops such as Mustard, Jute and Potato.

In case of paddy, many of the farmers reported an increase in yield post-irrigation. While Sali paddy showed an average increase of around 18 per cent, this increase was even higher in case of Boro paddy, with a reported increase⁴⁹ in yield by 37 per cent.

The average yield (in Quintals per Hectare) and the increase in average yield as reported by the farmers is shown in the figure below—the reported yield increase was far below the 100 per cent plus increase projected in the DPRs.

⁴⁹ This is based on a small sample of respondents growing Ahu Paddy, and caution may be exercised

Chart 2.11: Paddy Yield and its Change Post Irrigation

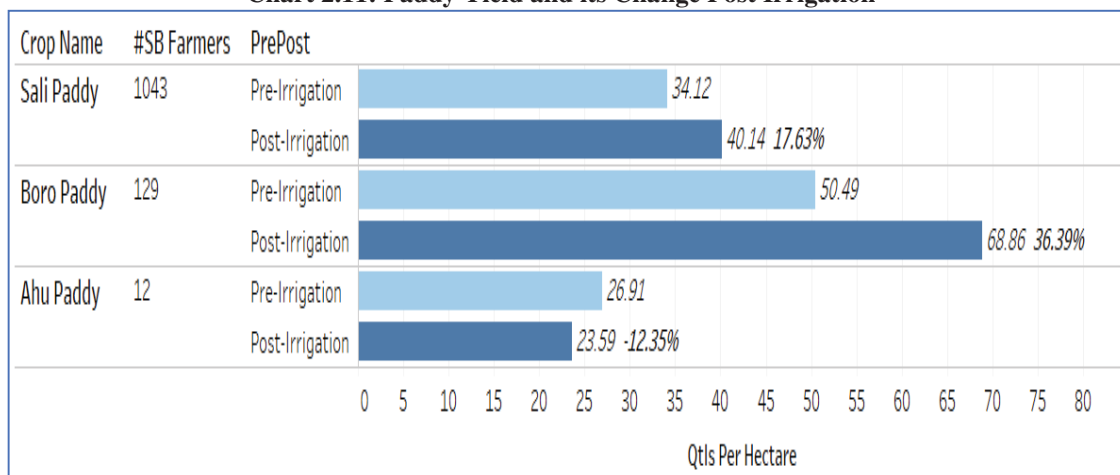


Table 2.17 shows the district wise change in yield reported by the surveyed beneficiary farmers:

Table 2.17: Paddy Yield and its Change Post Irrigation (By District)

Figures in Quintals per Hectare

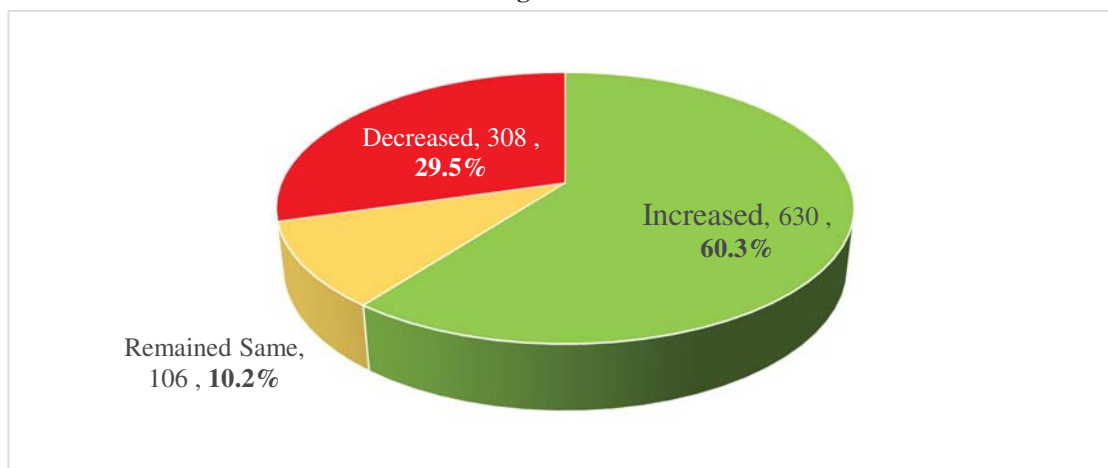
District	Sali Paddy		Boro Paddy		Ahu Paddy	
	Pre-Irrigation	Post-Irrigation	Pre-Irrigation	Post-Irrigation	Pre-Irrigation	Post-Irrigation
Cachar	41.80	44.65	--	--	26.31	25.41
Chirang	28.37	30.92	--	--	--	--
Jorhat	33.01	40.79	39.99	62.79	12.96	16.94
Karbi Anglong	40.69	49.01	--	--	--	--
Kokrajhar	36.01	40.47	41.86	53.82	29.90	29.90
Morigaon	33.66	45.62	51.80	70.31	--	--
Udalguri	31.63	38.49	89.70	71.76	46.34	--
Overall	34.12	40.14	50.49	68.86	26.91	23.59
Overall per cent Change	17.63 per cent		36.39 per cent		-12.35 per cent	

