

## CHAPTER-IV

### Project Outcomes

This chapter deals with the benefits expected and the extent to which these have been achieved after completion of both the irrigation projects, covered in the Performance Audit. Apart from this, the availability of certain major inputs required for successful agricultural practices in the command area of these two canal projects, has also been discussed in this chapter.

***Audit Objective 3: Whether the benefits contemplated in the projects were achieved and the same were delivered to the beneficiaries efficiently and effectively.***

#### ***Brief snapshot of the Chapter***

- BCP was commissioned in July 2018 even though four out of nine canal systems were not connected due to lack of link channels to divert water from Meja-Jirgo Link Channel.
- Water availability in the canal network of Bansagar Canal Project (BCP) was not augmented to the desired level. As against the target of receipt of 34,008 mcft water from Bansagar dam, actual supply was limited to only five to nine *per cent*.
- Similarly, in Dhasan Canal System (DCS), water was not released from the Lahchura dam as per the requirements and shortfalls ranged from 22 to 68 *per cent* during 2014-15 and 2020-21 due to shortage of water in the dam.
- Short release of water in the canal systems impacted the performance of the canals during 2014-21. Only 46 *per cent* canals were operated during entire Rabi season after commission of BCP in July 2018. In DCS, none of the 88 canals were operated during the full cropping period of five months in Rabi season during 2014-21.
- In BCP, the targeted increase in irrigation intensity (Rabi: 83 *per cent* and Kharif: 67 *per cent*) after commissioning of BCP was not achieved and there was short achievement in creation of irrigation intensity ranging from 44 to 45 *per cent* in Rabi and 32 to 33 *per cent* in Kharif.
- In DCS, out of 97,169 hectare command area, the Department targeted to extend canal irrigation facility to only 31,910 hectare (33 *per cent*) under Rabi crop and 14,575 hectare (15 *per cent*) under Kharif crop. However, Department failed to extend irrigation facility even to the targeted area.
- The expected benefit of increase in productivity and additional production of grains was not achieved. Audit also noticed short/delayed supply of certified seeds to farmers and inadequate soil testing.
- Command area of the canals were not developed to carry water from the outlets to the fields.

## 4.1 Introduction

After completion and commissioning of irrigation projects, it is pertinent to assess the extent to which the objectives and goals of the projects have been achieved.

## 4.2 Completion and commissioning of projects

Bansagar Canal project was commissioned in July 2018 and the work of Lahchura Dam Project and connected Pahari Dam Project was completed in March 2015 and March 2018 respectively.

### 4.2.1 Incomplete works of Bansagar Canal Project (Uttar Pradesh)

As discussed in **Paragraph 3.3**, BCP comprises of construction of major six structures/works. Audit however observed that four out of the six structures/works, Bansagar Feeder Channel, Adwa Barrage, Adwa Meja Link Channel and Meja Kota Feeder Channel were completed upto May 2018. However, two other components viz., Meja Jirgo Link Channel (MJLC) and remodelling of old canals were partially completed even upto the date of commissioning of the project (July 2018) as detailed in Table 4.6 below.

**Table 4.1: Status of completion of project**

Name of component	Quantity	Status of completion in July 2018
Bansagar Feeder Channel (BSFC)	71.494 Km	Completed
Adwa Barrage	Diversion of 46.46 cumec water received under BCP.	Completed
Adwa-Meja Link Channel (AMLC)	25.60 Km	Completed
Meja-Jirgo Link Channel (MJLC)	71.13 Km	Partially completed
Meja-Kota Feeder Channel (MKFC)	3.577 Km	Completed
Remodeling of canals	Remodeling of 52 canals comprising of 487 Km length	Remodelling of 44 canals in 468 km length was completed

(Source: CE, BCP, Prayagraj)

Audit further observed that four out of nine canal systems under BCP were not connected for want of link channels to divert water from MJLC as discussed below:

- The 75.550 km long link channel connects Meja dam to Jirgo reservoir of Mirzapur district. MJLC in its journey to Jirgo reservoir was to feed water into Meja Kota Feeder Channel (MKFC)<sup>1</sup> (at Km. 13.10 of MJLC; 3824 Mcft), Harrai Canal System (at Km. 36.480 of MJLC; 261 mcft), Lower Khajuri system (at Km. 45.950 of MJLC; 416 mcft) before falling into Jirgo reservoir (at km 75.550; 3909 mcft). Two other canal systems, viz., Garai and

<sup>1</sup> Meja Kota Feeder channel was to feed to Baraundha Distributary canal.

Jirgo canals, were to be initiated from Jirgo reservoir to carry 11,374 mcf water to irrigate 55,439 ha. Command area.

Audit observed that MJLC was not connected to Jirgo reservoir at Km 75.550 as was proposed in the DPR. When Audit raised the issue, the concerned Division stated that MJLC at Km 71.130 was linked to the existing *Bandhawa* drain through which the water was reaching into Jirgo reservoir. The Division however, neither explained the circumstances under which the MJLC was not constructed upto 75.550 km to carry water into Jirgo reservoir directly, nor provided the records in support of release of water into the *Bandhawa* drain. The photograph below depicts construction of MJLC only upto Km 71.130 instead of upto Km 75.550 to connect Jirgo reservoir as envisaged in the DPR:



The State Government replied (July 2022) that the MJLC, which has a length of 71.150 km, was connected with the *Bandhawa* drain which carry water to Jirgo Reservoir. The Government further added that the work of head regulators of MKFC, Harrai Canal System and Lower Khajuri system were completed and these canals were made operational since July 2021.

The fact remains that the MJLC was not connected to Jirgo dam. Moreover, the State Government did not furnish evidence in respect of augmentation of water in Jirgo dam from MJLC as stated been made through *Bandhawa* drain.

- The existing Harrai Canal System (PPA<sup>2</sup>: 4,616 ha) was to be provided additional 15 cusecs water from MJLC. Examination of records disclosed that no connectivity was provided from MJLC to divert water into Harrai Canal System through a link channel. When Audit raised the issue, the concerned

<sup>2</sup> PPA: Proposed protected area.



Division stated that Harrai canal system had been provided from MJLC through a natural drain. However, no evidence in support of the statement was provided by the Division. Further, the Sirsi Dam Division, Mirzapur under whose control the Harrai canal system was operated specifically informed that no additional water was received from MJLC during 2014-21. Thus, the Harrai canal system was not provided benefit under BCP.

The lack of connectivity from MJLC to divert water into Harrai Canal System through link channel is depicted in the following photograph:



In reply, the State Government stated (July 2022) that the construction work of approach channel to supply water to the Harrai canal had been completed by the year 2018 and the canal was being operational. However, the contractor's bill attached with the reply of the Government pertains to the construction of Head Regulator on Harrai Canal which did not include the construction of link channel. Besides, no data has also been provided by the Department in respect of release of additional water in Harrai canal. Therefore, Audit could not ascertain whether the Harrai canal was actually receiving water from the MJLC.

