

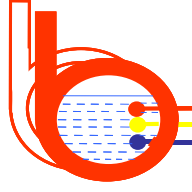
भाखड़ा ब्यास
राष्ट्र गौरव

Annual Report

2018-2019



भाखड़ा ब्यास प्रबन्ध बोर्ड

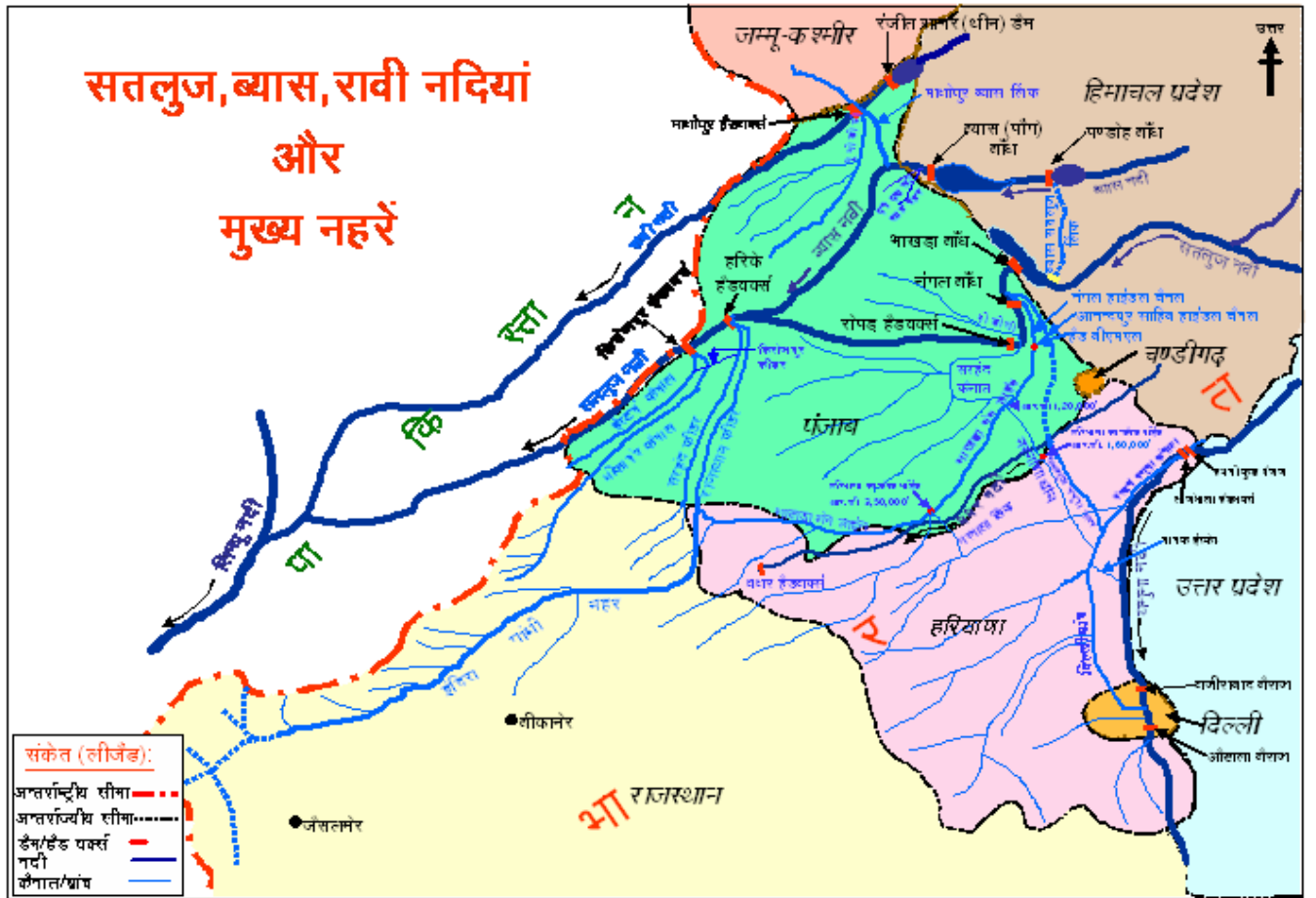


भाखड़ा ब्यास
राष्ट्र गौरव

46 वीं वार्षिक रिपोर्ट

46th Annual Report

2018-2019



भाखड़ा ब्यास प्रबन्ध बोर्ड
Bhakra Beas Management Board



VALUES

Discipline-Hardwork-Operational Excellence
and
Professionalism
अनुशासन-कठिन परिश्रम परिचालन श्रेष्ठता
और व्यावसायिकता

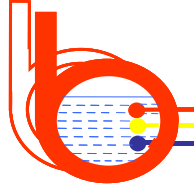
MISSION

To keep our systems running
efficiently at the minimum cost.
हमारी प्रणालियों को न्यूनतम लागत पर दक्षतापूर्वक
चालू रखना

VISION

To lead and be a trendsetter in Power Sector by establishing high standards in Operation & Maintenance, Renovation & Modernisation of Hydel Projects, Transmission System availability, Canal Systems and by exploiting new Hydro Power Potential with optimal utilization of existing infrastructure and resources.

जल विद्युत परियोजनाओं, पारेषण, नहर प्रणालियों के परिचालन एवं अनुरक्षण तथा नवीनीकरण एवं आधुनिकीकरण में और विद्यमान मूलभूत ढांचे तथा संसाधनों के सर्वोत्तम उपयोग के लिए नई जल विद्युत अंतः शक्ति का लाभ उठाने के लिए उच्च मानको की स्थापना में विद्युत क्षेत्र में अग्रणी रहना और एक ट्रेंड सैटर बनना ।



भाखड़ा ब्यास
राष्ट्र गौरव



भाखड़ा बांध का सामने/नीचे से दृश्य

Bhakra Dam – Downstream View



“भाखड़ा नंगल परियोजना में कुछ आश्चर्यजनक है, कुछ विस्मयकारी है, कुछ ऐसा है जिसे देखकर आपके दिल में हिलोरें उठती हैं। भाखड़ा, पुनरुत्थित भारत का नवीन मन्दिर है और यह भारत की प्रगति का प्रतीक है”

जवाहर लाल नेहरू

Bhakra Nangal Project is something tremendous, something stupendous, something which shakes you up when you see it. Bhakra, the new temple of resurgent India, is the symbol of India's progress.”

- Jawahar Lal Nehru

Members Of The Board During The Year 2018-2019

CHAIRMAN

Er.D.K.Sharma 01.04.2018 to 31.03.2019

MEMBER/REPRESENTATIVE

GOVERNMENT OF INDIA

Sh.P.K.Saxena 01.04.2018 to 31.03.2019

Mrs. Archana Agarwal 01.04.2018 to 24.07.2018

Sh. Aniruddha Kumar 24.07.2018 to 31.03.2019

PARTNER STATES

PUNJAB

Sh. Jaspal Singh 01.04.2018 to 01.10.2018

Sh. Sarvjit Singh 01.10.2018 to 31.03.2019

HARYANA

Sh. Anurag Rastogi 01.04.2018 to 31.03.2019

RAJASTHAN

Sh. Shikhar Agarwal 01.04.2018 to 19.12.2018

Sh. Naveen Mahajan 19.12.2018 to 31.03.2019

HIMACHAL PRADESH

Sh. R.D. Dhiman 01.04.2018 to 14.05.2018

Sh. Tarun Kapoor 14.05.2018 to 29.09.2018

Sh. Prabodh Saxena 04.10.2018 to 31.03.2019

MEMBER/IRRIGATION

Sh. S.K. Sharma 01.04.2018 to 26.07.2018

MEMBER/POWER

Sh.V.K. Kalra 01.04.2018 to 27.05.2018

बोर्ड के सदस्य (31.3.2019 को)
MEMBERS OF BOARD (AS ON 31.3.2019)



P.K.Saxena
Commissioner, Indus,
Ministry of Water Resource,
New Delhi



Aniruddha Kumar, IRS
Joint Secretary/Hydro,
Ministry of Power ,
New Delhi



D.K..Sharma,
Chairman
Bhakra Beas Management Board,
Chandigarh



Naveen Mahajan, IAS
Secretary,
Water Resources Department, Govt. of
Rajasthan, Jaipur



Prabodh Saxena, IAS
(Representative, Govt. of HP),
Addl. Chief Secretary, ,
MPP and Power Department,
Govt. of HP Shimla



Sarvjit Singh, IAS
(Representative, Govt. of Punjab),
Secretary Irrigation Department,
Govt. of Punjab, Chandigarh.



Anurag Rastogi, IAS
(Representative, Govt. of Haryana),
Principal Secretary, Irrigation & Water
Resources Deptt.,
Govt. of Haryana Chandigarh



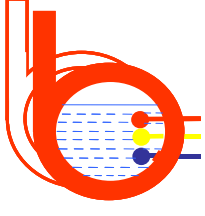
V.K.Kalra, Member(Power),
(Whole Time Member)
Bhakra Beas Management Board,
Chandigarh



S.K..Sharma, Member(Irrigation),
(Whole Time Member)
Bhakra Beas Management Board,
Chandigarh

विषय सूची
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भाखड़ा ब्यास
राष्ट्र गौरव

अध्याय-1

Chapter-1

प्रस्तावना Introduction

1.1 BBMB - ORIGIN

- Bhakra-Nangal Project was taken up immediately after independence of India in the joint collaboration of the erstwhile State of Punjab and the State of Rajasthan.
- After re-organisation of Punjab, **Bhakra Management Board** was constituted on 1st October, 1967 under the Punjab Re-organisation Act, 1966 for administration, operation and maintenance of **Bhakra-Nangal** Project.
- The works of **Beas Projects** were entrusted to **Beas Construction Board** as per the provisions of the Punjab Re-organisation Act, 1966. On completion of Beas Projects, these were transferred to **Bhakra Management Board** on 15th May, 1976 and it was re-named as **Bhakra Beas Management Board** as per the provisions of the Punjab Re-organisation Act.

1.2 FUNCTIONS

- Administration, Operation & Maintenance of Bhakra-Beas Projects.
- The regulation of the supply of water from Bhakra-Beas Projects to the States of Punjab, Haryana and Rajasthan.
- The regulation of the supply of power generated at Bhakra-Beas Projects.
- Any other function as the Central Government may assign after consultation with the Governments of States of Haryana, Punjab & Rajasthan.
- The Govt. of India in the year 1999 entrusted additional functions of providing & performing engineering and related technical consultancy services in field of Hydro Electric Projects & Irrigation Projects.

1.3 Power Wing

General Review

The Power Wing is entrusted with the administration, operation and maintenance of Power Houses, Transmission System and System Load Despatch Centre (SLDC) of BBMB and Consultancy Services to Partner States.

Installed Capacity (As on 31.3.2019)

Power House	No. of machine X Capacity of machine	Installed Capacity (MW)
Bhakra (Right Bank)	5x157	785
Bhakra (Left Bank)	2x108+3x126	594
Ganguwal	1x27.99+2x24.20	76.39
Kotla	1x28.94+2x24.20	77.34
Dehar	6x165	990
Pong	6x66	396
	Total	2918.73

Transmission System (As on 31.3.2019)

BBMB transmission system, spread over the States of Punjab, Haryana, Himachal Pradesh, U.T., Chandigarh and Delhi, operates in integrated manner with Northern Regional Power Grid. The details of BBMB Transmission System is tabulated below:-

Sr. No.	Voltage Level	No. of Sub-Stations	Line Length (Ckt. km)
i)	400kV	03	573.95
ii)	220kV	17	2993.54
iii)	132kV	02	21.72
iv)	66kV	02	115.50
	Total:	24	3704.71

1.4 Irrigation Wing

General Review

The Irrigation Wing is entrusted with the administration, maintenance and operation of the following Project components:-

I. BHAKRA-NANGAL PROJECT

- a) Bhakra Dam & Reservoir and works appurtenant thereto, including Nangal Workshop & Nangal Township, Hospital, School, Rest House etc.
- b) Nangal Dam and Nangal Hydel Channel.

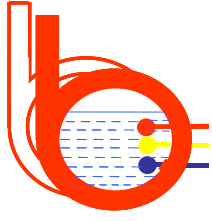
II. BEAS PROJECT

a) Unit-I (BSL Project)

Beas Satluj Link Project comprising Pandoh Dam, Pandoh-Baggi Tunnel, Sundernagar Hydel Channel, Balancing Reservoir, Sundernagar-Satluj Tunnel & connected civil works and townships at Sundernagar, Slapper and Pandoh, Hospital, School, Rest House etc.

b) Unit-II (Beas Dam at Pong)

Beas Dam at Pong including Reservoir, Outlet Works, Spillway & works appurtenant thereto and Talwara Township.



भाखड़ा ब्यास
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अध्याय-2 Chapter-2

बोर्ड के निर्णय Decisions Of The Board

2.1 Meetings Of The Board Held During The Year 2018-19

1. 229th meeting of the Board held on 24.05.2018
2. 230th meeting of the Board held on 19.11.2018
3. 231th meeting of the Board held on 20.02.2019

2.2 Important Decisions Taken In The Board Meetings

2.2.1 229th meeting of the Board held on 24.05.2018

Item No. 229.03

Non-payment of energy dues by RRVPNL of Rajasthan Fertilizer Factory (RFF).

Initiating the discussion, Special Secretary, BBMB informed the Members about the decision taken in the 227th Meeting held on 20.09.2017 and comments of Rajasthan on this item. (227.04).

Member (Haryana) opined that it would not be prudent to revise the decision taken by earlier Board Members during 212th meeting of the Board. Member (Punjab) has also observed that it may not be appropriate to carry out any amendment in Bhakra Nangal Agreement while addressing this issue. Member (Rajasthan) insisted that Rajasthan point of view may be considered as it has been protesting the decision of the 212th meeting.

Member (Haryana) asked for the date of protest lodged by Rajasthan on higher tariffs of power to RFF and whether Member (Rajasthan) was present in the meeting in which tariff for RFF for the period 01.01.2013 to 28.02.2018 was approved. After collecting the relevant record from the concerned office, Special Secretary, BBMB informed that the said tariff was approved by the Board in its 212th meeting held on 24.12.2012 in which Member (Rajasthan) was also present. He further informed that the minutes of 212th meeting were confirmed in 213th meeting held on 19.02.2013 which was also attended by Member from Rajasthan. He intimated that as per the record available during the meeting, the first protest on higher tariff and surrender of power was lodged by Rajasthan vide letter dated 02.11.2015. The date of protest, however, needs to be confirmed mutually between BBMB and RRVPNL.

After deliberations and after considering various options, the following decisions were taken:-

- i) The tariff as decided by Board in its 212th meeting held on 20.12.12 shall be applicable from 01.01.13 to the date of written protest lodged by RRVPNL. The date of protest would be mutually decided by BBMB and RRVPNL in accordance with the records of BBMB and RRVPNL.
- ii) The tariff for Rajasthan for the period between the date of protest upto 20.09.2017 i.e. the date of 227th Board meeting will be @ 399 paise per kWh.
- iii) The tariff for all other common pool consumers including NFL for the period between the date of protest lodged by Rajasthan upto 20.09.17 will be as per the decision of 212th meeting.
- iv) The tariff from 21.09.17 onwards for all the common pool consumers except old HP shall be @ average power purchase cost at National level as notified by CERC from time to time. The tariff of old HP shall be decided in the presence of Member (HP) in the next Board meeting.
- v) The arrears with respect to transmission charges and transmission losses shall be as per the decision taken in 227th Board meeting i.e. transmission charges alongwith its arrear not to be charged for RFF power, however, the transmission losses will be paid by Rajasthan alongwith its arrears.
- vi) The above rates are exclusive of any statutory duties, taxes, levies, and surcharge etc. which shall be charged extra as applicable from time to time.
- vii) BBMB will raise the revised bills in accordance with the above decision. However, RRVPNL shall make immediate interim payment to BBMB.

Item No. 229.05

Regarding enhancement of consolidated monthly emoluments of Doctors employed on Contract basis in BBMB and enhancement of age limit for contractual employment of doctors.

Secretary, BBMB informed that as already brought out by Worthy Chairman in his welcome speech that there is an acute shortages of doctors in BBMB hospitals at Talwara and Sundernagar. He further briefed the worthy Members about the agenda and apprised the Members that since there was no cadre of doctors in the BBMB Class-I & II Regulations, 2015, it was not prudent to recruit the doctors on contract basis owing to lack of career progression as detailed in agenda note.

Member (Punjab) suggested that upper age limit should be 68 years, which was agreed upon by all the Members.

After deliberation, the proposal regarding enhancement of consolidated monthly emoluments of Doctors employed on contract basis in BBMB as per table given below and enhancement of age limit for contractual employment of retired (superannuated) doctors was approved with the stipulation of maximum age limit of doctors as 68 years instead of 70 years as proposed in the agenda.