(v) *Changes in income of farmers*

Although change in farmer's income is dependent on many variables and it cannot be solely attributed to availability of irrigation facilities, we tried to get the farmers' views on increase/ decrease in their income in the last five years as a result of irrigation project.

While around 60 per cent of the respondents stated that there had been an increase in their income, there were also another 30 per cent who stated that their income had shown a decrease. This can be seen in *Chart 2.12*.

Chart 2.12: Self-Assessed change in Income in last 5 Years – Overall⁵⁰



The response of the farmers by District, and by Landholding category is shown in **Table 2.18**. Among Districts, the farmers in Morigaon had the highest percentage of 80 *per cent* reporting an increase in income, with the lowest percentage being reported in Karbi Anglong.

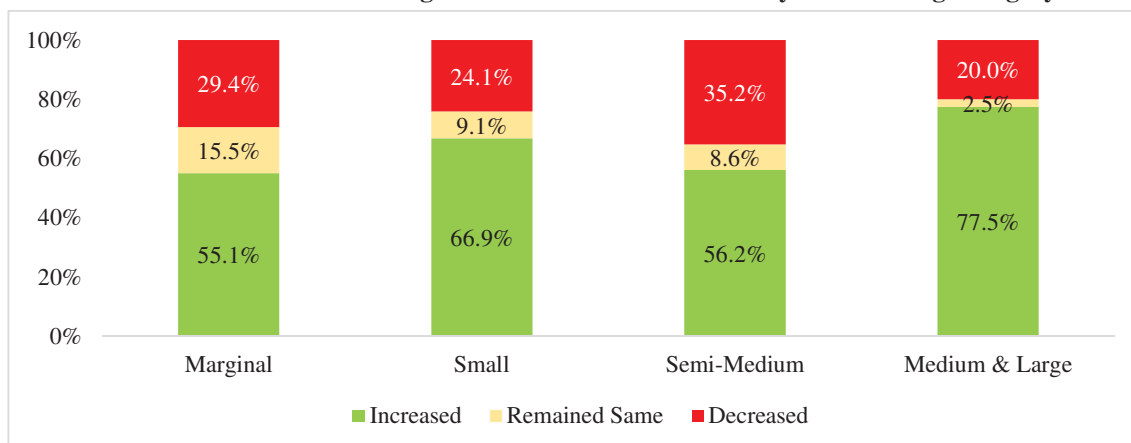
Table 2.18: Self-Assessed change in Income in last 5 Years–By District

District	Increased	Remained Same	Decreased	Null Response	Total SBF	<i>per cent Reporting Increase in Income</i>
Cachar	37	13	25	--	75	49.3
Chirang	83	7	38	4	132	64.8
Jorhat	33	7	18	--	58	56.9
Karbi Anglong	28	22	21	55	126	39.4
Kokrajhar	164	18	51	2	235	70.4
Morigaon	97	8	5	--	110	88.2
Udalguri	188	31	150	30	399	50.9
Overall	630	106	308	91	1,135	60.3

When the response is analysed by the landholding category, it is seen that reported increase in income is also strongly associated with larger landholding. While only 56 *per cent* of the Marginal farmers reported an increase in income, it was far higher at 78 *per cent* in case of Medium and Large landholding farmers.

⁵⁰ No response was received from 91 SBF

Chart 2.13: Self-Assessed change in Income in last 5 Years – By Landholding Category



Of the farmers who had stated an increase in income, 28.1 *per cent* attributed the increase to reasons other than increase in crop production.