- Lower Khajuri Canal System (LKCS) offtakes from Khajuri river for providing irrigation facility in 8,016 ha area of Mirzapur district. To divert 416 mcft additional water from MJLC under BCP, head regulator at Km 45.950 of MJLC was constructed to take forward the water into Khajuri river. Audit however, did not find evidence in the records of the Division regarding construction of channel between the head regulator and river. During joint site visit carried out in March 2021 also confirmed that the head regulator was not connected to the river through the dedicated link channel as shown in following photograph:



Without linking of head regulator to the river, diversion of water from MJLC to the river was not feasible. The farmers present during joint site visit also confirmed that no link channel was constructed.

Total target of creation of irrigation intensity in 1.50 lakh ha under BCP, included 55,385 ha area in the command of MJLC. Of this, irrigation intensity in 30,411 ha area (55 *per cent*) through the four canal systems<sup>3</sup> were not created even after commissioning of BCP by incurring expenditure of ₹ 3,419.37 crore.

In reply, the State Government stated (July 2022) that the link channel to release water into the Lower Khajuri reservoir had been constructed in June 2021. The Government, however, did not provide data regarding the release of water from BCP to Lower Khajuri reservoir through the newly constructed link channel.

### 4.3 Project outcomes

Project-wise deliverables envisaged in the Detailed Project Reports of both projects are detailed in **Table 4.2**.

**Table 4.2: Projected targets in BCP and Lahchura Dam Projects**

BCP		Lahchura Dam Project	
Targets	Achievements	Targets	Achievements
<i>Deliverable: Augmentation of water availability in the canal network</i>			
22,495 million cubic feet (mcft) additional water was to be provided in the existing nine canal systems by bringing 34,008 mcft <sup>4</sup> water from Bansagar dam.	Only five to nine <i>per cent</i> water was received during 2017-21.	To ensure optimum utilisation and assured supply of water to Dhasan canal System (DCS).	The supply of water from Lahchura dam ranged between 32 to 78 <i>per cent</i> for the area covered during 2014-21.

<sup>3</sup> Harrai canal system: 1728 ha; Lower Khajuri canal system: 2572 ha; Garai canal system:12301 ha and Jirgo canal system: 13810 ha.

<sup>4</sup> The gap of (34,008 mcft *minus* 22,495 mcft) was due to enroute losses and evaporation losses, besides utilization as drinking water (200 mcft).

BCP		Lahchura Dam Project	
Targets	Achievements	Targets	Achievements
<b>Deliverable: Creation of irrigation intensity</b>			
An additional irrigation intensity in 1.5 lakh ha area comprising 0.89 lakh ha in Rabi and 0.61 lakh ha in kharif was to be created for overall creation of 3.47 lakh ha irrigation intensity (Rabi: 1.92 lakh ha and kharif: 1.55 lakh ha after commissioning of BCP against Rabi: 1.03 lakh ha and kharif: 0.94 lakh ha before commission of BCP)	After commissioning of BCP, irrigation intensity was achieved only 2.13 lakh hectare (Rabi: 1.08 lakh ha and kharif: 1.05 lakh ha. in kharif)	An additional irrigation intensity in 14575 hectare area in kharif was to be created apart from existing coverage of 31910 hectare ha area in Rabi crop.	Irrigation intensity to the extent of 13692 to 30923 hectare (43 to 97 per cent) in Rabi and 455 to 2153 hectare (three to 15 per cent) in kharif was achieved. No irrigation was provided in kharif 2016-17.
<b>Deliverable: Change in cropping pattern</b>			
Crop area was to be enhanced to 83 per cent in Rabi and 67 per cent in kharif against the existing crop area of 44 per cent and 41 per cent respectively. Besides, an additional cropping of vegetable in 17,150 ha area was proposed along with change in cultivation area of oilseed and peas after completion of BCP, as further detailed in <b>Table 4.3.</b>	Crop area in Rabi and kharif was enhanced to only 46 per cent and 45 per cent respectively. In respect of crop area of oilseed, peas and vegetable, data was not made available.	Project envisaged cultivation of paddy in 0.15 lakh ha which was not sown earlier.	No information was made available in respect of cultivation of paddy during kharif season.

(Source: DPRs)

Apart from above, change in sown area, improvement in productivity and additional production of grain in different crops of Rabi and Kharif were also targeted after commissioning of these irrigation projects as detailed in **Table 4.3.**

**Table 4.3: Projected targets of sown area, productivity and production**

Name of project	Name of crop	Sown area (hectare)		Productivity (quintal per hectare)		Production (Quintal)	
		Before project	After project	Before project	After project	Before project	After project
BCP	<b>Rabi</b>						
	Wheat	21573	21573	15	40	323595	862920
	Gram	13999	13999	09	18	125991	251982
	Oilseed	36594	21581	08	15	292752	323715
	Peas	17150	15013	08	15	137200	225195
	Vegetables	NA	17150	00	250	NA	4287500
	<b>Kharif</b>						
	Maize	40867	40867	15	23	613005	939941
Pulses	19949	19949	09	16	179541	319184	
DCS	<b>Rabi</b>						
	Wheat	11557	19146	35	35	404495	670110

Name of project	Name of crop	Sown area (hectare)		Productivity (quintal per hectare)		Production (Quintal)	
		Before project	After project	Before project	After project	Before project	After project
	Gram	12764	12764	20	20	255280	255280
	<b>Kharif</b>						
	Jwar	1650	NA	15	NA	24750	NA
	Paddy	NA	14575	00	40	NA	583000

(Source: DPRs) (NA: Not Available)

Audit examination of the records disclosed short achievement in almost all parameters, as discussed in the succeeding paragraphs:

#### 4.4 Augmentation of water availability

The primary objective of the two selected irrigation projects was to augment water availability in the canal network by way of increased supply of water in BCP and by enhancing water use efficiency in DCS.

##### 4.4.1 Water availability in Bansagar Canal Project (Uttar Pradesh)

In BCP, 34,008 million cubic feet (mcft) water was to be obtained from Bansagar dam, situated in Madhya Pradesh each year during 1<sup>st</sup> October to 28<sup>th</sup> May (240 days) at the rate of 141.70 mcft per day<sup>5</sup>. The brought in water was to be diverted to the two dams, viz., Adwa dam and Meja dam and thereafter, the nine canal systems were to be provided water from these two dams to augment the water availability in these canal systems.

To bring water share of Uttar Pradesh (34008 mcft), Bansagar Project created structures like Bansagar Dam, Common Water Carrier, Common Water Feeder, Bansagar Feeder Canal, etc. Audit, however, observed that during the period from 2017 to 2021, only 1,680 to 2,921 mcft (five to nine *per cent*) of water was received from Bansagar dam as detailed in **Table 4.4**.