SN	Kind of Contract/ Specialization	Present emoluments	Proposed Emoluments
a)	Contractual Employment as Retired Doctors.		
	i) General Cadre Medical Doctors (Retired)	Rs. 60,000/- OR equivalent to last pay drawn on the date of retirement i.e. (Basic Pay+ NPA+GP+DA) reduced by (Gross Basic pension including NPA+DA) whichever is less.	Rs. 70,000/- OR equivalent to last pay drawn on the date of retirement i.e. (Basic Pay+ NPA+GP+DA) reduced by (Gross Basic pension including NPA+DA) whichever is less.
	ii) Specialist doctors (Retired)	Rs. 70,000/- OR equivalent to last pay drawn on the date of retirement i.e. (Basic Pay+ NPA+GP+DA) reduced by (Gross Basic pension including NPA+DA) whichever is less.	Rs. 80,000/- OR equivalent to last pay drawn on the date of retirement i.e. (Basic Pay+ NPA+GP+DA) reduced by (Gross Basic pension including NPA+DA) whichever is less.
b)	Contractual Employment of Part Time Doctors for Two Hours per day.		
	i) General Cadre doctors	Rs. 11,500/- p.m.	Rs. 15,000/- p.m.
	ii) Specialist doctors	Rs. 12,500/- p.m.	Rs. 18,000/- p.m.
	iii) Contractual Employment of Part Time Dental Doctors for Two Hours per day.	Rs. 11,500/- p.m.	Rs. 15,000/- p.m.

Item No. 229.06

Regarding entitlement of allowances of Chairman and Whole Time Members of BBMB.

Secretary, BBMB briefed the worthy Members about the agenda. After discussion, proposal was unanimously approved.

Item No. 229.08

Floating Solar Power Plant in Nangal Dam/Bhakra Dam.

Special Secretary, BBMB briefed the worthy Members about the agenda.

Member (Rajasthan) expressed his reservations with respect to the higher tariff.

After deliberations, Board gave in principle approval. However, it was directed that feasibility and financial viability of the project may be examined and ascertained in detail and put up to the Board before award of the project works for execution.

Item No. 229.09

BBMB's Lease Policy pertaining to private persons who are already occupying BBMB land and properties.

Secretary, BBMB briefed the worthy Members about the agenda.

Member (Punjab) informed that the views of Punjab Government have been forwarded to BBMB wherein Punjab Government agreed with the report of Notified Authority i.e. Smt. Neerja Mathur, the then Chairperson, CEA, New Delhi that land acquired and allotted to BBMB are to be managed, administered and controlled by BBMB till this is a part of the project, irrespective of ownership and any land surplus to the project is to be owned, managed, administered and controlled by the State of Punjab. However, Member (Punjab) stated that Punjab Government do not want to breach or disturb the existing scenario and would like to continue with the existing arrangement.

On query from Member (Punjab), Secretary, BBMB clarified that the decision taken in the 228th meeting (Item No. 228.04) has been fully addressed as the lease policy has been drafted by an external legal expert who has proposed that the period of lease should be of 99 years to be reckoned from the year 1995 to bring parity among all the lease holders and to maintain uniformity in application of the proposed lease policy. After the expiry of 99 years lease period, the leased land minus the structure shall revert back to BBMB. Alternatively, the Board can enter into fresh lease agreement with the lessee(s) after the expiry of 99 years period as deemed fit by the Board. However, the lease shall be effected after clearing of all arrears of outstanding lease money along with simple interest @ 8% p.a.

Other Salient features of the proposed lease policy are as under:

Sr. No.	Item	Option
(i)	Period of Lease	99 years to be reckoned from 1995
(ii)	Initial Money	Premium Value of land as fixed by the concerned District Revenue Authority as prevalent in the year 1995 to be calculated after considering the ratio of commercial area and residential area
(iii)	Payment terms of Initial Money	100% payable in advance OR 50% in advance and remaining 50% in 6 equal yearly installments, payable in next six years alongwith Simple interest @ 10% p.a.
(iv)	Annual Lease money	<ul style="list-style-type: none"> • 2.5% of the Premium Value upto First Floor with increase of 25% after every five years. • Additional 2% of the Premium Value for Second Floor with increase of 25% after every five years. • Additional 2% of the Premium Value for Basement with increase of 25% after every five years.
(v)	Condition precedent	Clearing all arrears of outstanding lease money along with Simple interest @ 8% p.a.

However, Member (Punjab) stressed for a lease period of 33 years instead of 99 years as proposed in the draft lease policy.

After detailed deliberations, the proposal was approved with the stipulation that lease policy should be initially for 33 years to be extendable for another 33 years by the lessor with the same terms and conditions as stipulated above.

Item No. 229.14

Annual Report of Bhakra Beas Management Board for the year 2016-2017.

Special Secretary, BBMB intimated that the report has been placed on table and requested the Members to give comments if any within 15 days as per the past precedent. If the comments are not received, the annual report shall be considered approved.

Item No. 229.15

Regarding extension of contractual employment after retirement upto the age of 63 years in exceptional cases.

After deliberations, the proposal was approved.

2.2.2 230th meeting of the Board held on 19.11.2018

Item No:230.03

Procurement of Four (04), 60 MVA, 11/400/ $\sqrt{3}$ kV single phase Generator Transformers for Dehar Power House, Slapper.

The Board noted the following position.

“To place purchase order on M/s BHEL, Chandigarh for design, manufacture, testing, supply & delivery of 4 nos., single phase, 60MVA, 11/400/ $\sqrt{3}$ kV Generator Transformers for Dehar Power House, Slapper along with all fittings, accessories, a set of mandatory spares, transformer oil and for their erection, testing and commissioning at site and for conducting short circuit test (on 1st Generator Transformer) on agreed terms and conditions and revised order value of Rs. 23,28,39,711/-.”

Item No. 230.04

Regarding design manufacture, testing at manufacturer's works, supply, erection, testing at site & commissioning of 66 MW (continuous) capacity complete wound stator for Unit No. 2 at Pong Power House, Talwara.

The Board noted the following position.

“To place Purchase Order at negotiated rates on M/s/BHEL, Chandigarh at an order value of Rs.13,40,15,786/- (Rupees Thirteen Crore Forty Lakh Fifteen Thousand Seven Hundred and Eighty Six only) for design manufacture, testing at manufacturer's works, supply, erection, testing at site & commissioning of 66 MW continuous capacity complete wound stator for Unit No.2 at Pong Power House, Talwara alongwith erection, testing & commissioning of HS Lubrication system, inclusive of packing & forwarding charges, transport & transit insurance charges and applicable GST.”

Item No. 230.05

Short Circuit Withstand Testing of Transformers.

Special Secretary, BBMB informed that agenda was circulated for approval and Member/ Punjab, Member/HP, Member/GOI (MoP) and Member/Gol (MoP) had concurred the agenda.

During the meeting, the observations of Member/Haryana were clarified and after deliberations, the agenda was approved.

Item No.230.06

Grant of annual incentive to BBMB employees in recognition of their excellent contribution towards efficient maintenance and operation of BBMB Projects- Comprehensive Draft Policy thereof.

Special Secretary briefly explained the Agenda to the Members highlighting the performance of BBMB for the last 3 years and also that the Agenda had been put up after 3 years. Member/Rajasthan observed that the incentive policy as proposed by BBMB is required to be examined as it has implications. Member/Punjab & Member/Haryana enquired about the past precedence w.r.t. grant of incentive in BBMB. Member/Gol (MoP) was of the view that incentive should be given to BBMB employees as was being given in other CPSUs particularly in view of the fact that officers/officials were reluctant to join BBMB. Chairman, BBMB stressed upon the Members to give consent for the year 2017-18 in view of the performance of BBMB during the last 3 years. Member/Gol (MoWR) suggested that the incentive policy may be circulated to the partner states, however, suitable incentive for 2017-18 may be considered by the Members.

Chairman, BBMB agreed to the suggestions of Member/Gol (MoWR). After deliberations, it was decided to delink the incentive policy and the Members agreed to grant 20 days salary as incentive to all employees whether regular or contractual (except employees outsourced through PESCO) and work-charged employees on the rolls of BBMB, on the detailed terms and conditions as proposed in the agenda.

Item No.230.07

Restructuring of Manpower in BBMB.

Secretary, BBMB briefed about the agenda to Board's Members. He informed that in the review meeting of BBMB taken by the Hon'ble Union Minister of State for Power, it was desired that BBMB should endeavour to reduce its manpower further.

In this regard, it is submitted that the following seven posts of Executive Engineers, have been identified initially and would be kept suspended.

1. Executive Engineer/Bhakra Electrical Division, BBMB, Nangal.
2. Superintendent/Workshop Division, BBMB, Nangal.
3. Senior Design Engineer/Water Regulation, BBMB, Sundernagar.
4. Executive Engineer/HRD, Environment & Quality Control Cell, BBMB, Talwara.
5. Executive Engineer, CC Division, BBMB, Nangal
6. Executive Engineer, CC Division, BBMB, Panipat.
7. Executive Engineer/Works, O/o Chief Engineer/SO, BBMB, Chandigarh.

In addition to the above, following 7 additional posts of Executive Engineer and SDOs are also proposed to be kept suspended:

- a. Dy. Director/P&T Cell, BBMB, Panipat.
- b. 6 Posts of SDO T&L, one each at Delhi, Kurukshetra, Hisar, Dhulkote, Jagadhri & Barnala.

It was decided that all above posts shall be kept suspended and shall be revived only with the prior approval of the Board. Some of the above posts are occupied at present. It is, therefore, proposed that the incumbents manning these posts shall be transferred elsewhere within BBMB upon availability of suitable vacancy and these posts shall not be filled after transfer/promotion/superannuation of the present incumbents. Efforts will also be made to surrender more posts of the staff working in these divisions in due course of time.

After due deliberations, the Board approved the following:-

- (i) To keep the above posts (7+7) suspended till further orders.
- (ii) Re-distribution of the work assigned to these incumbents shall be done with the approval of the Chairman, BBMB.

Item No. 230.08

Regarding BBMB Class I & II Officers (recruitment & Conditions of Service) Regulations, 2015 – Amendments thereof. (Revised)

Secretary, BBMB while explaining the agenda informed the members regarding difficulties being faced in promoting the BBMB employees due to pendency of approval of requisite amendments in the BBMB Class – I & II Officers (Recruitment & Conditions of Service) Regulations, 2015. He apprised the members about the rule position as well as the deliberations held in the 226th Board Meeting wherein Member (Rajasthan) and Member (Punjab) agreed with the stipulation (provision under Clause-2 (o)), as contained in the Regulations, but decided to put up the agenda again in the presence of Members from MoP & MoWR, Government of India.

Member (Punjab) while discussing the powers vested with the Board under Clause 2 (o) of the regulations, agreed for the amendments but desired to send the same to Ministry of Power. In this regard, it was clarified by Secretary, BBMB that the proposed amendments are within the cadre strength approved by the Ministry and does not contain any addition to the cadre strength. As per Rule-4 of the Regulations, the case needs to be referred to Ministry wherein there is an increase in the cadre strength. Since there is no increase in cadre strength, hence the proposed amendments are within the competency of the Board.

Member (Haryana) and Member (Rajasthan) while acknowledging the powers vested with the Board, desired that a legal opinion

may be sought on the proposed amendments. The members were apprised that legal opinion has already been sought from the Chief Legal Advisor of BBMB, who has opined that under Rule 2(o), the Board is competent to make amendments, additions or deletion of posts within the Cadre Strength approved by the Ministry of Power.

Member/Gol (MoP) agreed to the powers vested under the regulation 2 (o) and to the proposed amendments, which was duly endorsed by Member/Gol (MoWR).

All Board members agreed to the powers vested under the regulation 2 (o) and subsequent amendments as proposed in the agenda note were approved.

Item No. 230.15

Grant of Regular Pay Scale of 10900-34800+Grade Pay 5500/- & 10900-34800+Grade Pay 4000/- to Dredger Operator Gr.I & Dredger Operator Gr.II respectively.

Director (Security) briefed about the agenda to the Board Members and importance of these experienced personnel for carrying out dredging operations and management of silt for smooth operation of Dehar Power House.

Chairman, BBMB suggested that instead of deviating from the Punjab Govt. regulation, we should compensate these Dredger Operator Grade-I and Dredger Operator Grade-II by giving some consolidated amount by some other means for the initial three years during the period of probation.

After deliberations, in view of specialized nature of the job, the Members agreed with the suggestion and authorized the Chairman, BBMB to decide the compensation to be paid during the probation period, as a special case.

Item No. 230.16

NOC for lifting of 8.00 MLD (3.27 Cusecs) water from Gobind Sagar Lake at right bank near village Bounгри for drinking water supply scheme in Jhandutta Block, District Bilaspur, Himachal Pradesh.

Secretary, BBMB, while explaining the agenda item placed on the request of Member (H.P.), informed the Board regarding the drinking water requirements of the residents of village Bounгри in Jhandutta Block of District Bilaspur, Himachal Pradesh. He apprised the Members regarding similar previous approvals granted by the Board for different areas of Himachal Pradesh.

After detailed deliberations, Board unanimously approved the proposal for lifting of 8.00 MLD (3.27 Cusecs) water from Gobind Sagar Lake

at right bank near village Bounгри for drinking water supply scheme in Jhandutta Block, District Bilaspur, Himachal Pradesh free of cost.

2.2.3 231th meeting of the Board held on 20.02.2019.

Item No. 231.02

Budget Estimates for the year 2019-20 and Revised Budget Estimates for the year 2018-19.

Initiating the discussion, FA&CAO informed that this budget was discussed in the Budget Sub Committee meeting of BBMB held on 03.01.2019. After detailed discussions, the Budget Sub-Committee recommended the Budget Estimates for the year 2019-20 of Rs.142954.57 lacs and Revised Budget Estimates for the year 2018-19 of Rs.126967.16 lacs. FA&CAO made detailed presentation about the budget to the Board.

Chairman, BBMB clarified that difference in Revised Estimate for 2018-19 and Budget Estimate for the year 2019-20 with reference to revenue expenditure of Power Wing (after deducting the revenue receipts and including RM&U) is primarily due to increase provision for RM&U, other capital nature works and establishment cost etc.. He informed that the work of RM&U of remaining 2 units will be completed during FY 2019-20, which will result in capacity addition of 36 MW in the installed capacity of BBMB. On the query of Member (Punjab), Chairman, BBMB clarified that addition of per MW on account of RM&U would cost around Rs. 5.5 Cr. which is much less compared to the cost for execution of new project. Member (Govt. of India-Power) supported views of the Chairman, BBMB saying that this cost is far too less as compared to the cost for new project.

After deliberations, the Budget Estimates for the year 2019-20 of Rs.142954.57 lacs and Revised Budget Estimates for the year 2018-19 of Rs.126967.16 lacs was approved.

Item No. 231.04

BBMB power supply to common pool consumers of Bhakra Nangal Project: Deliberations on tariff of old HP (10MW Common Pool Share) on 25 % of NFL rates.

Initiating the discussion, Special Secretary informed that BBMB Board, in its 229th meeting held on 24.05.2018 decided to charge Average Power Purchase Cost (APPC) at National level, as notified by CERC from time to time from all common pool consumers w.e.f 21.09.2017 except Old HP. It was decided that Tariff of Old HP shall be discussed in next Board meeting.

The matter was discussed during 230th meeting wherein it was decided that HP shall submit a comprehensive proposal to be discussed in the next Board meeting.

Accordingly, as per decision of the 230th Meeting of Board, Govt. of Himachal Pradesh submitted the agenda for consideration of the Board.

Member/H.P informed that as per the details supplied in the agenda, the tariff of old H.P has been in the range of 18.98% to 25% of the NFL rate in the past i.e. since 1996 to 2017. He stressed that in view of earlier agreed & approved methodology of concessional rates on account of dislocation, suffering and hardships faced by the people of H.P, it shall be quite legitimate to approve the annual tariff of H.P for old H.P Common Pool share of 10 MW at 25% of all India Average Power Purchase Cost (APPC) rate from 01-01-2018 onwards as against 21.09.2017, the date from which reduced rate for other common pool consumers has been decided by the Board in its 229th Meeting.

Member(Punjab) desired to know about the financial implications on the states due to proposed concessional tariff in respect of old H.P. It was informed that total annual financial implications to all partner states on account or concessional tariff will be 1.5 crore approx.

Member(GOI-POWER) stated that in view of meagre financial implications, the existing agreed methodology of concessional rates to H.P. be continued.

Representative of Member(Haryana) stated that proposal of H.P. may not be considered as Supreme Court of India has given consideration to all the aspects of H.P. State while announcing judgment dated 27.09.2011. It was clarified that in view of Hon'ble Supreme Court Judgement and consequent notification by MoP, GOI, shares allocation of partner states is exclusive of common pool consumers and common pool supplies are to be considered separately by the Board.

After deliberations, all members agreed to charge H.P Common Pool share of 10 MW at 25% of all India Average Power Purchase Cost (APPC) rate from 01.01.2018 onwards. As Member (Haryana) was not present in the meeting, this decision would be implemented upon confirmation of the minutes.

Item No. 231.14

Permission/ NOC from BBMB in favor of "The Kutlehar Tourism Development Society" for conducting Water Sports, Adventure activities and other Tourism related activities in Bhakra Dam reservoir in and around 01 KM near Androli, P.O. Raipur, Tehsil Bangana Distt. Una (H.P.).

Director (Security) briefed the Members about the agenda. He informed firstly a request was received from the Deputy Commissioner -cum-Chairman, The Kutlehar Tourism Development Society, Una for granting permission/ NOC from BBMB for carrying out tourism related Water & Adventure Sports activities in Bhakra Dam reservoir near village Androli. Thereafter, a letter dt. 28.01.19 has been received from the Principal Secretary, MPP & Power Govt. of Himachal Pradesh requesting for Permission/NOC to The Kutlehar Tourism Development Society, Una for carrying out tourism related water & adventure sports activities in Bhakra Dam reservoir near village Androli. ***It has also been requested to treat this as an agenda item***

proposed by the Himachal Pradesh Govt. to be placed in Board's meeting for consideration.