Table 2.19: Reason Stated for increase in Income

Stated Reason for Increase in Income	SB Farmers	<i>per cent</i> SB Farmers
Due to Increase in Production of Crops	294	46.7
Due to Income from Other Sources	177	28.1
Null Response	159	25.2
Total SB Farmers stating increase in Income	630	100.0

Around 72 *per cent* of the farmers responded that the income from agriculture was insufficient to manage their family livelihood, as shown in **Chart 2.14**:

Chart 2.14: Income from Agriculture Sufficient for Family Livelihood



In keeping with the above response, 71.9 *per cent* of the farmers stated that they took up other jobs/ works to supplement their income. This percentage was even higher at 94.3 *per cent* for the respondents who had stated that income from agriculture was insufficient for managing family livelihood which underscores the importance of successful implementation of irrigation projects, and provision of other support leading to increased farm income.

During Exit Conference, the Deputy Secretary, Irrigation Department stated that since the rivers were not perennial, ponding of water was not possible during dry season.

2.2.8 Coordination with other stakeholders

2.2.8.1 Role of Agriculture Department

In order to augment the cropping pattern as envisaged in DPRs and achieve the intended objectives, it is highly desirable that Department of Irrigation and Department of Agriculture work in close cooperation with each other. As per the Guidelines for preparation of DPR of irrigation projects, Department of Agriculture is to be consulted in calculation of BCR and in deciding the cropping pattern. This cooperation is necessary as the Department of Agriculture, GoA can distribute seeds and fertilisers to farmers as per cropping pattern. State Irrigation Department has also formed State level co-ordination committee as well as District level co-ordination committee with the officials of Agriculture Department and other concerned Departments/organisations to motivate farmers for optimum use of water, go for multiple cropping using assured irrigation.

During audit, it was observed that though Agriculture Department issued agri-inputs from time to time, they were not issued as per the cropping pattern planned in the DPRs. Further, Agriculture Department maintained records of distribution and crop-cutting experiments agricultural circle-wise, however the project-wise details were neither available with them or the Irrigation Department and hence, the impact of agri-assistance on the irrigation project remained unassessed.

In reply, Agriculture Department stated that the cropping pattern of the projects were prepared by Irrigation Department and certified by Agriculture Department. However, the Irrigation department did not intimate details of irrigation outcome on completion of projects in terms of command area covered, villages covered, targeted farmers, *etc.* Due to this, Agriculture department did not have all the information for providing required assistance at their end.

Moreover, records in support of periodical meetings of the co-ordination committee, conduct of training, motivational programme, *etc.*, also could not be made available to audit either by Agriculture Department or Irrigation Divisions. Thus, close coordination between the two Departments appeared lacking, and needed to be revived and strengthened.

2.2.8.2 Marketing support from Government

Marketing of agriculture produce is a serious problem for the farming community. Increased farm income also depends upon the availability of opportunity for selling the agricultural produce at the right time and place. For this purpose, farmers would need access to transport facility, and suitable agricultural markets.

In response to our questions on the above issues, 84.1 *per cent* of the farmers stated they were not aware that Government provides facilities for transportation (*thela*, tractor, *etc.*) of agriculture produce to their desired place of marketing, and only 1.6 *per cent* responded saying that they had actually received such transport support facility.

2.2.8.3 Participatory Irrigation Management (PIM) and Role of Water User Association (WUA)

Participatory Irrigation Management (PIM) aims to increase framers' participation in the management of precious irrigation water in the command area. Through PIM, the beneficiary cultivators are expected to form the Water Users' Associations (WUAs) who will take part in the planning pertaining to management and distribution of water including collection of irrigation service charges with the help of departmental staff. All the completed irrigation projects have to be handed over to the WUAs who will be responsible for their operation and maintenance. In order to streamline the PIM activities in the State, Assam Irrigation Water Users' Act, 2004 was enacted. Handing over of the completed projects to the WUAs were pre-requisite for PIM, operation and maintenance.

The DPRs of sampled projects stated that on completion of the project, the same would be handed over to the WUA. However, during checking of records, it was observed that none of the projects had been handed over to WUAs, and wherever formed, the PIM was yet to commence. It was seen that WUAs were registered with Registrar of Societies, but WUAs were not functioning as per the provisions of WUA Act, 2004 which mandated streamlining of PIM activities. As such, the very objective of participation of farmers in the day to day running and maintenance of projects were not met.