**Table 4.4: Receipt of water from Bansagar dam**

(Quantity of water in mcft)				
Year	Quantum of water to be released from Bansagar dam	Quantum of water for which demand raised (percentage to col.2)	Supply of water (percentage to col. 2)	Shortfall against demand (Col.3-Col.4)/ percentage to col. 3
1	2	3	4	5
2017-18	34008	6791 (20)	2824 (08)	3967 (58)
2018-19	34008	5782 (17)	2921 (09)	2861 (49)
2019-20	34008	NA	1680 (05)	NA
2020-21	34008	16476 (48)	2458 (07)	14018 (85)

(Source: SE, Second Circle, BCP, Mirzapur) (NA – data not provided)

Audit scrutiny revealed that the Superintending Engineer (SE), BCP placed less demand for water, ranging between 5,782 and 16,476 mcft during the period 2017-21 against the water share of Uttar Pradesh, i.e., 34,008 mcft. SE, BCP stated (August 2021) that keeping in view the rainfall during 2018-21,

<sup>5</sup> 1,640 cusec x 24 hours (i.e. 86400 second) = 141.70 million cubic feet (mcft) per day



the demand was placed as per actual requirement of water in the canal network. However, SE, BCP did not provide related records based on which the demand for quantity of water was computed. Further, as detailed in Paragraph 4.4.3, there was short supply of water from canals to field clearly indicating inadequate demand of water.

Thus, SE, BCP did not demand release of water from Bansagar reservoir as per the envisaged share. However, BCP was not even getting the lesser demanded quantity of water from Bansagar reservoir despite funding of ₹ 517.56 crore to Government of Madhya Pradesh for Bansagar Dam, common water carrier and common water feeder under Bansagar Project. Since only five to nine *per cent* of the share of Uttar Pradesh was received from Bansagar dam, the objective of increasing the availability of water in the nine canal systems of BCP remained unachieved.

The State Government replied (July 2022) that 1,640 cusecs of water were to be received from Bansagar reservoir for which demand was placed repeatedly to Chief Engineer, Ganga Kachhar, Rewa, Madhya Pradesh by the authorities of Bansagar Canal project (Uttar Pradesh) and also by Engineer-in-chief (Project), Lucknow. However, the evidence provided (September 2022) by the State Government in support of its claim revealed that SE, BCP had requested for release of only 5,791 mcft during 2021-22. The demand of water included 1,640 cusecs only for 13 days and in the remaining days of 2021-22, demand ranged between 200 and 1500 cusecs of water. Further, the State Government did not provide information in respect of actual receipt of water during 2021-22.

#### 4.4.2 Water availability in Dhasan Canal System

In DCS, short release of water against the requirement was observed in Rabi season as detailed in Table 4.5.

**Table 4.5: Release of water in DCS from Lahchura dam**

Year	(in hectare)			(in MCM)		
	CCA	Targeted area	Irrigated Area	Required water against irrigated area <sup>6</sup>	Quantity of water actually released in DCS	Shortfall in water availability (Col. 5-Col. 6)/ (per cent)
1	2	3	4	5	6	7
2014-15	97169	31910	14652	103	68.37	35 (34)
2015-16	97169	31910	13692	97	42.21	54 (56)
2016-17	97169	31910	28820	203	108.27	95 (47)
2017-18	97169	31910	17509	123	46.58	77 (62)
2018-19	97169	31910	28726	202	64.90	138 (68)
2019-20	97169	31910	30923	218	169.03	49 (22)
2020-21	97169	31910	27004	190	64.20	126 (66)

(Source: Test checked division of DCS)

<sup>6</sup> Worked out by Audit on the basis of prescribed norms in the DPR of the project vide which water requirement for rabi crop was 15 acre per mcft.



It is evident from **Table 4.5** that water was not released in DCS as per the requirement and shortfalls ranged 22 to 68 *per cent* during 2014-15 and 2020-21. Thus, the CCA irrigated during 2015-21 was provided less water than the requirement. The above shortage of water was for the actual irrigated area against the targeted area of 31,910 hectare. The water deficit was even more (25 to 81 *per cent*) for the targeted area of 31,910 hectare. EE, Saprar Division, Jhashi attributed short supply of water in DCS to less availability of water in the Lahchura dam.

The State Government replied (July 2022) that after completion of project of Lahchura dam, adequate water was released into Dhasan Canal system for 31,910 ha area of Rabi crop during 2016-21, except in 2017-18 during which lesser inflow from Dhasan river was received. The State Government further added that water requirement of 5,758 mcft for 31,910 hectare area was given in the original project report of Lahchura dam which is not practical and hence wrong.

Thus, the State Government had questioned the credibility of water requirement computed in the DPR of the Lahchura Dam Project which was prepared by its own Department and approved by the Government. However, the reply is not acceptable, since the department did not revise the requirement of water for the field in Rabi and Kharif Season in the subsequent revised DPRs. Further, the DPR of BCP also provided for similar water requirement of 13 acre per mcft as against 15 acre per mcft in Lahchura Dam Project. Therefore, instead of contradicting the presumptions of DPR, the State Government should take measures to provide adequate water to DCS as targeted in the DPR.

#### 4.4.3 Supply of water from canals to field

Audit observed that the department did not have data in respect of quantum of water released from each canal to the fields. As such, the quantum of water actually delivered into the field against the requirement could not be ascertained. Audit, therefore, worked out water supplied<sup>7</sup> in respect of the test checked 29 canals (BCP: 23 canals and DCS: six canals) during the period of operation of canals. It was noticed that in BCP, there was short supply of water by 18 canals during Rabi and 12 canals during Kharif crops as these canals could have delivered only one to 16 inch water into the fields in Rabi and three to 15 inch water in Kharif crops (**Appendix-4.1 A**) against 21 inches<sup>8</sup> prescribed in DPR<sup>9</sup>. Similarly, in six test checked canals in DCS, against the requirement of 18 inches<sup>10</sup> of water in Rabi crops, only three to 15 inch water could have been provided in the field (**Appendix-4.1 B**).

<sup>7</sup> Considering the flow of water in canal at full supply level.

<sup>8</sup> Crop water requirement for wheat (23 inches); gram (20 inches); oil seed (18 inches) and vegetables (22 inches) with an average of 21 inches in Rabi. Similarly, in respect of Kharif crops, crop water requirement was for Paddy (32 inches); Maize (08 inches) and pulses (20 inches) with an average of 21 inches.

<sup>9</sup> For the total irrigation intensity of 3.47 lakh hectare (8.58 lakh acre), 65,598 mcft water was required as per the norms prescribed in the DPR of BCP. Thus, one mcft water would be required for 13 acre area.

<sup>10</sup> In the DPR of DCS it has been provided that one mcft water would be required for 15 acre area.