Chairman, BBMB further informed that DC, Una, personally came to him to discuss on the issue and ensured that there would be no permanent construction bellow the RL 1700 meter in BBMB land. DC Una further ensured that they will restrict the activities only to certain demarcated areas. Chairman, BBMB intimated that DC, Una was informed that requests received only through the Govt. of HP will be considered for discussion in the Board.

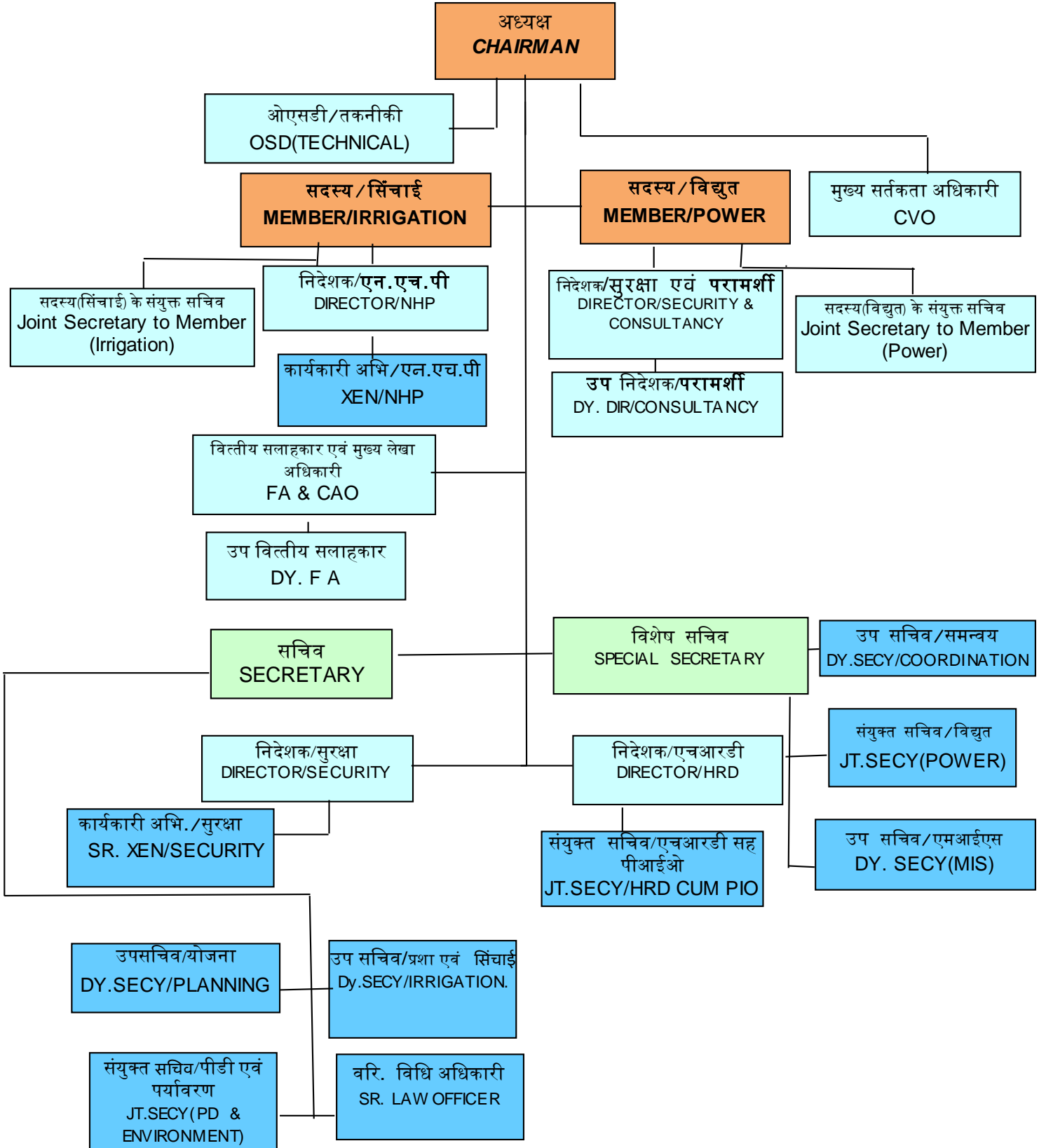
After detailed deliberations, the proposal was approved.



अध्याय-3
Chapter-3

संगठनात्मक व्यवस्था
Organisational
Set-Up

बीबीएमबी सचिवालय की संगठनात्मक व्यवस्था
Organisational Set-Up Of BBMB Secretariat

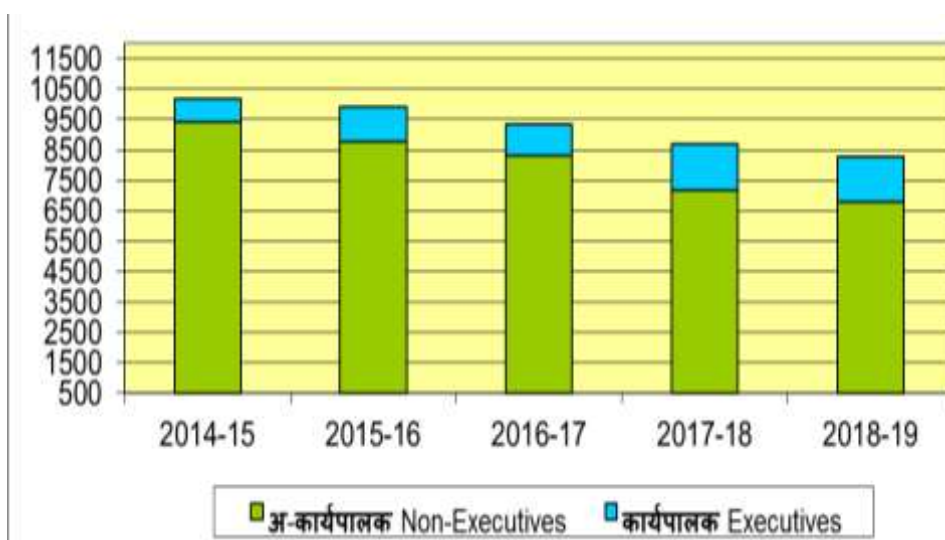


3.1 BBMB Manpower

Total sanctioned and in-position strength for entire BBMB as on 31.03.2019 is as under:-

Class of Establishment	Sanctioned Strength	In-position
Group A	883	491
Group B	1793	972
Group C	4707	3349
Group D	4688	3453
Total	12071	8265

बीबीएमबी की जनशक्ति (कार्यपालक एवं अ-कार्यपालक)
BBMB's Manpower (Executives and Non-Executives)



3.2 BBMB Secretariat

The Chairman, Bhakra Beas Management Board is the Chief Executive of the Board and is assisted by two Whole Time Members viz. Member (Irrigation) and Member (Power).

A. Strength of Staff

The sanctioned and in-position strength of Corporate Office including BBMB Secretariat, Chandigarh and Dy.Secretary/Co-ordination office, New

Delhi, as on 31.3.2019 is as under:-

Class of Establishment	Sanctioned Strength	In-position
Group-A	82	59
Group-B	91	66
Group-C	156	105
Group-D	108	72
Total	437	302

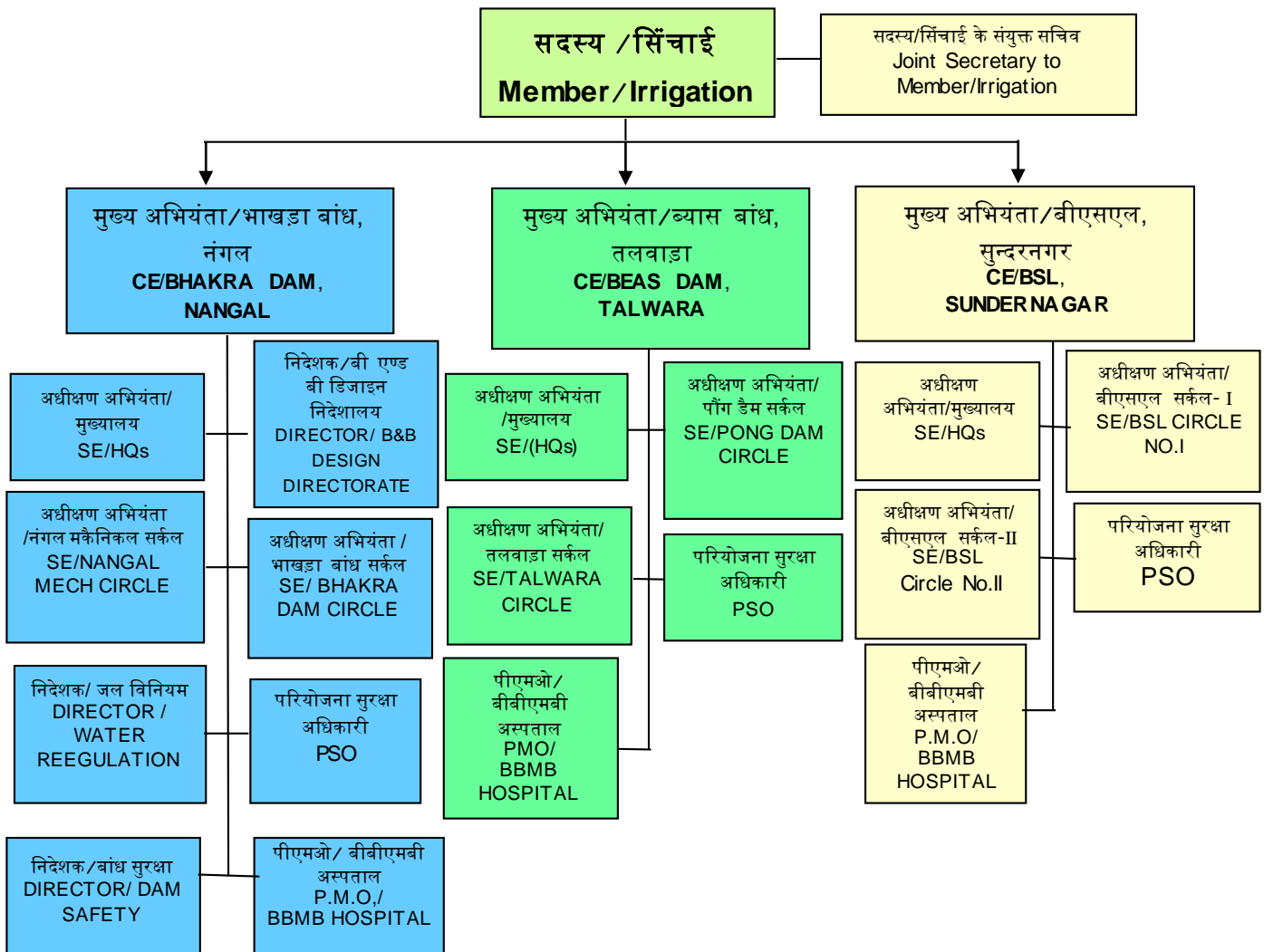
B. Allocation of Officers/Officials (in-position as on 31.3.2019 to various Sections of BBMB Sectt.):-

Category	Punjab	Haryana	Rajasthan	HP	C/Govt.	Others	PSPCL	Har.Power Utilities	Raj.Power Utilities	HPSEBL	BBMB			Grand Total
											Regular	Contract basis	Adhoc	
Group –A	8	14	4	0	0	0	8	6	0	8	11	NA	11	59
Group-B	9	14	1	0	0	0	7	7	0	5	23	NA	23	66
Group-C	15	3	4	0	0	0	9	1	0	1	72	NA	72	105
Group-D	19	10	1	0	0	0	4	0	1	0	37	NA	37	72
Total	51	41	10	0	0	0	28	14	1	14	143		143	302

3.3 Irrigation Wing

Chief Engineer/Bhakra Dam, Nangal Chief Engineer/Beas Satluj Link, Sundernagar and Chief Engineer/Beas Dam, Talwara are heading the three project sites under Irrigation Wing. Director/Water Regulation, Nangal is responsible for water regulation matters.

बीबीएमबी (सिंचाई खण्ड) की संगठनात्मक व्यवस्था Organisational Set-Up Of BBMB (Irrigation Wing)



A. Strength of Staff

The sanctioned and in-position strength of regular establishment as on 31.3.2019 is as under:-

Class of Establishment	Sanctioned Strength	In-position
Group-A	308	172
Group-B	752	386
Group-C	2578	1973
Group-D	3239	2450
Total	6877	4981

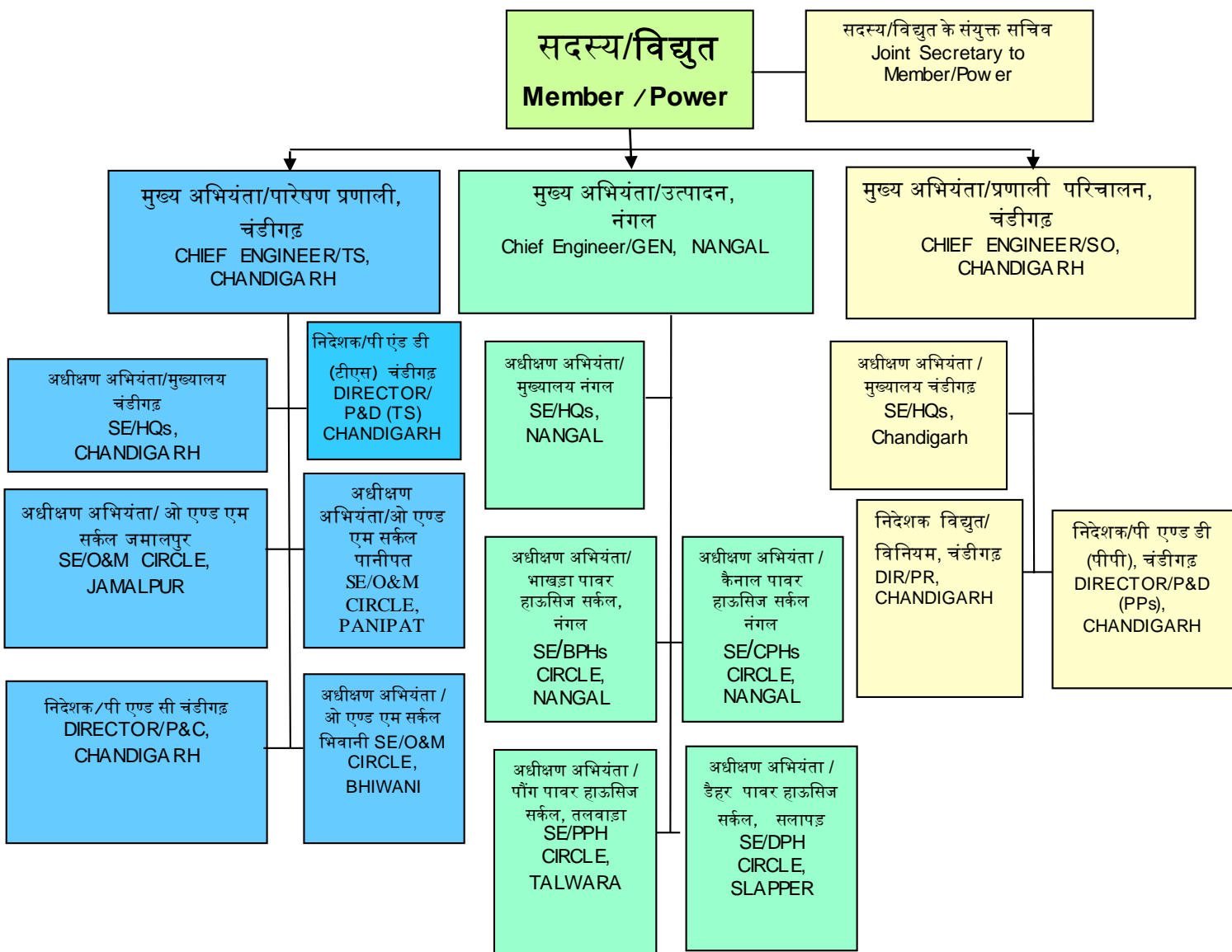
B. Allocation of Officers/Officials (in-position as on 31.3.2019 to various organisations):-

Category	Punjab	Haryana	Rajasthan	HP	C/Govt.	Others	PSPCL	Har.Power Utilities	Raj.Power Utilities	HPSEBL	BBMB				Grand Total
											Regular	Contract basis	Adhoc	Total	
Group –A	82	29	15	6	0	0	1	0	1	26	12	NA		12	172
Group-B	134	76	1	6	0	0	5	2	0	16	146	NA		146	386
Group-C	791	20	7	13	0	0	15	11	3	27	1086	NA		1086	1973
Group-D	759	32	5	0	0	0	3	0	0	0	1651	NA		1651	2450
Total	1766	157	28	25	0	0	24	13	4	69	2895			2895	4981

3.4 Power Wing

Three Chief Engineers i.e. Chief Engineer/Transmission System, Chandigarh, Chief Engineer/Generation, Nangal and Chief Engineer/System Operation, Chandigarh head the Transmission, Generation and System Operation organization respectively under Power wing of BBMB.