Collection of water charges

Section 40 (a) & (b) of the Assam Irrigation Act, 1983 and Paragraph 25 of Assam Irrigation Rules, 1997 provides for realisation of water charges from the owners of land where water was supplied. State Irrigation Department has introduced the system of realisation of service charges from the beneficiary cultivators since 1993. The rates of irrigation service charges were revised during 2000-01 to cope up with the increasing cost of maintenance and in accordance with the Fiscal Reform Measures of the State Government. The current rates of irrigation service charges are in **Table 2.20**:

Table 2.20: Rates of Irrigation service charges

Crops	Rate/Bigha (Rs.)	Rate/Hect (Rs.)
Kharif	37.50	281.24
Wheat and other Rabi	75.00	562.50
Ahu	100.00	751.00
Jute	20.00	150.00
Sugarcane	29.60	222.00

In order to improve the position of realisation of service charges, the State Irrigation Department enacted the Assam Irrigation Water Users' Association Act, 2004 and planned district-wise farmers' motivational training programme for creating awareness.

Collection of water charges in the State was very less as against the dues as shown in **Table 2.21**:

Table 2.21: Collection of water charges

(₹ in crore)

Year	Realisable amount as per crop wise utilisation during the year	Service charges actually realised during the year	Balance service charges to be realised for the year	Percentage of recovery
2014-15	7.87	0.07	7.80	0.92
2015-16	8.06	0.08	7.98	0.95
2016-17	8.55	0.11	8.44	1.29
2017-18	8.82	0.12	8.70	1.36
2018-19	8.58	0.08	8.50	0.93

Source: Departmental figures furnished in whole rupees

Out of selected six divisions, only Kokrajhar division collected water charge of ₹0.03 crore against the target of ₹0.09 crore, during the period 2016-2019. Karbi Anglong division waived off water charge being in an Autonomous District Council and as per the decision of the Karbi Anglong Autonomous Council. Other four divisions did not maintain any record on collection of water charge. The State Government needs to review the outstanding dues and take action for recovery.

During beneficiary survey, audit asked the farmers about their awareness of the need to pay water charges for usage of irrigation water. Only 27.8 per cent of the respondents stated that they were aware of the same. The response is summarised in **Table 2.22**:

Table 2.22: Awareness of Water Charges Payment

	Number of SB Farmers	per cent of SB Farmers
Yes – Aware	316	27.8
No – Not Aware	693	61.1
Null Response	126	11.1
TOTAL	1,135	100.0

Among the farmers who were aware of the need for paying water charges, 33.5 per cent were unaware of the entity to whom water charges were to be paid. Thus, it is clear that the Irrigation Department had not taken adequate steps for recovery of service charges from the farmers and had allowed some of the projects to languish for want of maintenance.

2.2.9 Conclusion

GoA is implementing irrigation schemes to achieve outcomes such as higher agricultural growth, increase in cropping intensity, raising crop yield and diversifying into pulses and oilseeds and ultimately providing better livelihood for the farming community. The State had 1,144 completed minor irrigation projects with an irrigation potential of 3.86 lakh hectares. The total IP created under Minor Irrigation projects was 6,74,117 hectares and the incremental IP created during the period 2010-17 was 20.4 per cent of the total IP created.

A Performance Audit of the outcomes of minor surface irrigation schemes completed during the period January 2011 to 31 March 2017 revealed that 25 per cent of the sampled 73 projects (18 projects) were non-functional due to various reasons, thereby reducing the irrigation potential. Maintenance of projects suffered for want of funds and the reporting on irrigation potential created and utilised was deficient. Water Users' Associations whose role is to ensure participation of farmers in running of the Irrigation

Schemes and their maintenance, were not functional. The State Government had not taken any action to review the outstanding dues of irrigation service charges, which has impacted maintenance of the Schemes.

The irrigation potential created (63 *per cent*) was largely utilised for Kharif Season's crops and hardly nine *per cent* of the irrigation water was used for pre-Kharif/ Rabi crops, when the season is dry and there is a need/ demand for irrigation water. The expected outcomes of the projects as per DPRs were found to be over optimistic and unrealistic in measuring the cost benefit ratio of the projects as well as farmer's incomes.