Furthermore, four to 13 (17 to 57 per cent) out of 23 test checked canals in BCP and four to five (67 to 83 per cent) out of six test checked canals in DCS did not feed water up to the tail end (*Appendix-4.2*). It was also observed that four out of 44 canals which were remodeled to carry additional flow of water, did not feed water till tail end. Thus, as discussed in Paragraph 2.2.3, out of 1,851 km canals only 468 km were remodeled and even in remodeled canals, tail end problems have occurred. Shortfalls in tail feeding in such number of canals, indicated towards the short availability of water at the source as discussed in Paragraphs 4.4.1 and 4.4.2.

#### 4.5 Operation of canals in shorter duration

Timely supply of water to the field is significant for optimum production. As per norms mentioned in DPRs, Rabi crops requires water in spells during the cropping period of five months (11 October to 10 March). Similarly, Kharif crops requires water in spells during four months' cropping period (01 June to 30 September).

Audit observed that out of 413 canals<sup>11</sup> in the nine canal systems of BCP, the Department prepared roster for operation of only 162 to 403 canals during 2014-21 (Rabi season) that too for not full cropping period, as detailed in **Table 4.6**.

**Table 4.6: Operation of canals in shorter duration during Rabi crop in BCP**

Year	Total number of canals	Number of canals operated	Period during which canals were in operation				
			One month	Two months	Three months	Four months	Five months
1	2	3	4	5	6	7	8
2014-15	413	403	36	00	129	00	238
2015-16	413	162	00	00	70	00	92
2016-17	413	376	00	10	72	56	238
2017-18	413	403	03	92	37	33	238
2018-19	413	403	00	36	03	126	238
2019-20	413	403	00	00	76	181	146
2020-21	413	403	00	00	76	181	146
<b>Total</b>	<b>2891</b>	<b>2553</b>	<b>39</b>	<b>138</b>	<b>463</b>	<b>577</b>	<b>1344</b>

(Source: Test checked divisions of BCP)

Thus, though canal operation was improved after commissioning of BCP in July 2018, even then only 46 per cent canals<sup>12</sup> could be operated during entire cropping period of Rabi and remaining canals could be operated only during one to four months of cropping period against five months cropping period.

Similarly, in DCS, the Department planned to operate 54 to 64 canals during 2014-21 (Rabi season) out of 88 canals. Against this, none of the canal could be operated beyond two months cropping period, leading to huge shortfalls in supply of canal water in the command area. Year-wise details are given in **Table 4.7**:

<sup>11</sup> Including main canals, branch canals, distributaries and minor canals

<sup>12</sup> Column 8 divided by column 2.

**Table 4.7: Operation of canal in short duration in DCS**

Year	Total no. canals	No. of canals taken on roaster	Operation of canals in the cropping period				
			One month	Two months	Three months	Four months	Five months
2014-15	88	58	58	00	00	00	00
2015-16	88	54	32	22	00	00	00
2016-17	88	64	14	50	00	00	00
2017-18	88	54	54	00	00	00	00
2018-19	88	64	14	50	00	00	00
2019-20	88	63	00	63	00	00	00
2020-21	88	63	15	48	00	00	00

(Source: Test checked division of DCS)

Audit noticed that rosters for operation of canals were prepared by Irrigation and Water Resources Department in consultation with Agriculture Department. Due to operation of canals only during first two months against the cropping period of five months in Rabi, the canal irrigation to the field was not provided upto the maturity period which may lead to crop failure. The farmers could have been advised by the Agriculture Department to grow crop variety with shorter maturing period. However, Audit did not find any evidence in the records of Agriculture Department (District Agriculture Offices) of having issued directions to the farmers regarding sowing of crops according to the availability of water from the canals in the command area.

The State Government did not provide specific reply on the issue of operating the canals for short duration in BCP. In case of DCS, the State Government replied (July 2022) that out of total 88 canals of DCS, 64 canals were running and water was fed till the tail end. It added that restoration work of the remaining 24 canals was proposed to be completed under UPWSRP project by 2026 after which all 88 canals would be operated. The Government further stated that in the command area of DCS, wheat is sown on an average 50 per cent area and peas, gram and other Rabi crops are sown in 50 per cent area during Rabi season. It stated that as per guidelines, maximum four times irrigation is required for wheat and maximum two times irrigation is required for other Rabi crops like peas and gram, which is being provided through DCS.

The justification of the State Government in respect of operation of canals during short periods is not tenable, as the supply of water is required at different stages of crop growth during entire cropping period (October to March). However, the canals were run only during first two months of the cropping period which indicated that supply of water to the field was not stretched up to the maturity period. As a result, the water requirement of the Rabi crops of the farmers was not be met through the canal system even after completion of Lahchura Dam Project.

## 4.6 Augmentation in Irrigation Intensity

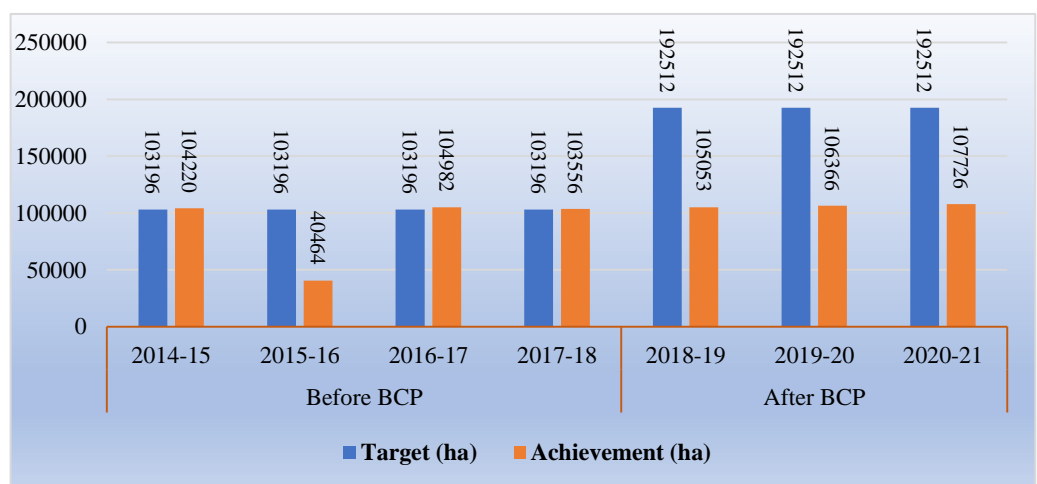
### 4.6.1 Achievement of irrigation targets in Bansagar Canal Project (Uttar Pradesh)

BCP was targeted to create 1,50,132 ha additional irrigation intensity (Rabi: 89,316 ha; Kharif: 60,816 ha) in addition to the existing irrigation intensity of 1,97,222 ha (Rabi: 1,03,196 ha; Kharif: 94,026 ha) under nine canal systems in Prayagraj and Mirzapur districts. Thus, after commissioning of BCP, irrigation intensity of 3,47,354 ha was to be achieved (Rabi: 1,92,512 ha; Kharif: 1,54,842 ha.) in the CCA of 2,32,441 ha.