बीबीएमबी विद्युत खण्ड की संगठनात्मक व्यवस्था Organisational set up of BBMB (Power Wing)



A. Strength of staff

The sanctioned and in-position strength of regular establishment as on 31.3.2019 is as under:-

Class of Establishment	Sanctioned Strength	In-position
Group-A	458	231
Group-B	811	410
Group-C	1822	1177
Group-D	1248	873
Total	4339	2691

A. Allocation of officers/officials (in-position as on 31.3.2019 to various organisations):-

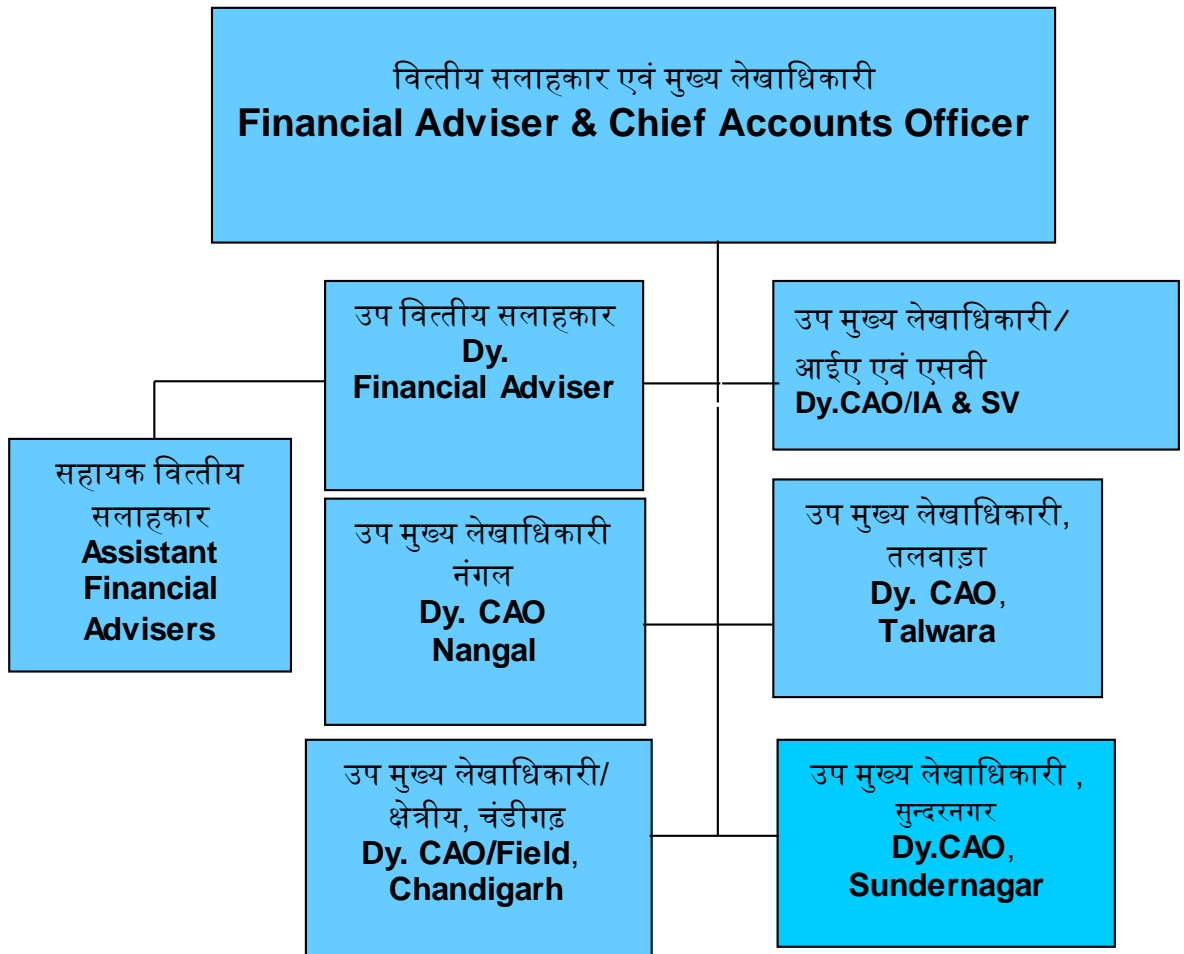
Category	Punjab	Haryana	Rajasthan	HP	C/Govt.	Others	PSPCL	Har. Power Utilities	Raj. Power Utilities	HPSEBL	BBMB				Grand Total
											Regular	Contract basis	Adhoc	Total	
Group -A	2	4	1	1	0	0	82	74	35	23	9	NA	9	231	
Group-B	3	22	0	1	0	0	79	69	27	13	196	NA	196	410	
Group-C	96	8	1	0	0	0	94	50	20	1	907	NA	907	1177	
Group-D	70	1	0	0	0	0	16	10	13	0	763	NA	763	873	
Total	171	35	2	2	0	0	271	203	95	37	1875		1875	2691	

3.5 Finance, Accounts And Audit

The Financial Adviser & Chief Accounts Officer is the Principal Officer to operate the 'Personal Ledger Account'(PLA) of the Board and to issue necessary accounts instructions. The functions of the Financial Adviser & Chief Accounts Officer are three-fold viz:

- a) the Financial Adviser to the Board on all financial matters.
- b) the Chief Accounts officer for compiling the income and expenditure accounts of the Board and
- c) the Chief Internal Auditor for doing the Internal Audit and Scrutiny of the financial transactions of the Board.

वित्तीय सलाहकार एवं मुख्य लेखा अधिकारी बीबीएमबी की संगठनात्मक व्यवस्था **Organisational Set-Up Of FA & CAO, BBMB**



A. Strength of Staff

The sanctioned and in-position strength of regular establishment as on 31.3.2019 is given in the table below:

Class of Establishment	Sanctioned Strength	In-position
Group-A	35	29
Group-B	139	110
Group-C	151	94
Group-D	93	58
Total	418	291

A. Allocation of Officers/Officials (in-position as on 31.3.2019 to various organisations):-

Category	Punjab	Haryana	Rajasthan	HP	C/Govt.	Others	PSPCL	Har. Power Utilities	Raj. Power Utilities	HPSEBL	BBMB				Grand Total
											Regular	Contract basis	Adhoc	Total	
Group -A	2	12	0	2	2	0	8	2	0	0	1	NA	1	29	
Group-B	25	26	0	4	2	1	19	6	0	1	26	NA	26	110	
Group-C	26	1	1	0	0	0	17	1	2	0	46	NA	46	94	
Group-D	18	7	0	0	0	0	6	0	0	0	27	NA	27	58	
Total	71	46	1	6	4	1	50	9	2	1	100		100	291	



अध्याय-4
Chapter-4

वित्तीय कार्य-निष्पादन
Financial Performance

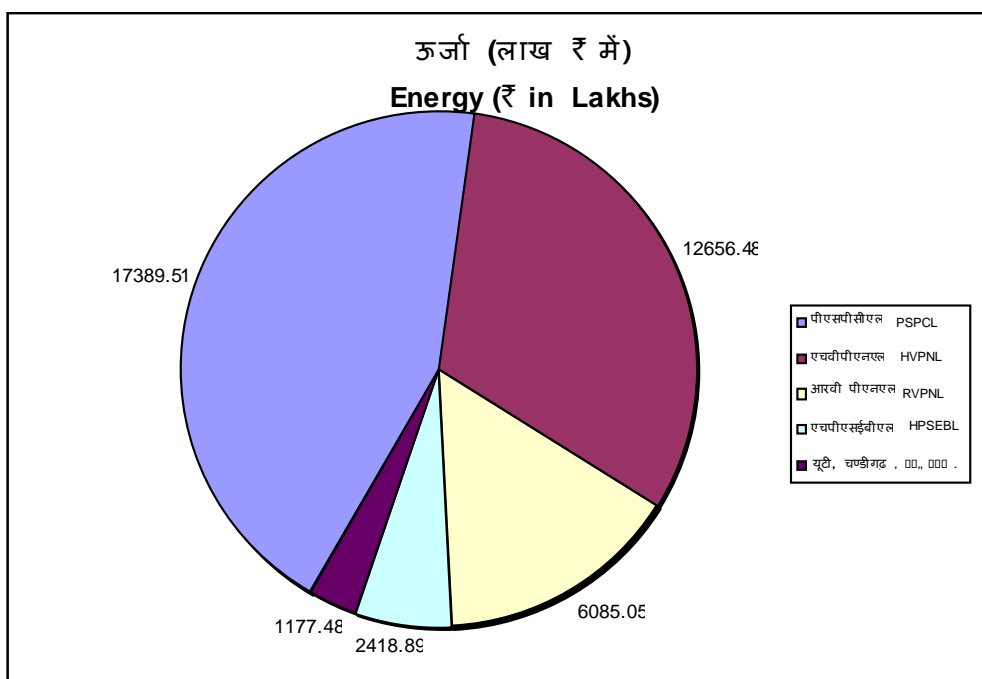
Financial Review Of BBMB

- The Bhakra Beas Management Board has been constituted under Section 79(1) of the Punjab Re-organization Act, 1966, for administration, operation and maintenance of works mentioned in Section 79 of the Act. According to Sub-Section 5 of Section 79 of the Act, the Governments of the successor States of the erstwhile Punjab and the State of Rajasthan are required at all times to provide necessary funds to BBMB to meet all expenses required for discharge of its functions. The Board, in consultation with the FA&CAO, prepares the revised Budget Estimates for the current year as well as Budget Estimates for the next financial year as provided under Rule 11 of BBMB Rules.
- The revenue expenditure debitable to Irrigation Wing is financed by the Partner State Governments of Punjab, Haryana and Rajasthan from their own resources in the agreed ratios. Similarly, for the Power Wing, revenue expenditure is partly met out of the receipts realised from Common Pool Consumers and partly by the partner State Power Utilities from their own resources, in the agreed ratios.
- Ministry of Power, Govt. of India, New Delhi on the direction of Hon'ble Supreme Court of India vide its notification No. 02/13/96-BBMB (Vol. VI) dated 31.10.2011 has revised the sharing of allocation of energy in Power Wing from Bhakra-Nangal and Beas Projects w.e.f. 01.11.2011.
- The obligations of the Partner State Governments/State Power Utilities based upon the budget for the year 2018-19, after deducting the share of Revenue Receipts of Power Wing, are determined as under:-

(₹ in Lakhs)			
Punjab	14432.08	PSPCL	21358.28
Haryana	9420.47	HVPNL	18223.10
Rajasthan	12480.25	RRVNL	12760.35
		HPSEB Ltd.	3186.55
		UT, Chandigarh	1551.16

- The amount of advances made by the participating State Governments and State Power Utilities are credited to the Personal Ledger Account of the FA&CAO opened in the Public Account of the Government of India. As and when the expenditure is incurred, the proportionate share of the State Governments/State Power Utilities is passed on to the concerned Accountant General/State Power Utilities for exhibition in the State/State Power Utilities' accounts.

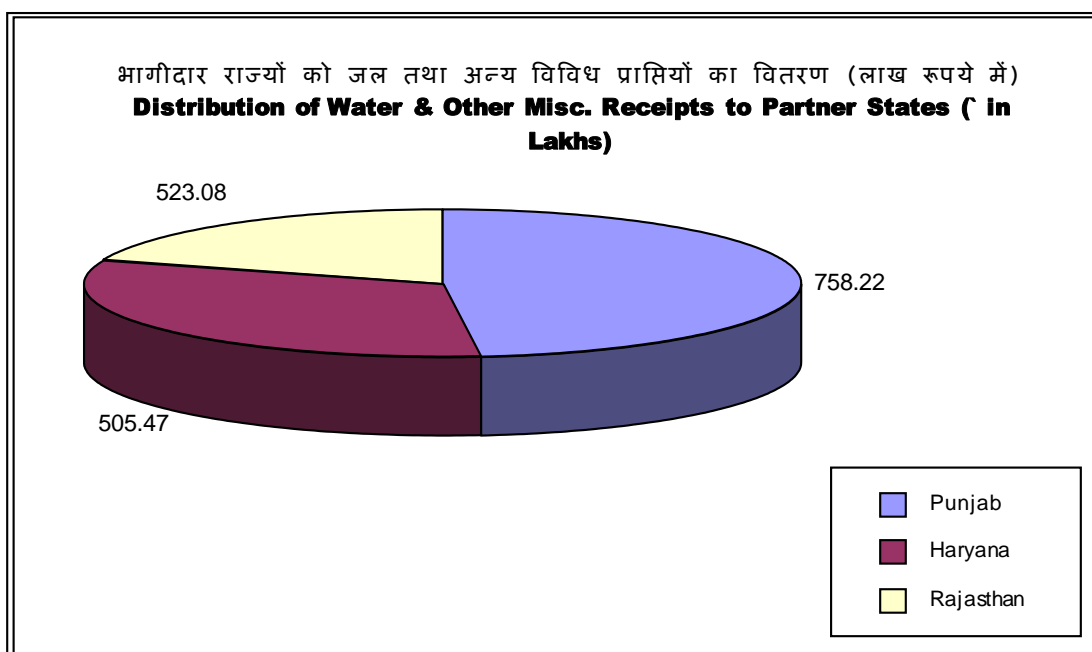
- The PLA of BBMB, which remained positive throughout the year under review, closed with a credit balance of ₹ 7787.25 Lakhs on 31st March, 2019.
2. The PWD System of accounting is being followed and there has been no change in Accounting Policy during the year.
 3.
 - i) Notional Operating Expenditure (Chargeable to Power Wing) ₹ 82237.58 Lakhs.
 - ii) Units generated (ex-Bus) 10079.92 MU
 4. Notional Operating Expenditure per unit of energy (Generation & Transmission) 81.58 paise
 5. **Energy Sales Revenue: ₹ 39727.41 Lakhs**
 - i) PSPCL = ₹ 17389.51 Lakhs
 - ii) HVPNL = ₹ 12656.48 Lakhs
 - iii) RRVPNL = ₹ 6085.05 Lakhs
 - iv) HPSEB Ltd. = ₹ 2418.89 Lakhs
 - v) UT, Chandigarh = ₹ 1177.48 Lakhs



वर्ष 2018-19 में ऊर्जा विक्री राजस्व का पाई चार्ट
Pie Chart of Energy Sales Revenue in 2018-19

6. Water Sales Revenue & Other Misc. Receipts: ₹ 1786.77 Lakhs

- (i) Punjab State = ₹ 758.22 Lakhs
(ii) Haryana State = ₹ 505.47 Lakhs
(iii) Rajasthan State = ₹ 523.08 Lakhs



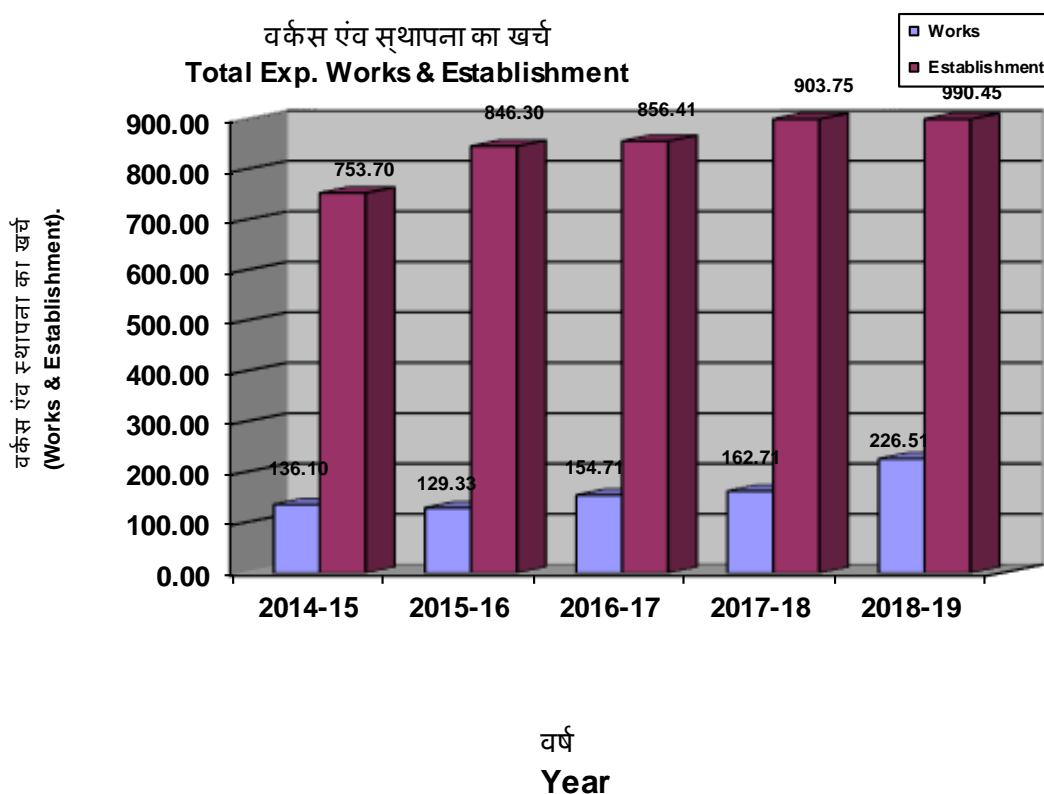
वर्ष 2018-19 के दौरान जल विक्री राजस्व का पाई चार्ट
Pie Chart of Water Sales Revenue during 2018-19

7. Capital Expenditure

(₹ in Lakhs)

	Punjab Govt.	Haryana Govt.	Rajasthan Govt.	Total
Bhakra	64.77	43.18	19.38	127.33
Beas (Residual Works)	1.31	1.10	3.21	5.62

8. Total Expenditure of BBMB (Works & Establishment).



	₹ in Crores				
	2014-15	2015-16	2016-17	2017-18	2018-19
Works	136.10	129.33	154.71	162.71	226.51
Establishment	753.70	846.30	856.41	903.75	990.45