The beneficiary survey done by audit brought out important issues such as only 23.2 *per cent* of surveyed beneficiary farmers stated that they are receiving irrigation in dry season. There was dissatisfaction on timeliness and sufficiency of irrigation water. An overwhelming majority of 88.4 *per cent* of the surveyed beneficiary farmers stated that they are willing to undertake multiple cropping but were unable to do so due to inadequacy of water from the projects. Majority of the farmers stated that their agricultural income was insufficient to manage their livelihoods.

These findings underscore the importance of improving the functioning of irrigation projects to make more irrigation water available to the farmers to improve their cropping pattern, diversity and yield of the crops leading to overall increase in farmers' income. This was necessary in order to achieve the outcomes as per their own DPRs prepared at the time of planning for irrigation projects.

2.2.10 Recommendations

- *DPRs may be prepared on realistic and feasible assumptions based on technical and economic feasibility studies, spell out the timelines for project completion and for the outcomes to materialise; design defect in projects need to be identified early by the Department for correction before execution is completed*
- *Department of Irrigation may ensure operation of all completed irrigation projects and take steps to revive the non-operational projects;*
- *Government may consider making provision of certain percentage of project cost for maintenance of schemes in the DPRs, as being done for road projects, so that the project maintenance is sustained.*
- *Maintenance of records needs to be improved in the irrigation divisions to report factual status of IP being utilised;*
- *To ensure equitable distribution of irrigation water, a good practice is the warabandhi system⁵¹ in Uttarakhand which can be followed by Assam;*
- *The end goals of Irrigation Department and Agriculture Department are similar which is to improve the livelihood of the farmers. Hence, it is imperative that Irrigation Department should coordinate its works with Agriculture Department. It is*

⁵¹ a system of distribution of water allocation to water users by turn, according to an approved schedule indicating the day, duration and time of supply.

recommended that a formal MoU can be prepared in consultation with both the departments so that a system is put in place;

- *Participatory Irrigation Management should be encouraged and the Assam Irrigation Water Users Act, 2004 to be implemented effectively by GoA. Water usage charges need to be levied and collected regularly so that irrigation schemes do not suffer for want of maintenance funds.*

COMPLIANCE AUDIT

Agriculture Department

2.3.1 Excess Procurement Cost to the Government

Director of Agriculture, Assam procured black gram seed at exorbitant rates during the year 2016-17 and 2017-18 leading to excess procurement cost of a minimum of ₹5.80 crore to Government of Assam.

Assam Financial Rules, 1939 {Rule 466 (1)} stipulates that every public officer should exert the same vigilance in respect of public expenditure and public funds generally as a person of ordinary prudence would exercise in respect of expenditure and the custody of his own money. Section 4 (1) (c) of the Assam Public Procurement Act, 2017 stipulates that in relation to a public procurement, the procuring entity shall have the responsibility and accountability to ensure professionalism, economy and efficiency, from officials involved in the procurement process.

Assam Seed Corporation Limited (ASCL), a State Government agency, *inter-alia* carries on business as seed merchant, to buy, sell, grow, prepare for market, import, export and deal in seeds of all kinds. Government of Assam, Director of Agriculture (DoA) places indent for various kinds of agricultural inputs and seeds to ASCL as per requirements under various Central and State Schemes. ASCL calls for tenders to finalise the procurement of various kind of seeds and other agricultural inputs.

In this regard, audit observed (October–November 2018) that:

ASCL, had called for tenders, and had fixed sale price of black gram seed (PU-31 variety) at the rate of ₹8,301 per quintal for the year 2016-17 and ₹8,143.97 for the year 2017-18. The rates included transportation (one *per cent*), Value Added Tax (VAT) (five *per cent*)⁵² and corporation margin (four *per cent*) based on rates offered by L1 bidder.

As per the bid conditions and rates, in case the quantity required by the purchaser exceeds the quantity offered by the lowest evaluated bidder (which will be determined from the quantity offered by the bidder in the price bid), the next lowest bidder shall be offered the opportunity for supplying the quantities for which he has submitted the bid but at the accepted price of the lowest bidder. Thus, on failure of the L1 bidder not

⁵² During 2017-18, after introduction to GST, there was no VAT and the item was GST exempted.

supplying the required quantity, ASCL can ask other bidders to supply at lowest/negotiated rates.