Audit, however, observed that the irrigation intensity remained almost same in post-project period as compared to pre-project period as depicted in **Chart 4.1** and **Chart 4.2**.

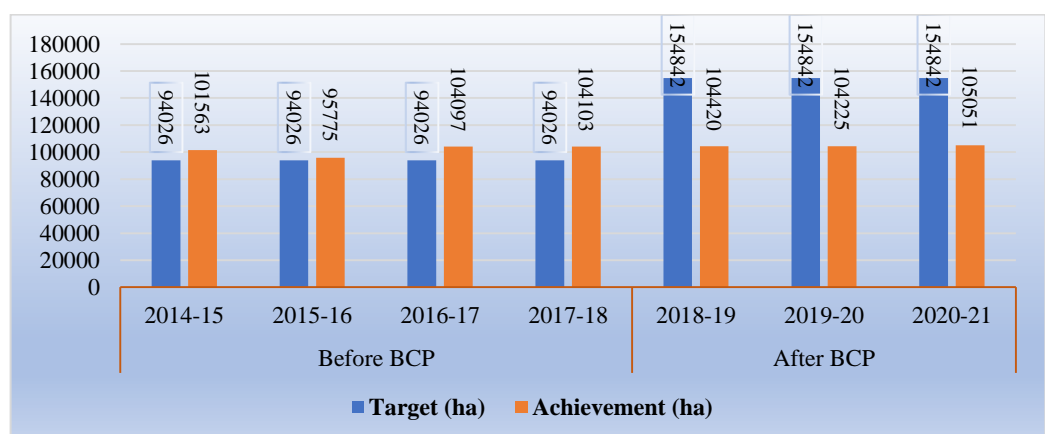
**Chart 4.1: Irrigation intensity in Rabi**

(Targets and achievements in ha)



**Chart 4.2: Irrigation intensity in Kharif**

(Targets and achievements in ha)



Resultantly, the targeted increase in irrigation intensity (Rabi: 83 per cent and Kharif: 67 per cent) after commissioning of BCP was not achieved and there was short achievement in creation of irrigation intensity ranging from 44 to 45



per cent in Rabi and 32 to 33 per cent in Kharif. Similar trend in respect of irrigation intensity was observed in the nine canal systems as detailed in **Appendix-4.3**.

The State Government replied (July 2022) that after completion of work of BCP, irrigation coverage was increased to 1.29 lakh hectare (Rabi) and 1.24 lakh hectare (kharif) in 2020-21.

The reply of the Government was not acceptable, as it was evident from the records of Divisions of BCP's nine canal systems that irrigation coverage was 1.08 lakh hectare (Rabi) and 1.05 lakh hectare (Kharif) in 2020-21. Thus, the target of irrigation intensity in Rabi crop, *i.e.*, 1.93 lakh ha (Rabi) and 1.55 lakh ha (Kharif), remained unachieved despite marginal increase (four per cent) of irrigation intensity in Rabi after commissioning of BCP, *i.e.*, between 2017-18 and 2020-21.

#### 4.6.2 Achievement of irrigation targets in Dhasan Canal System

In the DPR of Lahchura Dam Project, Department proposed for canal irrigation of 31,910 ha (33 per cent) under Rabi and 14,575 ha (15 per cent) under Kharif out of 97,169 ha command area of DCS. Audit, however, observed that the actual irrigation against the proposed area of 31,910 ha ranged from 43 to 97 per cent in Rabi crop and three to 15 per cent during kharif crop. Details are given in **Table 4.8**.

**Table 4.8: Details of Irrigation in Rabi and Kharif under DCS**

(In hectares)

Year	Rabi			Kharif		
	PPA	Actual Irrigation	Shortfall (per cent)	PPA	Actual Irrigation	Shortfall (per cent)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2014-15	31910	14652	17258 (54)	NIL*	2830	Not applicable
2015-16	31910	13692	18218 (57)	14575	1556	13019 (89)
2016-17	31910	28820	3090 (10)	14575	00	14575 (100)
2017-18	31910	17509	14401 (45)	14575	455	14120 (97)
2018-19	31910	28726	3184 (10)	14575	856	13719 (94)
2019-20	31910	30923	987 (3)	14575	1348	13227 (91)
2020-21	31910	27004	4906 (15)	14575	2153	12422 (85)

(Source: Test checked division of DCS)

\* The project was completed in March 2015, hence targeted CCA is taken as NIL.

The Department could reduce the shortfall in achievement of canal irrigation from 2018-19 onward in respect of Rabi. However, as discussed in Paragraph 4.5, none of the DCS canal was operated beyond two months cropping period due to which required amount of water was not provided to irrigated area. Further, in respect of Kharif, there was wide gap between irrigation target and achievement.

The State Government replied (July 2022) that after completion of Lahchura Dam Project in March 2015, it became possible to run the DCS at full capacity from the Rabi season during 2016 as a result of which targets during Rabi season were almost achieved during year 2016-17, 2018-19, 2019-20 and

2020-21. Whereas in the year 2017-18, the proposed Rabi target could be partially achieved due to less inflow in the Dhasan river. The State Government also replied that there was increase in the irrigated areas of Kharif between 2016-17 and 2020-21.

The fact remained that the achievement of canal irrigation in Kharif was minuscule as the achievement was three to 15 *per cent* of targeted CCA. Further, in respect of Rabi, the canal was not operated during the full cropping season from October to March. Furthermore, even after a lapse of more than 100 years from the construction of DCS, the canal irrigation facility to the targeted CCA could not be extended beyond 31,910 ha, thereby, depriving the farmers in 65,259 ha. area of the facility of canal irrigation. Therefore, the circumstances under which the irrigation facility was not expanded in the command area of more than 67 *per cent* of the canal system even after incurring substantial expenditure and passage of time should be ascertained and responsibility fixed.

#### **4.7 Increase in productivity and production**

As a result of increased supply of water into the canal network and with the creation of additional irrigation intensity, higher productivity and additional production in agriculture was also targeted in both sampled projects. In the Detailed Project Report of BCP, additional production of 11.32 lakh quintal grains<sup>13</sup> was envisaged in the command area of nine canal systems by enhancing their productivity<sup>14</sup>. In DCS, additional production of 8.24 lakh quintal grains<sup>15</sup> was contemplated after Lahchura and Pahari dam projects.

However, data of production and productivity in respect of the command area of BCP and DCS was not made available by the Agriculture Department despite repeated requests. Director Agriculture (Statistics), Agriculture Department, however, provided limited data of production and productivity in respect of 79 out of 90 selected villages in BCP and 19 out of 29 selected villages in DCS. Audit analysed these data of production and productivity to ascertain the extent of achievement *vis-à-vis* targets for production and productivity.