4.1 Power Wing

4.1.1 (A) Beneficiaries

The following beneficiaries are drawing electric energy from the BBMB Projects as decided by Ministry of Power, Govt. of India, New Delhi on the direction of Hon'ble Supreme Court of India vide its notification No. 02/13/96-BBMB (Vol. VI) dated 31.10.2011 w.e.f. 01.11.2011:-

- Punjab
- Haryana
- Rajasthan
- Himachal Pradesh
- Chandigarh U.T

(B) COMMON POOL CONSUMERS

- | | | |
|----|---------------------------------------|-------------|
| A | National Fertilizer Ltd., Naya Nangal | 1.02 LU/day |
| B. | Old Himachal Pradesh | 1.2 LU/day |

- C. Supply of power for Fertilizer factory in Rajasthan 5 LU/day
- D. U.T. Chandigarh 1 LU/day plus Special Assistance of 10 LU/day
- E. Project supplies to Irrigation Wing at Nangal, Talwara & BSL Complex

4.1.2 Revenue Receipts and Expenditure

The revenue expenditure of Power Wing is primarily met out of Revenue Receipts realized from Common Pool Consumers. In the contingency of Revenue Expenditure exceeding Revenue Receipts derived from Common Pool Consumers, the excess expenditure is required to be met by the Partner State Electricity Boards/Power Utilities as per provisions under the Punjab Re-organization Act 1966. The position of revenue receipts, advances realized and expenditure incurred and balance available is given below:

A. Revenue Receipts (₹ in Lakhs)

1	Bhakra	38936.55
2	Beas Transmission Lines	211.65
3	Dehar Power Plant, Slapper (Other Receipt)	110.91
4	Dehar Power Plant, Slapper (Sale of Power)	13.18
5	Pong Power Plant, Talwara (Other Receipt)	3.33
6	Pong Power Plant, Talwara (Sale of Power)	16.75
7	Add from Bhakra I.B.	301.35
8	Add from Unit No.1 BSL Sundernagar	135.33
9	Add from Unit No.2 Pong Dam Talwara	(-)1.64
	Total:-	39727.41

B. Revenue Expenditure

Following are the figures of Revenue Expenditure during the year 2018-2019:-

(₹ in Lakhs)

Sr. No	Particulars	Works	Estt.	Total
OPERATION & MAINTENANCE				
1.	Bhakra Left Bank Power Plant/Generation	4236.55	5598.50	9835.05
2.	Bhakra Left Bank Power Plant /Transmission	565.15	3293.28	3858.43

3.	Bhakra Right Bank Power Plant /Generation	412.17	3691.57	4103.74
4.	Bhakra Right Bank Power Plant/Transmission	830.75	9792.22	10622.97
5.	Beas Transmission lines	892.95	7467.82	8360.77
6.	Dehar Power Plant	2021.68	3847.86	5869.54
7.	Pong Power Plant	293.57	648.99	942.56
8.	Add from Bhakra Irrigation Branch	1322.97	16074.2 4	17397.21
9.	Add from Unit No. 1 of Beas Project (Beas Sutlej Link, Sundernagar)	2011.73	15922.7 5	17934.48
10.	Add from Unit No.2 of Beas Project (Pong Dam, Talwara)	197.12	3115.71	3312.83
	TOTAL	12784.6 4	69452.9 4	82237.58
RENOVATION, MODERNISATION & UPRATING (RM&U)				
11.	R,M&U of Bhakra Left Bank Power House	6390.45	--	6390.45
	TOTAL R,M&U	6390.45	--	6390.45
TOTAL EXPENDITURE (POWER WING) (O&M + R,M&U)		19175.0 9	69452.9 4	88628.03

Capital Expenditure

No Capital Expenditure has been booked to Capital Head of Account. However, expenditure relating to Renovation, Modernization and Uprating scheme for the year is given on prepage.

4.1.3 Sharing of Revenue Receipts & Expenditure

Revenue receipts and expenditure of Power Wing is apportioned amongst the partner State Power Utilities as under:-

A. Bhakra Complex

Revenue receipts and expenditure, including RM&U expenditure, is apportioned amongst Partner State Power Utilities in the following ratios:-

Sr.No.	State Power Utility	Percentage
1.	R.R.V.P.N.L.	15.22%

2.	P.S.P.C.L.	51.80% (after deducting RRVPNL Share)
3.	H.V.P.N.L.	37.51% (after deducting RRVPNL Share)
4.	H.P.S.E.B.L.	7.19% (after deducting RRVPNL Share)
5.	Electricity Department, U.T., Chandigarh.	3.50% (after deducting RRVPNL Share)

B. Beas Project

(i) Beas Project Unit-I (Dehar Power Plant)

Gross revenue receipts/expenditure on Dehar Power Plant is apportioned between Power and Irrigation in the ratio of 94:6. The net revenue receipts/expenditure of 94% on Power side is apportioned amongst partner State Power Utilities in the following ratios:-

Sr.No.	State Power Utility	Percentage
1.	R.R.V.P.N.L.	20%
2.	P.S.P.C.L.	51.80% (after deducting RRVPNL Share)
3.	H.V.P.N.L.	37.51% (after deducting RRVPNL Share)
4.	H.P.S.E.B.L.	7.19% (after deducting RRVPNL Share)
5.	Electricity Deptt., U.T., Chandigarh.	3.50% (after deducting RRVPNL Share)

(ii) Beas Project Unit No. II (Pong Dam)

Gross revenue receipts/expenditure on Pong Power Plant is apportioned between Irrigation and Power in the ratio of 76.5 and 23.5. The net revenue receipts/expenditure of 23.5% on the power side is apportioned amongst partner State Power Utilities in the following ratios:-

Sr.No.	State Power Utility	Percentage
1.	R.R.V.P.N.L.	58.5%
2.	P.S.P.C.L.	51.80% (after deducting RRVPNL Share)
3.	H.V.P.N.L.	37.51%

		(after deducting RRVPNL Share)
4.	H.P.S.E.B.L.	7.19% (after deducting RRVPNL Share)
5.	Electricity Deptt., U.T., Chandigarh.	3.50% (after deducting RRVPNL Share)

iii) Beas Transmission Lines

With effect from 01.11.2011 the reallocation of share between partner Power Utilities is as under:-

Sr.No.	State Power Utility	Percentage
1.	R.R.V.P.N.L.	23.80%
2.	P.S.P.C.L.	28.72% (after deducting RRVPNL Share)
3.	H.V.P.N.L.	60.59% (after deducting RRVPNL share)
4.	H.P.S.E.B.L.	7.19% (after deducting RRVPNL Share)
5.	Electricity Deptt., U.T., Chandigarh.	3.50% (after deducting RRVPNL Share)

4.1.4 Outstanding O&M Charges against Partner State Power Utilities:

The position of amount recoverable from partner State Power Utilities against their share in revenue expenditure as on 31st March, 2019 is as under:

(₹ in Lakhs)

Particulars	PSPCL	HVPNL	RRVPNL	HPSEBL	UT, Chd.	Total
Outstanding as on 01.04.2018	13852.94	452.15	283.64	141.85	195.24	14925.82
Revenue Receipts realized during the year.	17389.51	12656.48	6085.05	2418.89	1177.48	39727.41
Advances released by partner States Power Utilities during the year.	19970.43	14758.94	10683.85	2609.96	1349.08	49372.26
Total amount available	23507.00	26963.27	16485.26	4887.00	2331.32	74173.85
Expenditure incurred during the year.	32729.77	26236.36	16213.49	4747.13	2310.84	82237.59
Outstanding/ Balance available as on 31.03.2019	9222.77	-726.91	-271.77	-139.87	-20.48	8063.74

4.1.5 Summary Of Outstandings As On 31.03.2019

(-)Advance (+) Recoverable

(₹ in Lakhs)

Sr.No	State Power Utility	Total O&M charges	Total R,M&U Charges	Total outstanding amount
1.	PSPCL	9222.77	1145.47	10368.24
2.	HVPL	-726.91	829.51	102.60
3.	RRVPL	-271.77	912.21	640.44
4.	HPSEBL	-139.87	159.14	19.27
5.	UT, Chd.	-20.48	174.49	154.01
	Total	8063.74	3220.82	11284.56

4.1.6 Dues from Common Pool Consumers on account of Sale of Power

During the year, the common pool consumers were M/s National Fertilizer Limited, Naya Nangal, old Himachal Pradesh, Union Territory of Chandigarh, Rajasthan Fertilizer Factory and Irrigation Wing of BBMB. The U.T. Chandigarh and Himachal Pradesh (New) received supply from the project on the basis of being successors to the erstwhile State of Punjab. The following amounts were outstanding on 31.03.2019 against the various common pool consumers and others.

(-)Advance
(+) Recoverable

Sr. No.	Sale of Power to	₹ in Lakhs
1.	M/s National Fertilizer Limited., Naya Nangal - Energy - Sale of Water	1.00
2.	Rajasthan Fertilizer Factory through Rajasthan Vidyut Prasaran Nigam Ltd.	17763.30
3.	Jammu and Kashmir	679.69
4.	Irrigation Wing Nangal	0.59
5.	Beas Sutlej Link Project	20.03
6.	Beas Project, Talwara	3.09
7.	Union Territory Chandigarh (3.5% Schedule allocation)	12328.86
8.	Union Territory Chandigarh (Special Assistant)10 Lakhs/day	2030.63
9.	Union Territory Chandigarh (1 Lakhs/day))	203.06

10	Himachal Pradesh State Electricity Board (old Supply)	69.54
	TOTAL	33099.79

4.1.7 Other Outstanding Dues

A) Pooled Transmission Losses

Sr. No.	Particulars	₹ in Lakhs
1	P.S.P.C.L.	-2.89
2.	HVPNL	0.01
3.	Uttar Pradesh Power Corporation Limited	0.01
4.	Union Territory, Chandigarh	0.01
5.	Jammu & Kashmir	2.43
	TOTAL	-0.43

B) Wheeling Charges (Samyapur)

Sr. No.	Particulars	₹ in Lakhs
1.	Uttar Pradesh Power Corporation Limited	-2.72
2.	Delhi Transco Ltd. (DESU)	13.06
3.	Jammu & Kashmir.	1111.82
	TOTAL.	1122.16

C) Wheeling Charges (Bairasiul)

Sr. No.	Particulars	₹ in Lakhs
1.	Delhi Transco Ltd. (DESU)	102.91
2.	Haryana Vidyut Prasaran Nigam Ltd. (HSEB).	316.85
	TOTAL	419.76

CENTRAL ELECTRICITY DUTY

Sr. No.	Particulars	₹ in Lakhs
1.	Union Territory, Chandigarh	59.33

2.	Beas Sutlej Link Project	3.01
	TOTAL.	62.34

E) Maintenance Charges Of Control Equipment At 132 kV DEHAR-SHIMLA LINE

Sr. No.	Particulars	₹ in Lakhs
1.	Himachal Pradesh State Electricity Board Limited.	4.43
	TOTAL	4.43

GRAND TOTAL.

₹ 34708.05 Lakhs

4.1.8 Energy Allocation/Sale

Revenue is being collected by selling the power to Common Pool Consumers whereas energy to State Power Utilities is allocated as per their shares in each project. The detail of allocation to State Power Utilities as well as to Common Pool Consumers is as follows:

(Figures in MU)

Project	PSPCL	HVPNL	RRVNL	HPSEBL	UT Chd	Other Common Pool Consumers	Total
Bhakra	2054.41	1487.66	712.00	285.16	138.81	669.79	5347.83
Dehar	1299.08	940.70	626.97	180.31	87.78	12.11	3146.95
Pong	315.88	228.74	859.61	43.85	21.34	9.47	1478.89
Grand Total	3669.37	2657.10	2198.58	509.32	247.93	691.37	9973.67

- i) Figures are based on scheduled energy as mentioned REA's issued by NRPC.
- ii) Total energy sent out from BBMB Power Houses is 10079.92 MU and energy booked to the Partner States/Beneficiaries is 9973.67 MU. The difference in actual energy sent out and energy booked to the Partner States/Beneficiaries has been accounted for under Deviation Settlement Mechanism (DSM) since generation stations of BBMB have come under the ambit of ABT w.e.f. June-2016.

4.2 Irrigation Wing

4.2.1 Revenue Receipts and Expenditure

The compiled monthly accounts in respect of revenue and capital expenditure are sent to the respective Accountant Generals for adjustment in the State Accounts. The copies of monthly receipts/ expenditure are also sent to the Government of India, State Government and Chief Engineer's of Partner States to apprise them of the flow of expenditure and to arrange for finances of the Board. Monthly Classified Accounts of cheques drawn and remittances made are sent to the Controller of Accounts, Government of India, Ministry of Power.

A Revenue Receipts

Revenue receipts realized during the year were ₹ 1786.77 Lakhs. As per prevailing practice, the revenue receipts relating to the Irrigation Wing are paid to the Partner State Governments in the month of March.

B Revenue Expenditure

The Gross revenue expenditure is apportioned between Irrigation and Power in the manner mentioned in paragraph 4.2.2. Partner State-wise position of funds released vis-à-vis expenditure incurred is given below:-

(-)Advance

(+) Recoverable

(₹ in Lakhs)

Particulars	Punjab Govt.	Haryana Govt.	Rajasthan Govt.	Total
<u>Bhakra Project</u>				
Opening balance as on 01.04.2018	426.27	3318.30	-150.88	3593.69
Amount released during the year	8790.96	6198.33	2755.71	17745.00
Total amount available	8364.69	2880.03	2906.59	14151.31
Expenditure during The year	9118.64	5878.66	2698.21	17695.51
Closing balance as on 31.03.2019	753.95	2998.63	-208.38	3544.20
<u>Beas Project</u>				
Opening balance as on 01.04.2018	-907.68	-2471.78	-1387.40	
Amount released during the year	4509.04	3201.67	6999.94	

Total amount available	5416.72	5673.45	8387.34	
Expenditure during the year.	4224.21	2816.14	8331.73	
Closing balance as on 31.03.2019	-1192.51	-2857.31	-55.61	
Total balance available Bhakra & Beas as on 31.03.2019	-438.56	141.32	-263.99	

4.2.2. Sharing of Revenue Receipts & Expenditure

A. Bhakra

Gross receipt/expenditure is apportioned between Irrigation and Power in the ratio of 50:50.

The net irrigation receipt/expenditure is further apportioned between the Partner State Governments in the following ratios:

Rajasthan	15.22%	} Unit No. I Unit No.II & III after deducting Rajasthan's share
	19.06%	
Punjab	60%	
Haryana	40%	

B. Beas Project Unit-I (Beas Satluj Link)

Gross Revenue receipt/expenditure on Beas Project Unit-I, Beas Satluj Link Project is apportioned between Irrigation and Power in the ratio of 6:94. The net Irrigation receipt/expenditure is shared between the partner State Governments in the following ratios:-

Rajasthan	15%
Haryana	34%
Punjab	51%

C. Beas Project Unit-II (Pong Dam)

Gross receipt/expenditure on Irrigation side is apportioned between Irrigation and Power in the ratio of 76.5:23.5. Net 76.5% revenue receipts/expenditure is apportioned between Partner States in the ratios given below:

Rajasthan	58.5%
Punjab	24.9%
Haryana	16.6%

4.2.3 Capital Expenditure of Projects

A. Bhakra Project

The capital expenditure of the Board is met out of the sale proceeds of surplus stores/machinery as no loan is sanctioned by the Partner State Governments/Government of India under Capital Head of Account. Participating state-wise position is given as under:-

4700 - Capital outlay on Major Irrigation

(₹ in Lakhs)

	Punjab	Haryana	Rajasthan	Total
Opening balance as on 01.04.2018	-801.81	-534.55	-239.58	-1575.94
Expenditure during the year	64.77	43.18	19.38	127.33
Total amount payable by the State Govts. to BBMB	-737.04	-491.37	-220.20	-1448.61

4801 – Power Project- Hydel Generation Left Power Plant

(₹ in Lakhs)

Opening balance as on 01.04.2018	- 31.84	- 21.22	- 9.52	- 62.58
Expenditure during the year	--	--	--	--
Total amount payable by the State Govts. to BBMB	- 31.84	- 21.22	- 9.52	- 62.58

4801 – Power Project- Hydel Generation Right Power Plant

(₹ in Lakhs)

Opening balance as on 01.04.2018	66.29	44.24	14.68	125.21
Expenditure during the year.	--	--	--	--
Total amount payable by the State Govts.	66.29	44.24	14.68	125.21
Grand Total (LPP+RPP) payable by	34.45	23.02	5.16	62.63

the State Govts. to BBMB				
-------------------------------------	--	--	--	--

B. Beas Project

The capital expenditure of Beas Project was previously met out of the central assistance given to the participating State Governments by Government of India. The funds for executing the residual liabilities of the project are now to be provided by the Partner State Governments out of their Plan Outlay or their own resources. State-wise position of the balance expenditure is given as under:-

4700 and 4801 – Capital expenditure of Beas Project

(₹ in Lakhs)

	Punjab	Haryana	Rajasthan	Total
Opening balance as on 01.04.2018	337.52	262.75	438.11	1038.38
Amount received from the State Govts. during the year.	--	--	--	--
Expenditure during the year.	1.31	1.10	3.21	5.62
Total amount payable by the State Govts. to BBMB (Irrigation & Power)	338.83	263.85	441.32	1044.00

4.3. Position of Outstanding dues from Partner State Governments:

(As On 31.03.2019)

(-)Advance

(+) Recoverable

(₹ in Lakhs)