It was seen that ASCL expressed (December 2016) its inability to supply the required quantities to the Department as the L1 bidder backed out. DoA did not make any enquiry with the ASCL for the year 2017-18 without any recorded reasons.

Instead of directing ASCL, which is their own State PSU to supply the seeds from other bidders, DoA placed supply orders (February 2017 for the year 2016-17 and during August-September 2017 for the year 2017-18) on Regional Manager (RM), National Seed Corporation Limited (NSCL), Kolkata (Central PSU) for procurement and supply of seeds to various districts.

Audit noticed that Government of Assam, Director of Agriculture (DoA) accordingly procured 2,524.60 quintal and 4,928.72 quintal black gram seeds at a cost of ₹6.62 crore (@ ₹26,240 per quintal) and ₹9.61 crore (@ ₹19,500 per quintal) during 2016-17 and 2017-18 respectively from NSCL. The offered sale price of ₹26,240 per quintal for both the years, was revised for 2017-18 (August 2017) *suo-moto* by NSCL to ₹19,500 per quintal on account of exemption of GST on seeds. DoA released payments directly to the authorised dealers incurring total expenditure of ₹16.23 crore.

Audit compared the rates at which the dealers had supplied the seeds during 2016-17 and 2017-18 with that of the rates received⁵³ by ASCL in 2016-17 for black gram seeds (PU-31 variety) as detailed below:

Year	Rates received by ASCL (₹/quintal)		Rates offered by NSCL (₹/Quintal)	Quantity procured (Quintal)	Excess procurement cost to GoA (₹in crore)	
	L2 (Minimum)	Maximum			Maximum	Minimum
1	2	3	4	5	6 $\{(4*5)-(2*5)\}$	7 $\{(4*5)-(3*5)\}$
2016-17	8,962	14,000	26,240	2524.60	4.36	3.09
2017-18	8,962	14,000	19,500	4928.72	5.19	2.71
Total				7458.32	9.55	5.80

It is evident from the above table that, had the ASCL asked other bidders to supply the seeds, even at the prices offered by them, the Department's procurement of seeds would have been economical. They would have saved on the excess expenditure incurred which ranged between ₹9.55 crore and ₹5.80 crore, when compared to the much higher rates offered by NSCL and accepted by the Department.

Interestingly, the major quantity of seeds supplied on behalf of NSCL at ₹26,240 per quintal was the same dealer (L1)⁵⁴ selected by ASCL for the year 2016-17 who had offered 1,100 quintal black gram (PU-31) seeds at the rate of ₹8,301.70 per quintal all inclusive.

Despite being aware of the wide divergence between the price offered by ASCL (₹8,301.70 per quintal) and the price quoted by NSCL (₹26,240 per quintal), the DoA did not make any effort to negotiate the prices with NSCL or to instruct the ASCL to

⁵³ Other than L1 bidder's rates were considered as the L1 bidder refused to supply the seeds.

⁵⁴ M/S AJB Merchantile, Guwahati.

explore the possibility of supplies at the rates offered by other bidders of the 2016-17 tender. The DoA's action was in contravention of financial rules and thus against the financial interest of the State Government, which resulted in excess procurement cost to the GoA of a minimum of ₹5.80 crore as explained in the table above.

The matter was reported to the Government in March 2020, the Joint Director, Agriculture stated (August 2020) that the rates were fixed by Tendering Committee and rates for black gram seed had increased many folds during that year. The reply is not acceptable in view of the rates received by ASCL in the tender called for supply of seeds for the year 2016-17 and 2017-18.

Recommendations: Government may review the entire procurement process of its own State PSU, ASCL and ensure that they strictly abide by tender and procurement guidelines and complete the procurements. Else the existence of the PSU itself needs to be reviewed for their failure to assist the Department in procuring seeds, which is the sole objective for which they were set up. Government may also consider fixing responsibility on DoA for causing financial loss to the State Exchequer by procuring seeds at exorbitant rates.

Irrigation Department

2.3.2 Idling of Z-Type Sheet Piles

The Bodoland Territorial Council procured 524.09 MT of Z-Type sheet piles worth ₹6.06 crore in excess of actual requirement leading to idle accumulation of Z-Type sheet piles.