Further, timely and adequate availability of other agricultural inputs such as quality seeds, soil testing, fertilizer, agriculture implants, training and guidance to the farmers, etc., are amongst the key factors influencing the agricultural productivity and production. In view of this, the status of supply of certified seeds to the farmers and soil testing by the Department in the farmers' field have also been analysed in test check of records by Audit. The significant Audit findings have been discussed in the succeeding paragraphs:

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<sup>13</sup> Wheat:5.39 lakh qtl; gram:1.26 lakh qtl; maize:3.27 lakh qtl. and pulses: 1.40 lakh qtl. Apart from this, vegetable cropping in 17,150 hectare was expected in BCP.

<sup>14</sup> Wheat: 15 qtl/ha to 40 qtl/ha; Gram: 9 qtl/ha to 18 qtl/ha; maize: 15 qtl/ha to 23 qtl/ha and pulses: 9 qtl/ha to 16 qtl/ha.

<sup>15</sup> Wheat: 2.66 lakh qtl and paddy:5.83 lakh qt; further the pre-project production of Jwar (0.25 lakh quintal) was excluded in the post-project target.

### 4.7.1 Distribution of certified Seed

Seed is the basic and most critical input for sustainable agriculture. It is, therefore, important that quality seeds are made available to the farmers at affordable prices. The distribution of seeds to farmers is undertaken through departmental outlets at block level, outlets of seed corporations, cooperatives and through private dealers. The distribution of seeds from the departmental outlets is made at the subsidised rates.

#### 4.7.1.1 Short/delayed supply of certified seeds to the farmers

Audit observed that supply of certified seeds from the Government seed stores catering to four districts of the command areas of BCP and DCS was minimal, ranging from four to 12 *per cent* in BCP (Mirzapur and Prayagraj districts) and one to seven *per cent* in DCS (Hamirpur and Mahoba districts) as against the requirement of seeds for sown area as detailed in **Appendix-4.4 (A)**. Further, the supply of seeds in the test checked villages was also unsatisfactory as the supplies were in the range of one to seven *per cent* in BCP and two to 17 *per cent* in DCS as compared to the assessed requirement of seeds in the command area of these selected villages (**Appendix-4.4 B**).

Agriculture Department had prescribed timelines for supply of seeds to the seed stores so that the same could be made available to the farmers well before the sowing period. Audit, however, observed that seeds were supplied to the central stores of the four districts with delay ranging up to 97 days (**Appendix-4.5 A**). This led to further delay in receipt of seeds at the block level stores (up to 250 days after sowing period) from where the seeds were to be supplied to the farmers (**Appendix-4.5 B**).

Audit also collected data of sale of seeds from the private dealers and observed that the distribution of seeds from private dealers<sup>16</sup> was in the range of 30 *per cent* to 85 *per cent* in BCP and from 17 *per cent* to 41 *per cent* in DCS as detailed in Appendix-4.4 A. Further, entire supplied seeds at Government store was distributed in each year during 2014-21. Thus, the less availability as well as delayed availability of subsidised seeds to the farmers from Government store left the farmers with the only option of purchasing the seeds from private vendors at relatively expensive rates to adhere to the prescribed sowing period.

#### 4.7.1.2 Distribution of other than recommended varieties of seed

Agriculture department of the Government of Uttar Pradesh recommended specific varieties of seeds for different climatic zones of the State in order to get the maximum yield. In respect of wheat, 28, 30 and 30 varieties of seeds were recommended for the districts of Bundelkhand region, Prayagraj and Mirzapur districts respectively. Similarly, in respect of paddy, 17, 24 and 25 varieties of seeds were recommended for Bundelkhand region, Prayagraj and Mirzapur districts respectively. Details are given in **Appendix- 4.6**.

<sup>16</sup> Including Cooperative, UP Agro, Beej Vikas Nigam, Kribhco, etc.

Audit, however, observed that in four districts, covering the two selected irrigation projects, the distribution of recommended varieties of seeds from the Government seed stores ranged only from three to seven *per cent* in case of wheat. In case of paddy, the distribution of other than recommended variety of seeds ranged from 21 to 100 *per cent*. District-wise details are given in **Table 4.9**.

**Table 4.9: Distribution of varieties of seeds which were not recommended**  
(in quintal)

Name of districts	Crop	Period during 2014-21	
		Total quantity of seed distributed	Quantity of distribution of seeds of other varieties ( <i>per cent</i> )
<b>Bansagar Canal Project, Uttar Pradesh</b>			
Prayagraj	Wheat	92588	87225(94)
	Paddy	21678	4478(21)
Name of districts	Crop	Period during 2014-21	
		Total quantity of seed distributed	Quantity of distribution of seeds of other varieties ( <i>per cent</i> )
Mirzapur	Wheat	40835	39541(97)
	Paddy	6574	3176(48)
<b>Dhasan Canal System</b>			
Hamirpur	Wheat	25252	23663(94)
	Paddy	68	63(93)
Mahoba	Wheat	12322	11509(93)
	Paddy	17	17(100)

(Source: DD, Agriculture in test checked districts)

Hence, the farmers of these four districts remained deprived of distribution of suitable variety of seeds of wheat and paddy.

The State Government did not furnish any reply.

#### 4.7.2 Soil testing

Soil tests are used to determine the chemical properties of the soil including soil's nutrient level and pH content. On the basis of result of soil testing, farmers can define the quantity and exact type of fertiliser that is needed for application to improve the soil for practicing agriculture. Government of India (GoI) also launched Soil Health Card Scheme (SHCS) in February 2015 under which diagnostic soil health assessment of farmer fields was to be taken up periodically at least once in three years. Districts and villages were to be selected in such a way that the villages could be covered at every three years. After conducting soil testing, soil health cards were to be issued to the farmers containing recommendations of nutrients and fertilizers required for the individual farms.

Deficiencies noticed in the soil testing have been discussed in the succeeding paragraph:



#### 4.7.2.1 *Soil Testing Laboratories not established at village level*

Soil testing laboratories at village level were to be established under Soil Health Card Scheme of GoI to minimize delays in soil testing and maximize convenience to farmers by providing soil testing facility at the doorstep.

Audit, however, observed that the soil testing laboratories were not established at village level in any of the four districts covering BCP and DCS.

#### 4.7.2.2 *Inadequate soil testing*

Audit examined records related to soil testing conducted in 90 selected villages under command area of BCP and 29 selected villages under command area of DCS. Audit noticed that during 2015-21 in BCP villages, soil health tests were not conducted even once in five villages (*six per cent*) and in 79 villages (*88 per cent*), soil testing was conducted only once. Audit also obtained responses of 383 farmers during joint physical verification of canals in which 36 farmers stated that soil testing was carried out in their fields. Of these 36 farmers, 27 farmers stated that they were provided SHCs after the soil testing.

In DCS, out of 29 test checked villages, soil testing was not carried out in three villages during 2014-21 and in one village of Mahoba district, soil testing was conducted only once. Audit also obtained responses of 128 farmers in which 19 farmers stated that soil testing was carried out in their fields but only 12 of these 19 farmers stated that they were provided SHC.