Particulars	Punjab Govt.	Haryana Govt.	Rajasthan Govt.	Total
O&M Charges	-438.56	141.32	-263.99	-561.23
BCB (Residual Works)	338.83	263.85	441.32	1044.00
Total	-99.73	405.17	177.33	482.67

4.4. Contributory Provident Fund (As On 31.03.2019)

Adhoc/Regular/Work-charged employees of Bhakra Beas Management Board are entitled to subscribe to Board's General Provident Fund/Pension Scheme or Contributory Provident Fund scheme managed by BBMB Contributory and General Provident Fund Trust. Half of the Trustees represent the Management and other half represents Employees. The position of Balances of Bhakra Beas Management Board Employees Contributory and General Provident Fund under different prescribed schemes is given below:-

(₹ in Lakhs)

Sr. No.	Name of Securities/Instruments	Amount
1	Central Govt. Securities	9982.30
2	Govt.of India Special Deposit Scheme A/c	6678.99
3	Adhar Housing Finance Ltd.	450.00
4	Aditya Birla Finance	400.00
5	Andhra Bank Bonds	400.00
6	Andhra Pradesh State Dev. Loan A/c	2119.80
7	Bajaj Finance Ltd. Bonds	300.00
8	Bihar State Development Loan A/c	1,130.00
9	Capital First Ltd.	700.00
10	Chhattisgarh State Power DC Ltd.	1,000.00
11	Credila Financial Service Pvt Ltd.	100.00
12	Dewan Housing Finance Ltd.	650.00
13	Export Import Bank Bond	140.00
14	Edelweiss finvest Pvt. Ltd.	600.00
15	Food Corporation of India Bonds	1000.00
16	Gujrat State Development Loan A/c	200.00
17	Haryana Vidyut Prasaran Nigam Ltd. Bond	500.00
18	Haryana State development Loan	500.00
19	Hero Fiancé Corporation Ltd.	600.00
20	HP State Electricity Board Bond	450.00
21	IDBI Bank Ltd Bond	820.00
22	India Bulls Financial Services Ltd.	310.00

23	Indian Railway Finance Corp Bond	300.00
24	Industrial Development Finance Corp.Bond	900.00
25	IL&FS Financial Service Ltd.	700.00
26	IL&FS Transportation network Ltd.,	1,550.00
27	J&K State Development Loan A/c	900.00
28	Krishna Bhagya Nigam Ltd.	250.00
29	Karnataka SDL	900.00
30	L&T Infrastructure Finance Co. Ltd. Bond	480.00
31	L&T Housing Finance Ltd.	200.00
32	Maharashtra State Development Loan A/c	780.00
33	MP State Development Loan A/c	60.90
34	Mahindra & Mahindra Financial Service Ltd.	300.00
35	North Eastern Electric power Corporation (NEEPCO Ltd)	200.00
36	Patel KNR Heavy Infra Ltd.	1,000.00
37	PNB Housing Finance Ltd. Bond	630.00
38	PNB Perpetual Bond	350.00
39	Power Finance Corp.Ltd. Bond	2,550.00
40	Punjab Financial Corp. Bonds	40.00
41	Punjab State Development Loan A/c	1,800.00
42	Punjab State Industrial Development Corp.Bond	600.00
43	Rajasthan Rajya Vidut Prasaran Nigam Ltd.	700.00
44	Rajasthan State Development Loan A/c	1,700.00
45	Reliance Capital Ltd. Bond	900.00
46	Rural Electrification Corp. Ltd. Bond	1,640.06
47	Sikkam State Development Loan A/c	20.00
48	Sintex industries Ltd.	600.00
49	SBI Cards & Payments	1,000.00
50	State Bank of India Bond	8.40
51	Steel Authority India Ltd.	200.00
52	Tamil Nadu Uday Bond	2,040.00
53	Tamil Nadu Electricity Board Bond	80.00

54	Tamil Nadu Power Finance & Infra Dev. Ltd.	150.00
55	Tamil Nadu Generation & Distribution Co.	500.00
56	Tata Capital Finance Ltd.	500.00
57	Tata Motor Finance Ltd.	100.00
58	Tata Steel Ltd.Bonds	200.00
59	Tourism Finance Corporation Ltd.	132.00
60	UCO Bank Bond	140.00
61	UP State Development Loan A/c	3,400.00
62	U P Power Corporation Ltd.	800.00
63	West Bengal State Development Loan A/c	1,175.00
Total		59,507.45
Mutual Fund		
64	BOI AXA MIDCAP EQUITY & DEBT FUND	25.00
65	BHARAT 22 ETF MF	150.00
66	SBI Blue Chip Fund Growth	580.00
67	SBI Magnum Long Term Fund	100.00
68	ICICI Prudential Value Discovery Fund Growth	345.00
69	IL&FS Infrastructure Debt Fund Series-3-A	200.00
70	Reliance Regular Saving Funds	140.00
71	RELIANCE TOP 200	25.00
72	Kotak ETF Fund	50.89
73	Kotak Select Focus Mutual Fund	100.00
74	Kotek Select Gilt Investment Fund	200.00
75	HDFC Gilt Fund	100.00
76	UTI Gilt Advantage Fund	200.00
77	Motilal Oswal 35 Cpa Multicap Fund (MF)	100.00
78	Kotak Standard Multicap Fund	100.00
79	Reliance Large Cap Fund	50.00
80	CPSC ETF (Reliance) Mutual Fund	250.00
81	HDFC Top-100 Fund	50.00
82	SBI Nifty Index Fund	25.00
83	ICICI Prudential Nifty Index Fund	50.00

84	Reliance Index Fund	50.00
Total Mutual Fund		2,890.89
Total Investment up to 31/3/2019		62,398.34
Balance in Current/SB Accounts		1310.64
G.Total		63,708.98

4.5. Audit

The Internal Audit of the various Divisions/Offices of Bhakra Beas Management Board is conducted by the Financial Adviser and Chief Accounts Officer. The statutory audit is conducted by the Accountant General, Audit, Punjab. The Board's accounts have been audited by the Accountant General, Audit, Punjab upto 03/2019.

4.6. Personal Ledger Account (PLA)

Under the provisions of Section 79(5) of the Punjab Reorganization Act, 1966, the Partner State Governments and State Electricity Boards are required to provide necessary funds to BBMB to meet all the expenses required for the discharge of its functions, including operation and maintenance charges for works of Irrigation Wing (dams, canals and other civil structures) and for works of Power Wing (power plants, transmission network, etc.), respectively. Since BBMB does not have any working capital to meet the operation and maintenance charges, it was decided in the meeting held by the Secretary, Irrigation & Power, Government of India, New Delhi on 14.2.1967 to provide these funds to Personal Ledger Account (PLA) to be opened in the books of Government of India to which the participating States would contribute appropriate amounts as per their share after making provision in their respective budgets. As on 31.03.2019 balance in Personal Ledger Account was ` 7787.25 Lakhs only.

4.7. O&M Cost of BBMB System

The cost booked to notional generation and notional transmission of BBMB during the year was ` 593.95 Crore and ` 228.42 Crore respectively. The O&M cost for notional generation works out to 58.92 p/kWh and notional transmission cost to 22.66 p/kWh. After accounting for receipts from common pool consumers, the cost of energy delivered to the partner States (including notional transmission) against their share works out to be 45.80 p/kWh.



अध्याय-5 Chapter-5

परिचालन कार्य-निष्पादन Operational Performance

5.1 Power Wing

The power generation at BBMB power houses and its transmission to various partner States/beneficiaries is under the Power Wing of the BBMB. The integrated operation of the system requires real time monitoring of the power system so as to have effective control of the frequency, voltage and loading on the system and to optimally utilize the generation resources. These functions are performed by the Power Regulation Directorate, Chandigarh through a State of the art Load Despatch Centre at Chandigarh.

5.1.1 Energy Generation

The total energy generation from BBMB power houses during 2018-19 was 10190.26 MU (including of 1.365 MU deemed generation at Ganguwal & Kotla Power Houses) which is 8.12% more than the Annual Generation Target of 9425 MU fixed by the CEA for the year 2018-19. The annual energy generation at each BBMB Power House for the year 2018-19 is indicated in **Fig.1**. The annual target and actual energy generation during the year 2009-10 to 2018-19 are depicted in **Fig.2**.

5.1.2 Peak Generation

BBMB strives to meet peaking demands of partner States. Typical generation curves of BBMB Power Houses for monsoon, winter, mild winter & hot season periods are depicted in **Fig.3**.

5.1.3 Availability of Power Houses

The annual plant availability factor of Bhakra Left Bank and Bhakra Right Bank Power Houses was 99.43% and 99.98% respectively. At Pong, the availability was 94.27%. The availability at Dehar Power House was 96.79%. The availability factors of Ganguwal and Kotla Power Houses were 98.42% and 99.16% respectively. The plant availability factors of BBMB Power Houses are depicted in **Fig.4**. Overall availability of BBMB Power Houses was 97.95%.

5.1.4 Energy Transmission

Energy transmitted from BBMB Power Houses (to the various partner States/beneficiaries) was 10079.92 MUs and energy booked to the partners/beneficiaries is 9973.67 MUs (these figures does not include deemed generation at Ganguwal & Kotla Power houses) (as indicated in **Fig.5**. The difference in actual energy sent out and energy booked to the partner State/beneficiaries has been accounted for under Deviation Settlement Mechanism (DSM) since power houses of BBMB have come under the ambit of ABT w.e.f. June 2016. The auxiliary consumption in BBMB Power Houses has been 27.066 MUs (0.266%) and transformation losses have been 81.909 MUs (0.804%).

5.1.5 Availability of Transmission System

The availability of Transmission System of BBMB during 2018-19 was 99.69%.

5.1.6 Diversion of Water from Nangal Hydrel Channel (NHC) to Anandpur Sahib Hydrel Channel (ASHC)

As decided in the 184th meeting of the Board held on 23.12.2003, whenever any machine(s) at Ganguwal and/or Kotla Power House (s) is/are on shutdown, the excess water after meeting the irrigation requirements of Punjab & Haryana through Nangal Hydrel Channel (NHC) shall be diverted to Anandpur Sahib Hydrel Channel (ASHC). Further, the loss of generation at Ganguwal/ Kotla Power Houses due to diversion shall be fully compensated by PSPCL (erstwhile PSEB) and the balance increase in generation at Anandpur Sahib Hydrel Project after accounting for the loss of generation shall be equally shared between BBMB & PSPCL (erstwhile PSEB). The total credit of generation at Ganguwal & Kotla Power Houses due to diversion of water shall be treated as deemed generation of Ganguwal/ Kotla Power Houses.

In pursuance of the above, the deemed generation at Ganguwal/Kotla Power House during 2018-19 is as under:-

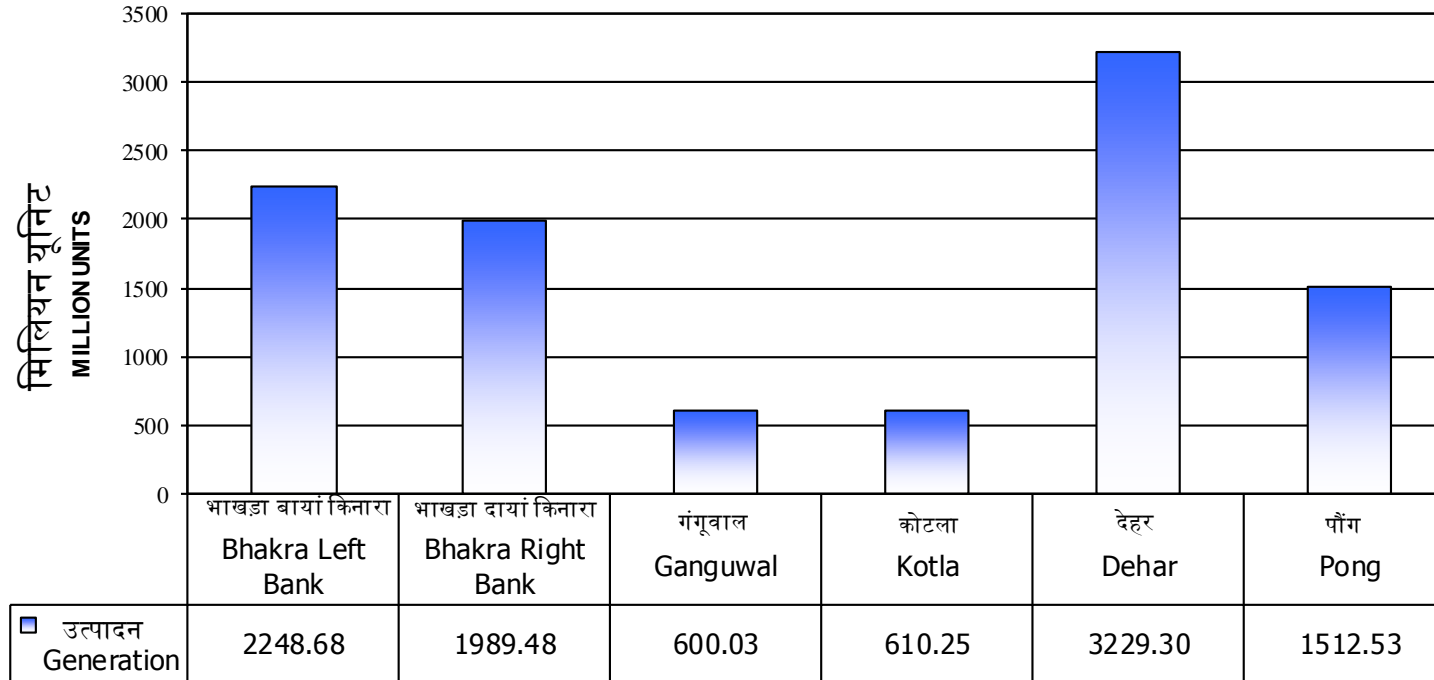
(All Figs. in MU)

Period	Loss of Generation at Ganguwal & Kotla (MU)	Excess Generation at ASHP (MU)	Deemed Generation (MU)	Gain to BBMB (MU)
4/18 to 3/19	0.00	02.73	1,365	1.365

बीबीएमबी के विद्युत-घरों में वार्षिक सकल उर्जा उत्पादन वर्ष 2018-19

चित्र-1
Figure - 1

ANNUAL GROSS ENERGY GENERATION AT BBMB POWER HOUSES 2018-2019



योग : 10190.26 मिलियन यूनिट

Total : 10190.26MU

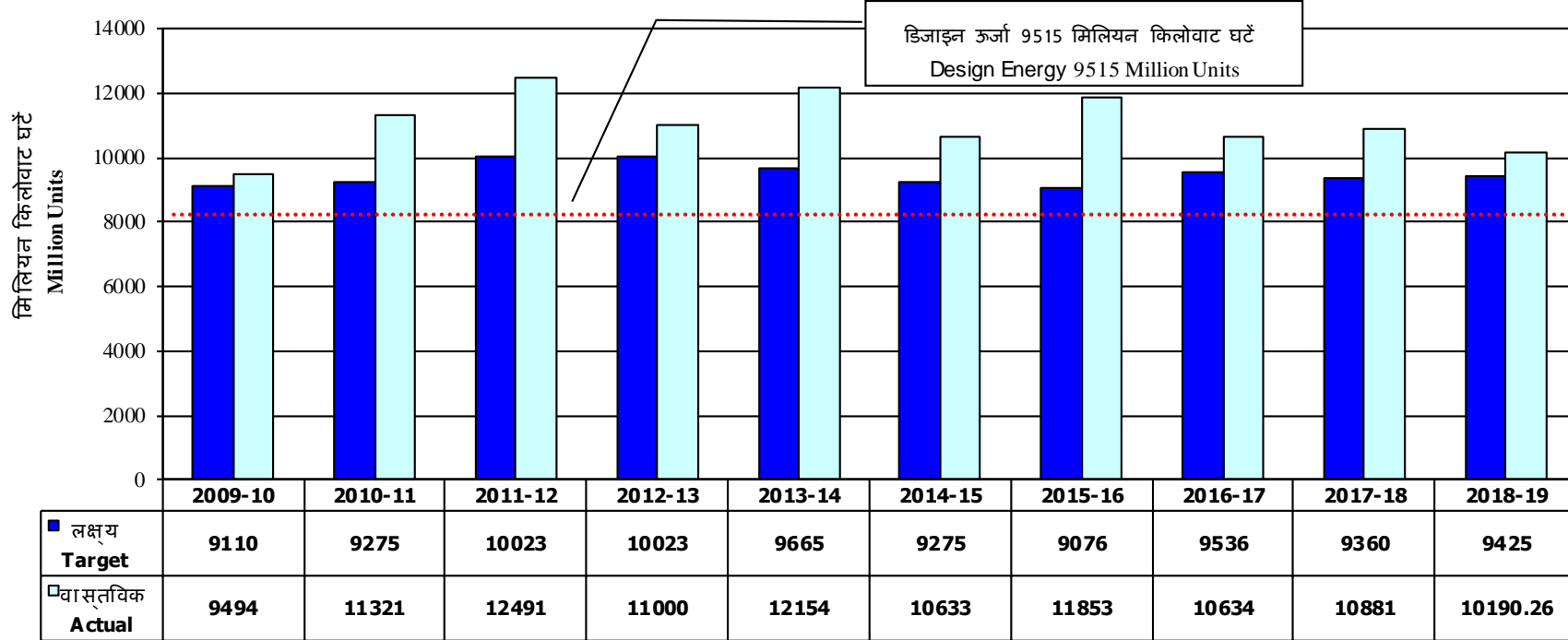
गंगुवाल एवं कोटला विद्युत घरों से कुल उत्पादन में डीम्ड उत्पादन के रूप में 1.365 मिलियन यूनिट शामिल हैं।

Total Generation from Ganguwal & Kotla PHs includes 1.365 MU as Deemed Generation.