Rule 466 (1) of Assam Financial Rules, 1939 stipulates that every public officer should exert the same vigilance in respect of public expenditure and public funds generally as a person of ordinary prudence would exercise in respect of expenditure and the custody of his own money. Further, 'Note' under Rule 219 of Assam Financial Rules provides that stocks of individual items are regulated on a consideration of actual requirements of the near future and with due regard to the average consumption of the past.

The Bodoland Territorial Council (BTC), Kokrajhar, Irrigation Department accorded Administrative Approvals (April 2013 and February 2015) for procurement of 2,937.04 MT⁵⁵ of Z-type pile sheets⁵⁶ under AIBP⁵⁷ Minor Irrigation schemes for three divisions⁵⁸ under BTC area.

The Council Head of Department (CHD), Irrigation Department, BTC, Kokrajhar issued⁵⁹ supply orders to a contractor⁶⁰ for supply of 1,466.46 MT Z-type pile sheets

⁵⁵ **AIBP 2012-13**-1,635.95 MT for 91 schemes and **AIBP 2013-14**-1,301.09 MT for 60 schemes.

⁵⁶ Z-type sheets pile are sheet piles driven at upstream and downstream floor of the weir/barrage of irrigation structures constructed across the river which functions as curtain wall to stop the seepage flow/sub-surface flow below the floor of structure.

⁵⁷ Accelerated Irrigation Benefits Programme

⁵⁸ Kokrajhar, Borolia and Tangla

⁵⁹ During April 2013- November 2014 for AIBP 2012-13 and February 2015 for AIBP 2013-14

⁶⁰ Shri Manaranjan Brahma

@ ₹1,02,000 per MT for the schemes under AIBP 2012-13 and 1,234.64 MT of Z-type pile sheets at ₹1,23,500 per MT for the schemes under AIBP 2013-14 based on the rates of CE, Irrigation Department, Assam and as fixed by Purchase committee, BTC. Executive Engineer (EE), Kokrajhar Irrigation Division paid (April 2018) ₹30.21 crore⁶¹ to the contractor against supply (August 2013–March 2016) of the sheets pile.

Scrutiny of records⁶² showed that against the supplied quantity of 2,701.1 MT⁶³ of Z-type sheet piles, 524.09 MT worth ₹605.58 lakh⁶⁴ were lying idle as of December 2019. This was due to improper assessment of requirement against 135 projects as per following details:

	AIBP 2012-13			AIBP 2013-14		
	No. of projects	Assessed (in MT)	Issued (in MT)	No. of projects	Assessed (in MT)	Issued (in MT)
Issued as per assessment	10	141.75	141.75	--	--	--
Issued less than assessment	36	882.90	665.98	30	1,079.64	679.83
Issued more than assessment	20	356.17	404.59	10	145	224.54
Assessed but not issued	10	148.64	0	11	76.35	0
Issued without assessing	8	0	68.23	--	--	--
Total	84	1,529.46	1,280.55	51	1,300.99	904.37

(Details in Appendix-2.2)

In reply, the EE stated that the procurement was done after taking into account all the schemes under all the divisions of BTC. However, due to change of specification in the works subsequently, the sheets were not utilised. The reply was not acceptable as procurement was made without accessing the actual requirement leading to idle accumulation.

Thus, due to improper assessment of the requirement, 524.09 MT Z-type sheet plies worth ₹6.06 crore were lying idle with the Divisions since the last five years and deterioration of the quality of these sheets with the passage of time cannot be ruled out.

The matter was reported to Government in March 2020, the Chief Engineer stated (August 2020) that the rates are normally fixed by Departmental Purchase Committee for one year and rates continue till the next DPC is held. However, the CE assured to forward a detailed reply.

⁶¹ ₹14.96 crore for 1,466.46 MT @ ₹1,02,000 plus ₹15.25 crore for 1,234.64 MT @ ₹1,23,500

⁶² Stock, Site Account, Bin cards

⁶³ 1,466.46 MT for AIBP 2012-13 plus 1,234.64 MT for AIBP 2013-14.

⁶⁴

Sl. No.	Particulars	Balance quantity Z-type sheet piles (in MT)	Rate as per payment Voucher (₹ in lakh)	Value of materials (₹ in lakh)
1.	Previous Balance	7.91	1.02	8.07
2.	AIBP 2012-13	185.91	1.02	189.63
3.	AIBP 2013-14	330.27	1.235	407.88
	Total:	524.09		605.58