Further, as per GoI's guidelines, analysis of soil on the parameter of Boron was necessary in respect of soil having pH value of more than 6.5. Boron deficiency in soil having pH value of more than 6.5 leads to adverse impacts on the productivity of the crops. Audit test checked Soil Health Cards in respect of all 39,429 beneficiaries of 101 villages of the Prayagraj, Mirzapur, Mahoba and Hamirpur where soil testing was conducted and SHC issued. It was observed that in 50 test checked villages of Hamirpur, Mahoba and Mirzapur, PH value of soil was more than the prescribed limit of 6.5, necessitating the need of Boron testing in these villages. However, Boron testing was not done in Hamirpur (during 2019-21), Mahoba (during 2015-17) and in Mirzapur (during 2015-21).

Thus, the soil testing was to be intensified to determine the soil health. Furthermore, one of the benefits to determine appropriate use of chemical fertilizer in the farming and timely advice, could not be achieved due to inadequate soil testing.

## 4.8 Productivity

Audit observed that in BCP against the proposed target of 40 quintal per hectare productivity of wheat (before BCP: 15 quintal/hectare), achievement ranged between 5.49 and 46.30 quintal per hectare during 2015-21 in sampled villages. In respect of Gram, against the target of productivity of 18 quintal per hectare (before BCP: nine quintal/hectare), the achievement was in the range of 2.44 to 18.69 quintal per hectare during 2015-21. Details are given in **Table 4.10**.

**Table 4.10: Details of productivity of Wheat and Gram in BCP**

Year	Productivity of wheat (quintal per hectare)				Productivity of gram (quintal per hectare)			
	Target	No. of sampled villages	Productivity achieved	Percentage achievement	Target	No. of sampled villages	Productivity achieved	Percentage achievement
<i>Before BCP</i>								
2015-16	15	79	5.49 to 29.25	37 to 195	9	15	2.44 to 7.65	27 to 85
2016-17	15	79	11.93 to 35.69	80 to 238	9	15	5.44 to 13.48	60 to 150
2017-18	15	79	11.84 to 40.90	79 to 273	9	15	4.87 to 17.14	54 to 190
<i>After BCP</i>								
2018-19	40	79	18.90 to 46.30	47 to 116	18	15	9.60 to 14.60	53 to 81
2019-20	40	79	5.66 to 38.10	14 to 95	18	15	5.95 to 18.69	33 to 104
2020-21	40	48	15.18 to 40.01	38 to 100	18	14	10.36 to 13.82	58 to 77

(Source: Data collected from Director, Agriculture Department)

Audit in this respect further observed that target of productivity of wheat (40 quintal per ha) was achieved only in two test checked villages (three per cent) in 2017-18, eight villages (10 per cent) in 2018-19 and one village (two per cent) in 2020-21 out of 79 villages<sup>17</sup> data of which was analysed in Audit. Only one village in 2019-20 could achieve the proposed target of productivity.

Similarly, in DCS, against the proposed target of 35 quintal per hectare production of Wheat, the achievement ranged from 5.80 to 46.59 quintal per hectare during 2015-21. Details are given in **Table 4.11**.

**Table 4.11: Details of productivity of Wheat and Gram in DCS**

Year	Productivity of wheat (quintal per hectare)				Productivity of gram (quintal per hectare)			
	Target	No. of sampled villages	Productivity achieved	Percentage achievement	Target	No. of sampled villages	Productivity achieved	Percentage achievement
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2015-16	35	19	5.80 to 25.44	17 to 73	20	16	0.31 to 7.93	2 to 40
2016-17	35	19	21.07 to 41.83	60 to 120	20	16	8.26 to 13.93	41 to 70
2017-18	35	19	19.05 to 46.59	54 to 133	20	16	5.03 to 19.20	25 to 96
2018-19	35	19	15.30 to 41.10	44 to 118	20	16	5.07 to 16.31	25 to 82
2019-20	35	19	26.14 to 44.10	75 to 126	20	16	5.98 to 18.97	30 to 95
2020-21	35	09	29.91 to 44.60	85 to 127	20	15	8.44 to 15.18	42 to 76

(Source: Data collected from Director, Agriculture Department)

<sup>17</sup> In 2020-21, data was available for 48 villages in respect of wheat and 14 villages in respect of Gram.

It was further noticed that target of productivity was achieved only in eight test checked (42 *per cent*) villages in 2016-17, ten test checked villages (53 *per cent*) in 2017-18, eleven test checked villages (58 *per cent*) in 2018-19, fifteen test checked villages (79 *per cent*) in 2019-20 and four test checked villages (44 *per cent*) in 2020-21, out of six crops of wheat during 2015-21. In respect of Gram, against the proposed target of 20 quintal per hectare production of Gram was only 0.31 to 19.20 quintal per hectare during 2015-21. Further, paddy was cropped in only two test checked villages during 2019-21. Details are given in **Appendix-4.7 A & B**.

#### 4.9 Production

In BCP, analysis of data of production<sup>18</sup> in respect of wheat (25 villages) and gram (nine villages) disclosed that in 21 villages, production of wheat decreased by four to 55 *per cent* in 2020-21 as compared to production in 2018-19. However, there was increase in the production of wheat in four villages in the range of five to 43 *per cent*. Similarly, production of Gram decreased by two to 50 *per cent* in 2020-21 in all the nine test checked villages as compared to that of in 2018-19. In respect of other crops, *viz.*, peas, oilseed, vegetable, maize and *Arhar*, information was not available. In DCS, production of Wheat and Gram increased in the test checked villages. Details have been given in **Appendix-4.8**.

The State Government did not furnish any reply.

#### 4.10 Development of command area

Optimum utilisation of canal water in the fields depends upon the development of command area of the canal system. According to the guidelines of Command Area Development and Water management (CADWM) Programme issued by GoI in September 2015, the activities of command area development *inter alia* included survey, planning, design and execution of On Farm Development (OFD) works including lined field channels. The CADWM programme is implemented under Pradhan Mantri Krishi Sinchai Yojna (PMKSY) - Har Khet Ko Pani from 2015-16 onwards. In order to promote water use efficiency in irrigation, the CADWM programme has been targeting at least 10 *per cent* of CCA for development of micro-irrigation infrastructure for facilitating use of sprinkler/drip/pivots irrigation systems.

In Uttar Pradesh, Greater Sharda Sahayak Command Area Development Authority (GSSCADA) under the administrative control of I&WRD, is responsible for development of command area of the canal systems. However, GSSCADA did not prepare any project for command area development in the command of BCP and DCS. As such, no command area development work was undertaken and farmers were drawing water from the canals through their own resources.

<sup>18</sup> Comparable data of production for the years 2018-19 and 2020-21 were available only in respect of 25 villages (wheat) and 09 villages (Gram) out of 92 villages in BCP.