वर्ष 2009-10 से 2018-19 के दौरान वार्षिक ऊर्जा उत्पादन के सम्बन्ध में लक्ष्य/उपलब्धियां

TARGET/ACHIEVEMENTS IN RESPECT OF ANNUAL ENERGY GENERATION DURING THE YEARS 2009 -10 TO 2018-19

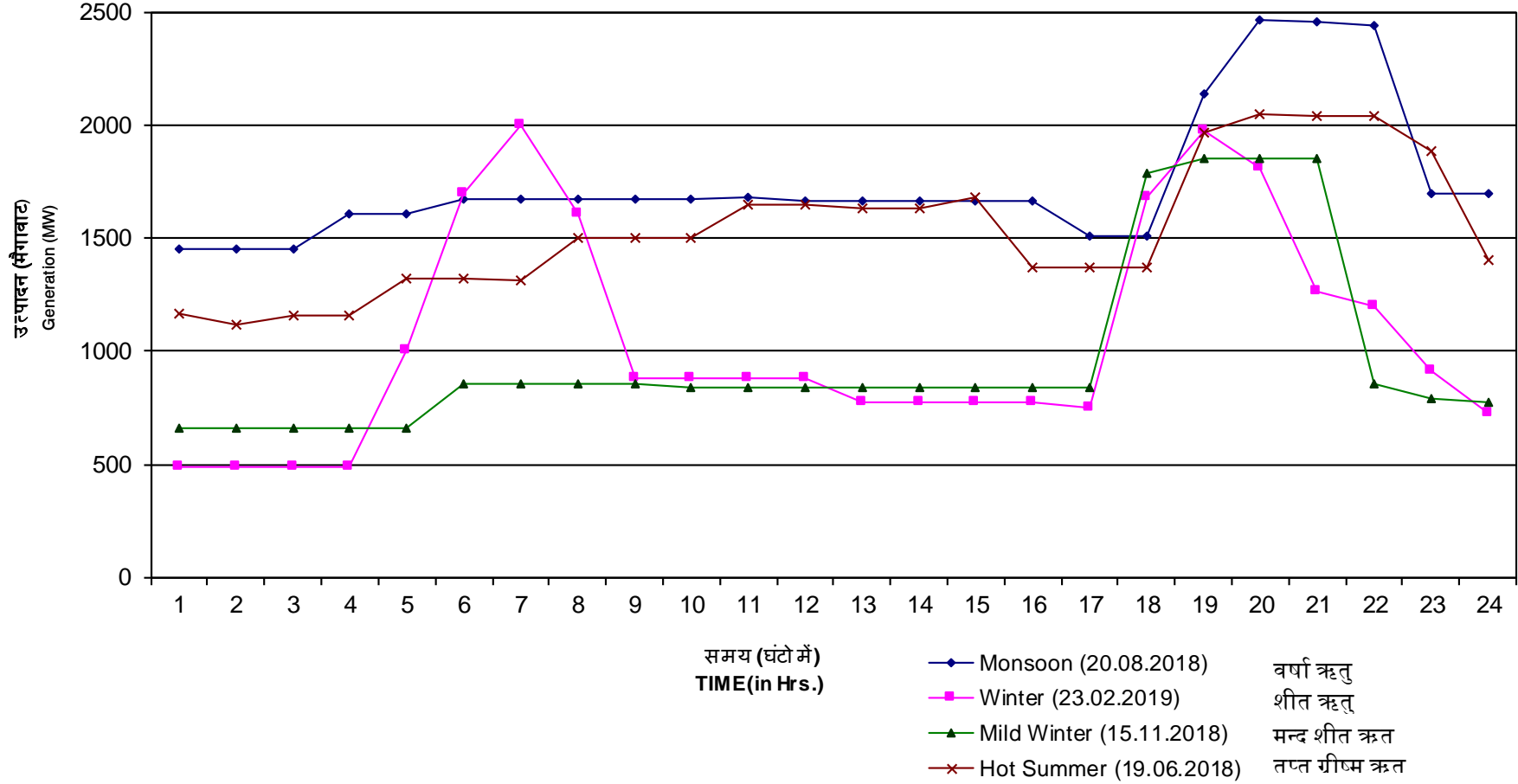
चित्र-2
Figure - 2



वर्ष
Year

वर्ष 2018-19 के दौरान बीबीएमबी के प्रतीकात्मक दैनिक उत्पादन वक्र
 TYPICAL DAILY GENERATION CURVES OF BBMB DURING 2018-19

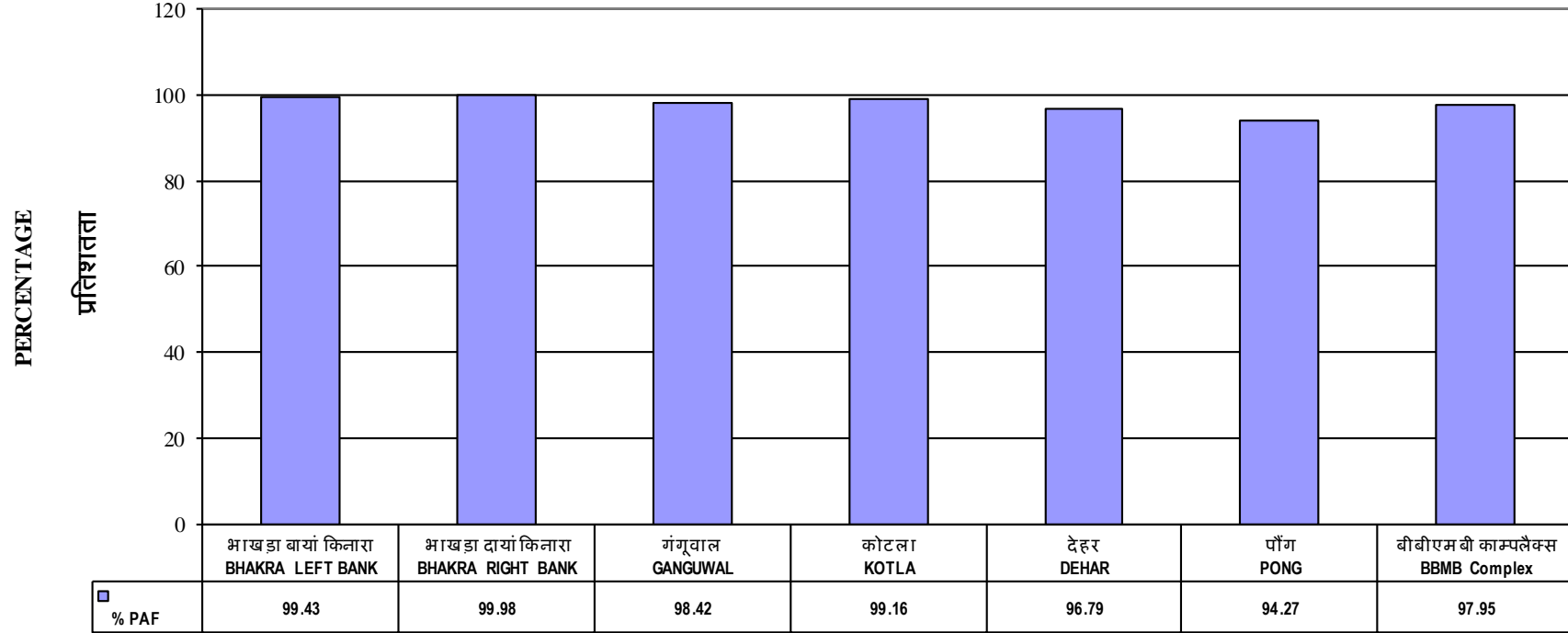
चित्र-3
 Fig. 3



वर्ष 2018-19 के दौरान बीबीएमबी के विद्युत-घरों का संयन्त्र उपलब्धता
गुणक (आर,एम एण्ड यू अवधि रहित)

चित्र - 4
Figure 4

PLANT AVAILABILITY FACTOR OF BBMB POWER HOUSES DURING
THE YEAR 2018-19 (EXCLUDING R,M&U PERIOD)

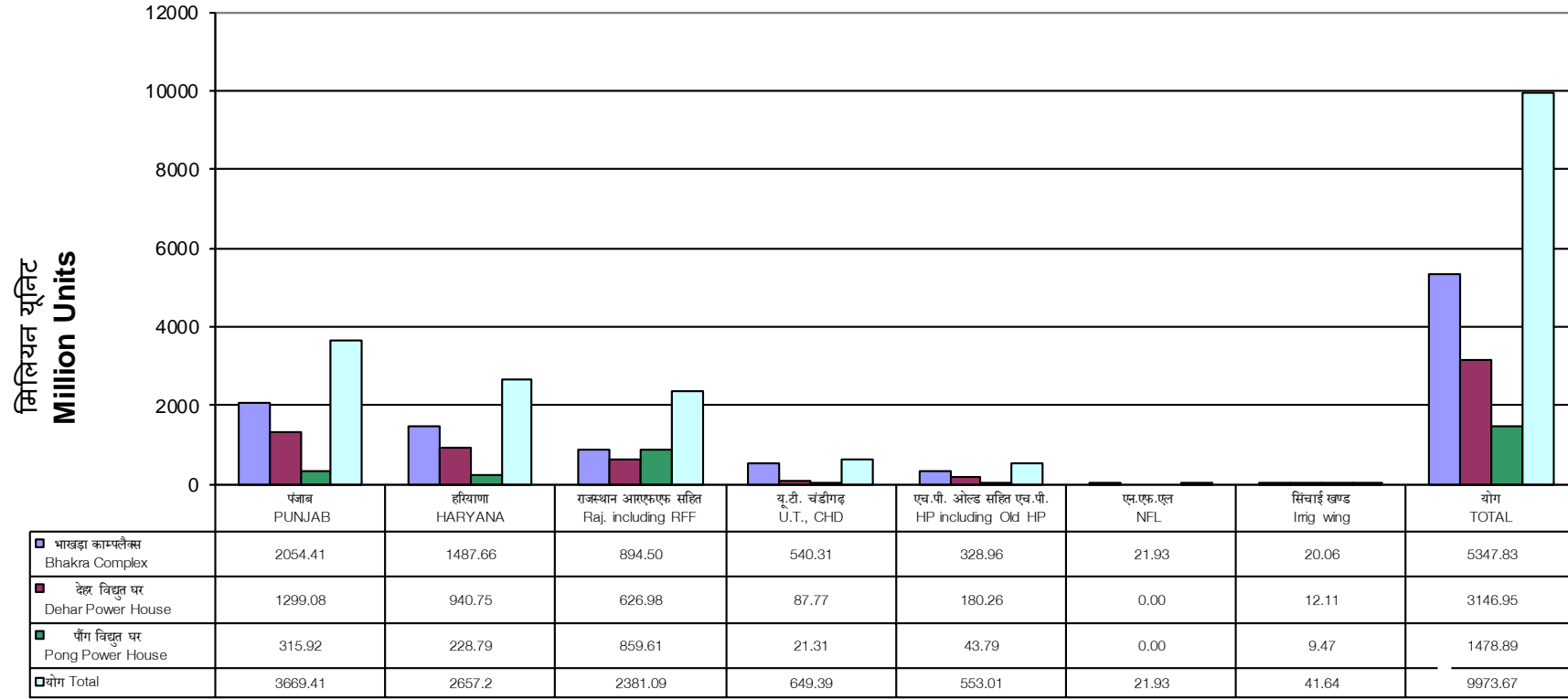


संयन्त्र उपलब्धता गुणक (पी.ए.एफ.) प्रतिशतता = $\frac{\text{वर्ष में कुल घंटे} - (\text{अनिवार्य बंदी के घंटे} + \text{आर, एम एण्ड यू अवधि को छोड़ कर योजित बंदी के घंटे} + \text{आर, एम एण्ड यू अवधि})}{\text{वर्ष में कुल घंटे} - \text{आर, एम एण्ड यू अवधि के घंटे}} \times 100$

Plant Availability Factor (PAF) %age = $\frac{\text{Total hrs in a year} - (\text{Forced outage hrs} + \text{Planned outage hrs excluding R, M\&U period} + \text{R, M\&U period})}{\text{Total hrs in a year} - \text{R, M\&U period in hours}} \times 100$

वर्ष 2018-19 के दौरान बीबीएमबी विद्युत-घरों से भागीदार/लाभानभोगियों को पारेषित ऊर्जा
ENERGY TRANSMITTED TO PARTNERS/BENEFICIARIES FROM BBMB PHs DURING 2018-2019

चित्र-5
 Figure - 5



5.2 Irrigation Wing

5.2.1 Position of Reservoirs

Control and Operation of reservoirs and regulation of water to various partner States/beneficiaries is under Irrigation Wing of the BBMB.

- Bhakra Reservoir

- a) Filling of Bhakra Reservoir started on 02nd June, 2018 when the Reservoir level was El. 1490.83 ft (454.40 m).
- b) Total inflows including diversion through BSL system from 21.5.2018 to 20.5.2019 were 14.108 MAF/17.402 BCM.
- c) Diversion through BSL system from 21.5.2018 to 20.5.2019 was 3.934 MAF/4.853 BCM.
- d) Maximum level El. 1669.28 ft. (508.80 m) was attained on 17th October, 2018.

- Pong Reservoir

- a) Filling of Pong reservoir started on 28th June, 2018 when the reservoir level was El. 1278.93 ft. (389.82 m).
- b) Total inflows from 21.05.2018 to 20.05.2019 were 8.431 MAF/10.400 BCM.
- c) Maximum level El. 1392.55 ft. (424.45 m) was attained on 1st October, 2018.

5.2.2 Regulation of Water Supplies and Water Account

For the preparation of water account, the year is divided into two periods i.e. the filling period from 21st May to 20th September and the depletion period from 21st Sept. to 20th May of the next year. The water accounts are prepared separately for the filling period and depletion period. The excess/shortages of one period are not carried over to the next period. The distribution/shares and deliveries to the partner States alongwith excess/ shortage received by such State out of Satluj as well as Ravi-Beas waters for the period 21.5.2018 to 20.5.2019 and the water releases for Delhi Jal Board have been depicted in the **Fig 6 to 13**. The figures indicated in these charts have been taken from the water accounts circulated to the partner States from time to time.

The releases from Bhakra and Pong reservoirs are decided by the Technical Committee (comprising Whole Time Members of the Board, Technical Members/Directors of State Electricity Boards/State Transmission Utilities and Chief Engineers of Irrigation Departments of the partner States under the chairmanship of Chairman, BBMB) in the monthly meetings by taking into account the requirements of Irrigation and Power, reservoir levels and the inflows.

The share distribution for the various partner States and the water required to be delivered at various Inter-State Contact Points both out of Satluj and Ravi-Beas waters out of approved releases from Reservoirs are intimated through Canal Wire/Wireless Messages to the concerned officers of the partner States on 10-daily basis.