Audit in this respect further observed that a provision of ₹ 17.37 crore<sup>19</sup> was made in BCP for construction of head and tail wall of outlet (₹ 12.64 crore) of the canal and *field channel*<sup>20</sup> (₹ 4.73 crore). Audit noticed that 869 outlets were constructed in the canals of the three<sup>21</sup> out of nine canal systems during 2012-18. In 639 out of 869 outlets, *field channel* in the length of only 15 metre in each outlet was constructed to carry water from the outlets to the field. No further construction of *field channels* to take forward the water into field was carried out. Unavailability of *field channels* beyond 15 metre led to inadequate connectivity between field and canal outlet. As such the command area of both the canal system was not developed to carry water up to the fields.

#### ***Development of command area under PMKSY (Per Drop More Crop)***

Per Drop More Crop component of PMKSY *inter alia* envisaged promoting efficient water conveyance and precision water application devices like drips, sprinklers, pivots, rain-guns in the farm, secondary storage structures at tail end of the canal system to store water when available in abundance, extension activities for promotion of scientific moisture conservation and agronomic measures, capacity building, training and awareness campaign, information communication technology interventions in the field of water use efficiency, precision irrigation technologies, on farm water management, crop alignment, *etc.* Department of Horticulture and Food Processing implemented this scheme in the State.

Audit noticed that from the records of District Horticulture Officers of districts Hamirpur and Mahoba that expenditure of ₹ 27.66 crore<sup>22</sup> was incurred under PMKSY (Per Drop More Crop) during 2016-21<sup>23</sup> for distribution of sprinkler sets to the farmers and other extension activities covering 15,514.28 hectare in Hamirpur and Mahoba districts served by DCS. Similarly, District Horticulture Officers of districts Mirzapur and Prayagraj incurred ₹ 39.61 crore<sup>24</sup> during 2018-21<sup>25</sup> for distribution of sprinkler sets to the farmers and other extension activities covering 12,076.61 hectare in Mirzapur and Prayagraj districts in which BCP provided irrigation facility.

<sup>19</sup> Total expenditure: ₹ 12.78 crore.

<sup>20</sup> Field channel is a narrow channel (both earthen and *pucca*) to bring water from the canal outlet and to distribute the water into the field for irrigation.

<sup>21</sup> Belan canal, Tons Pump Canal and Yamuna Pump Canal systems.

<sup>22</sup> Hamirpur: ₹ 16.40 crore and Mahoba: ₹ 11.26 crore

<sup>23</sup> Mahoba in respect of 2017-21.

<sup>24</sup> Mirzapur: ₹ 31.41 crore and Prayagraj: ₹ 8.20 crore

<sup>25</sup> District Horticulture Officer Prayagraj provided information only in respect of 2019-20 and 2020-21.



### *Joint field visits in the command area of BCP and DCS*

Audit conducted field visits with departmental officers in respect of selected 23 canals in BCP and six canals in DCS and noticed that field channels were not constructed in the fields and wherever these were spotted, the field channels were in poor conditions, broken and full of silt and shrubs as depicted in following photographs:



Outlet at Jingha Minor (BCP)



Field channel full with shrubs at Mahuli Minor (BCP)



Field channel not constructed at Masoodpura Minor (DCS)



Field channel not constructed at Italia Minor (DCS)

The State Government replied (July 2022) that under BCP, construction/repair work of outlets and field channels was carried out in the command area of Belan canal, Tons pump canal and Yamuna pump canal systems. In respect of DCS, the Government replied that the command area of Dhasan canal system would be developed by forming water user associations under the Participatory Irrigation Management Act, 2011 and coordinating with the Command Area Development Authority.

The reply of the Government in respect of BCP was not acceptable, as no field channel beyond 15 metre was constructed to carry canal water up to the field level. Further, GSSCADA had also accepted (January 2020) that command area development work was not carried out in BCP and DCS. Thus, most of the users were deprived of water till their field despite investment of ₹ 4,101.87 crore (₹ 3,419.37 crore in BCP, ₹ 328.30 crore in Lahchura Dam Project and ₹ 354.20 crore in Pahari Dam Project).

#### 4.11 Water User Association not formed

Water User Association (WUA) at *kulaba*, minor or distributary level was to be constituted by I&WRD with the main objective to bring about water users' participation in water management and also to create among the water users' a sense of ownership of irrigation system in their area. WUA was *inter alia* responsible to:

- prepare crop plan as per water budget and soil condition;
- prepare water indent and submit it to immediate upper level WUAs or competent canal officer;
- receive water on the volumetric basis and supply it to landholders in an equitable and transparent manner;
- prevent unauthorised irrigation and wastage of water;
- plan, design and implement activities relating to command area development in its area of operation;
- assist, participate and recover water charges; *and*
- prepare inventory of assets in its charge and maintenance activities.

Scrutiny of the records, however, revealed that WUAs were not constituted in the command area of BCP and DCS compromising the efficient operation of the canal network.

**To sum up**, the water availability in canal systems remained much less than the target, which affected the operation of canals and intended level of water was not supplied in the command area of both projects. Command Area Development work was also not undertaken by I&WRD to provide water to farmers up to field level. Audit also noticed shortage of seeds, distribution of seeds of other than recommended variety and inadequate soil testing to suggest correct measures to farmers. As a result, even after completion of both the projects, there was shortfall in achieving the targeted benefits in terms of increase in water availability for irrigation and improvement in productivity of crop. Water User Associations were not constituted by I&WRD to involve the users of canal water.

**Recommendation 8:** *Since the Bansagar Canal Project has been completed without providing envisaged connectivity between canals, the State Government should assess the lapses in this area through a comprehensive review, fix responsibility and take corrective actions.*

**Recommendation 9:** *There is an urgent need to identify and address the bottlenecks in the envisaged supply of water from Bansagar dam and further distribution of water to the connected canal systems. The State Government should assess and undertake such work in a time bound and coordinated manner in order to utilise the potential created optimally.*

**Recommendation 10:** *The State Government should conduct proper investigation to ascertain the circumstances due to which the irrigation facility could not be expanded in the command area of 97,169 hectare in Dhasan Canal System.*

**Recommendation 11:** *The State Government should ensure proper coordination between Agriculture Department and Irrigation and Water Resources Department to ensure optimum utilisation of available water, timely and adequate delivery of agricultural inputs to the farmers to promote adoption of suitable cropping pattern and consequential higher productivity and production in the crops. In future projects, we recommend that the DPR should contain a convergence plan involving all the stakeholder departments so as to develop the command area in an integrated manner.*

**Recommendation 12:** *The State Government should take action for the formation of Water User Association on priority basis so that canal systems can be operated efficiently with community participation.*

PRAYAGRAJ  
THE 26 FEB 2023

(BIJAY KUMAR MOHANTY)  
Principal Accountant General (Audit-I)  
Uttar Pradesh

COUNTERSIGNED

(GIRISH CHANDRA MURMU)  
Comptroller and Auditor General of India

NEW DELHI  
THE 02 MAR 2023