The water supplied to the partner States during the filling/depletion period is given in Figures detailed as under:-

1. Water supplied to Punjab out of Satluj - Fig. 6 & 7

- and Ravi -Beas waters.
2. Water supplied to Haryana out of Satluj and Ravi - Beas waters. - Fig. 8 & 9
 3. Water supplied to Rajasthan out of Satluj and Ravi - Beas waters. - Fig. 10 to 12
 4. Supply of Water to Delhi Jal Board - Fig. 13

Total water supplied to the States from 21.05.2018 to 20.05.2019 has been as under:-

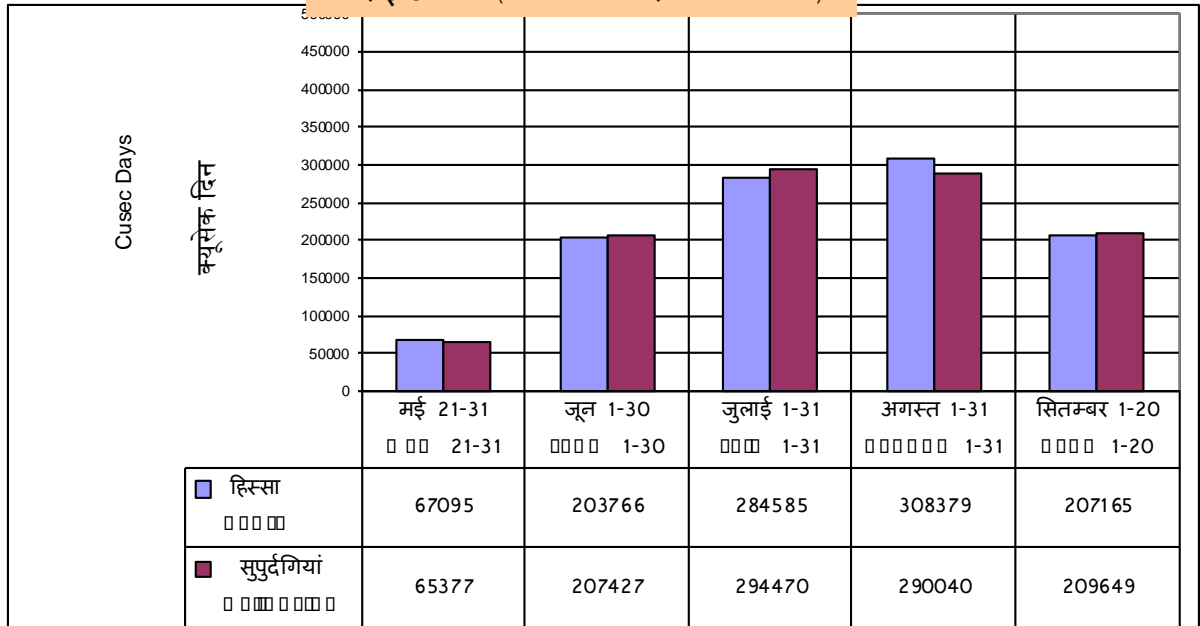
(All figures in million acre ft)

State	Satluj	Ravi-Beas	Total
Punjab	4.244	5.427	9.671
Haryana	3.594	2.046	5.641
Rajasthan	1.030	7.666	8.696
Delhi Jal Board	0	0.294	0.294
Total	8.868	15.433	24.302

दिनांक 21.5.2018 से 20.9.2019 तक की अवधि के लिए सतलुज जल से पंजाब को सप्लाई किए गए जल की स्थिति को दर्शाने वाली विवरणिका
Statement showing position of water supplies to Punjab out of Satluj water for the period from 21.5.2018 to 20.05.2019

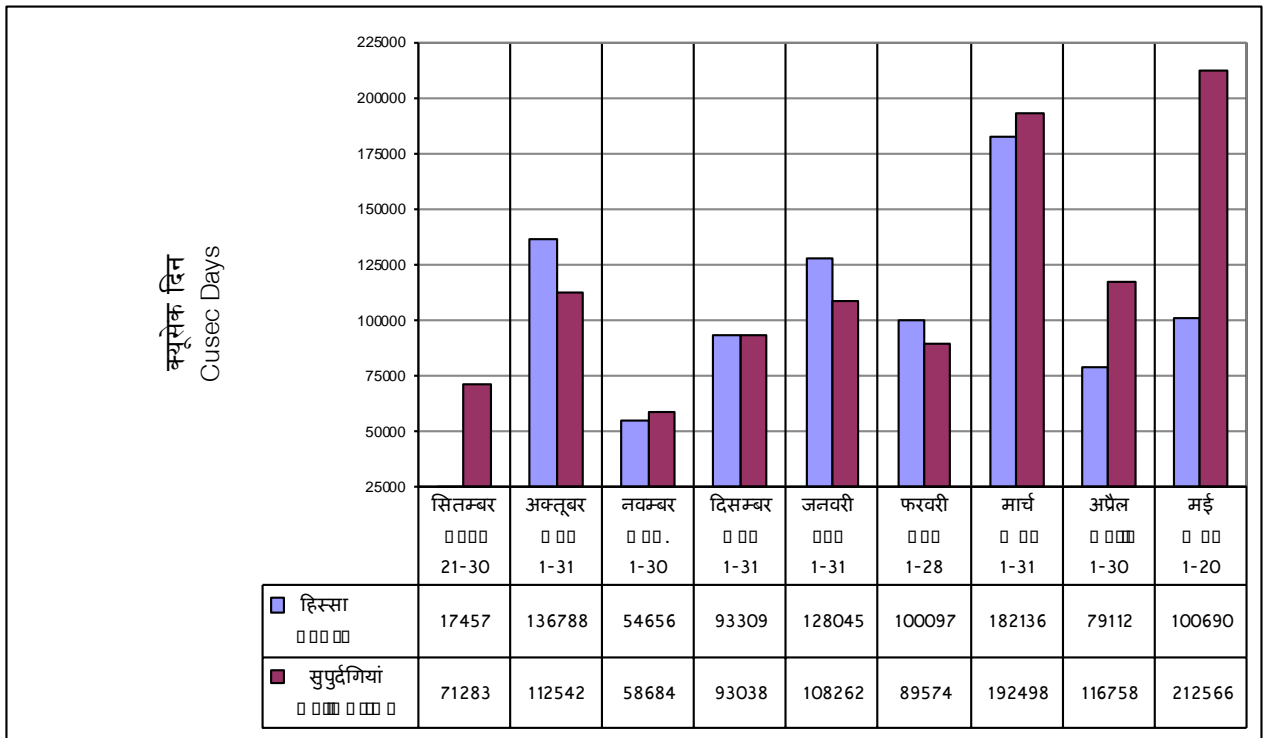
Filling Period (21.05.2018 to 20.09.2018)

भराई अवधि (21.05.2018 से 20.09.2018)



Depletion period (21.09.2018 to 20.05.2019)

रिक्तीकरण अवधि (21.09.2018 से 20.05.2019)



Note (1) All figures are in cusec days.

(2) The deliveries have been made as per requirements decided in Technical Committee Meeting.

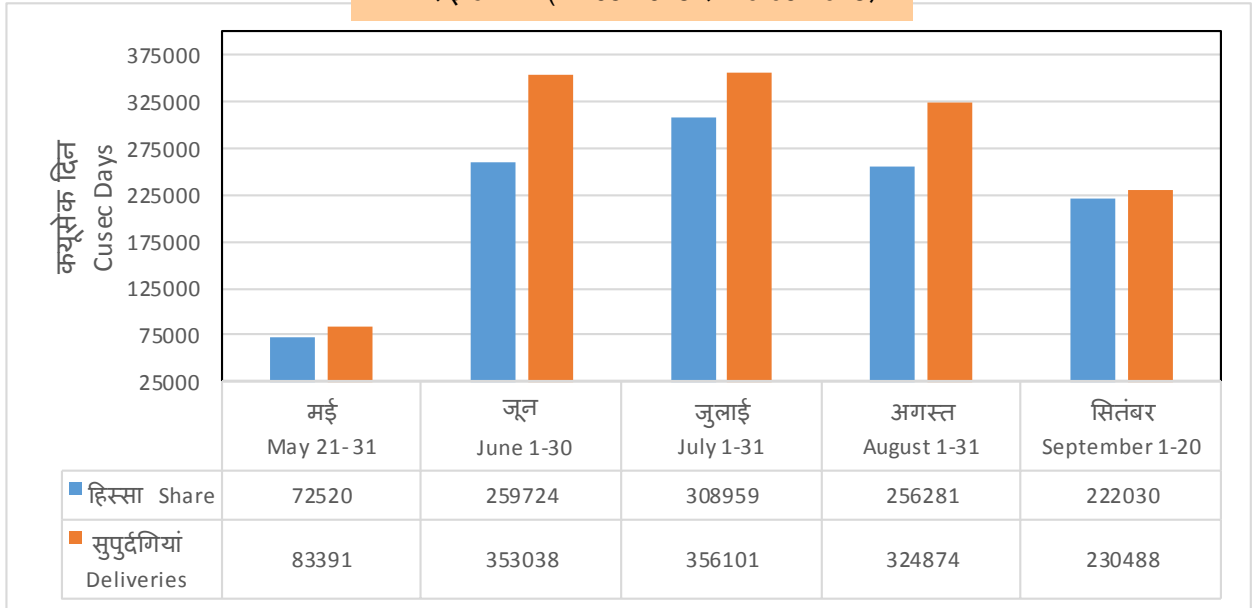
नोट:-

1. सभी आंकड़े क्यूसिक दिनों में ।
2. सभी सुपुर्दगियां आवश्यकता अनुसार तकनीकी समिति की बैठक में लिए गए निर्णय अनुसार ।

दिनांक 21.5.2018 से 20.05.2019 तक की अवधि के लिए रावी ब्यास से पंजाब को सप्लाई किए गए जल की स्थिति को दर्शाने वाली विवरणिका
Statement showing position of water supplies to Punjab out of Ravi-Beas waters for the period from 21.5.2018 to 20.05.2019

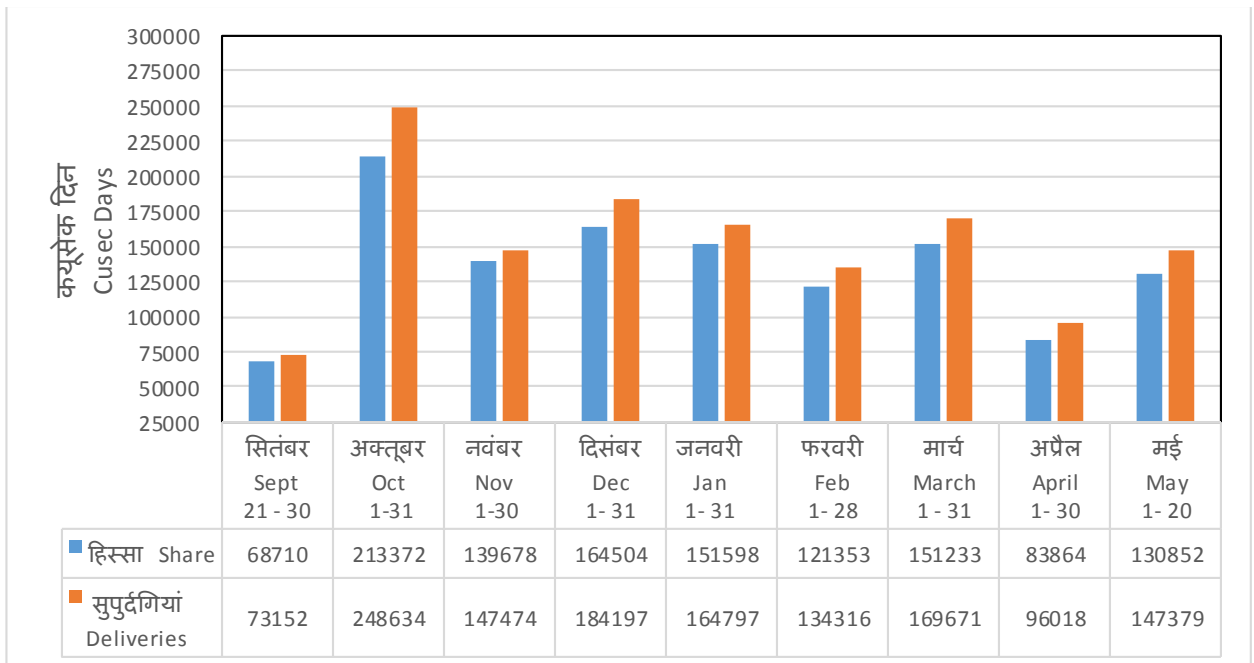
Filling Period (21..05.2018 to 20.09.2018)

भराई अवधि (21.05.2018 से 20.09.2018)



Depletion period (21.09.2018 to 20.05.2019)

रिक्तीकरण अवधि (21.09.2018 से 20.05.2019)



Note:- (1) All figures are in cusec days.

(2) The deliveries have been made as per requirements decided in Technical Committee Meeting

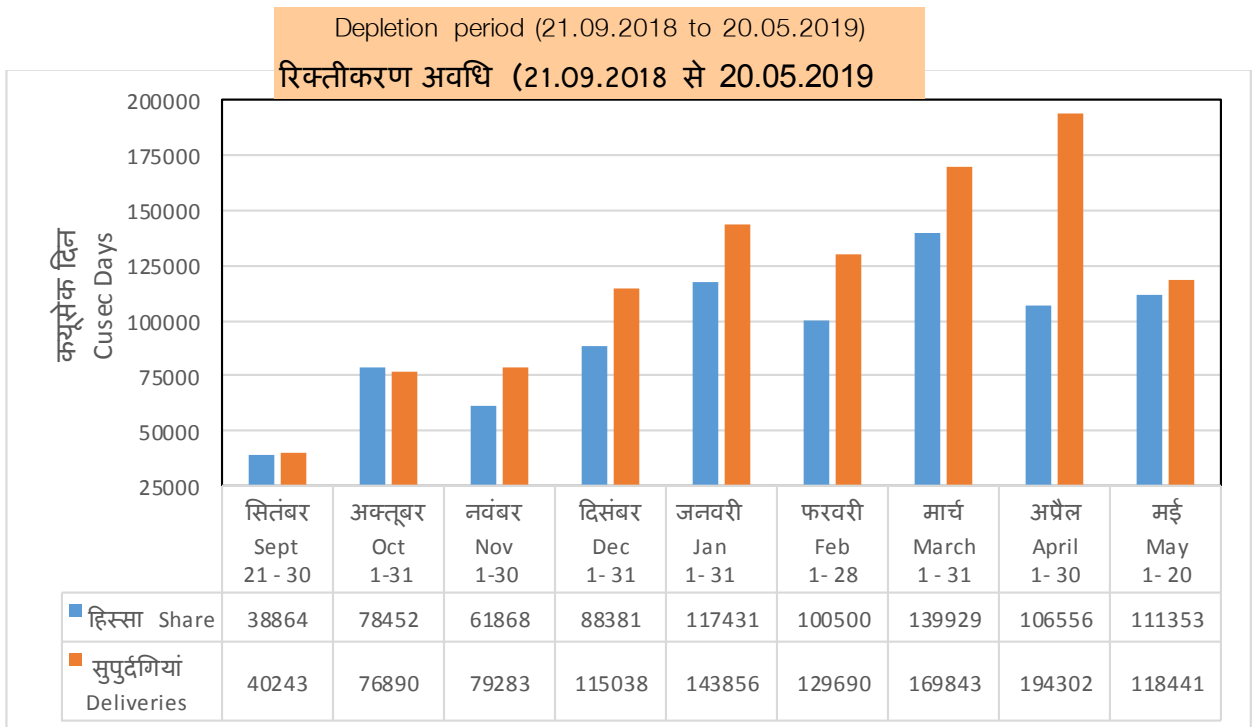
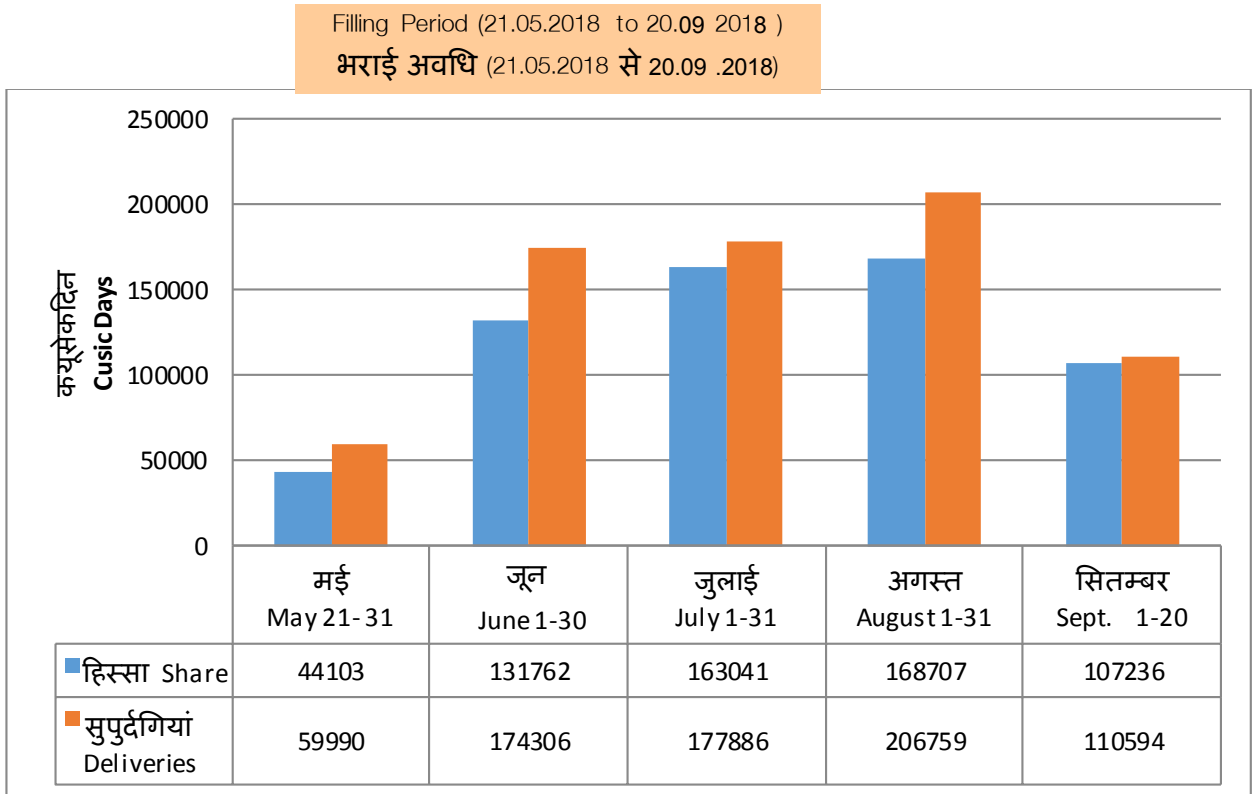
(3) The deliveries to Punjab also include some supplies made d/s Ropar which have already been booked to Punjab Ropar.

नोट:-

1. सभी आंकड़े क्यूसेक दिनों में ।
2. सभी सुपुर्दगियां आवश्यकता अनुसार तकनीकी समिति की बैठक में लिए गए निर्णय अनुसार ।
3. पंजाब को की गई सुपुर्दगियों में रोपड़ के डाउनस्ट्रीम की गई कुछ आपूर्तियां भी शामिल हैं जो पंजाब को रोपड़ पर पहले ही बुक की जा चुकी है।

दिनांक 21.5.2018 से 20.05.2019 तक की अवधि के लिए सतलुज जल से हरियाणा को सप्लाई किए गए जल की स्थिति को दर्शाने वाली विवरणिका

Statement showing position of water supplies to Haryana out of Satluj waters for the period from 21.5.2018 to 20.05.2019



Note(1) All figures are in cusec days.

(2) The deliveries have been made as per requirements decided in Technical Committee Meeting.

नोट:-

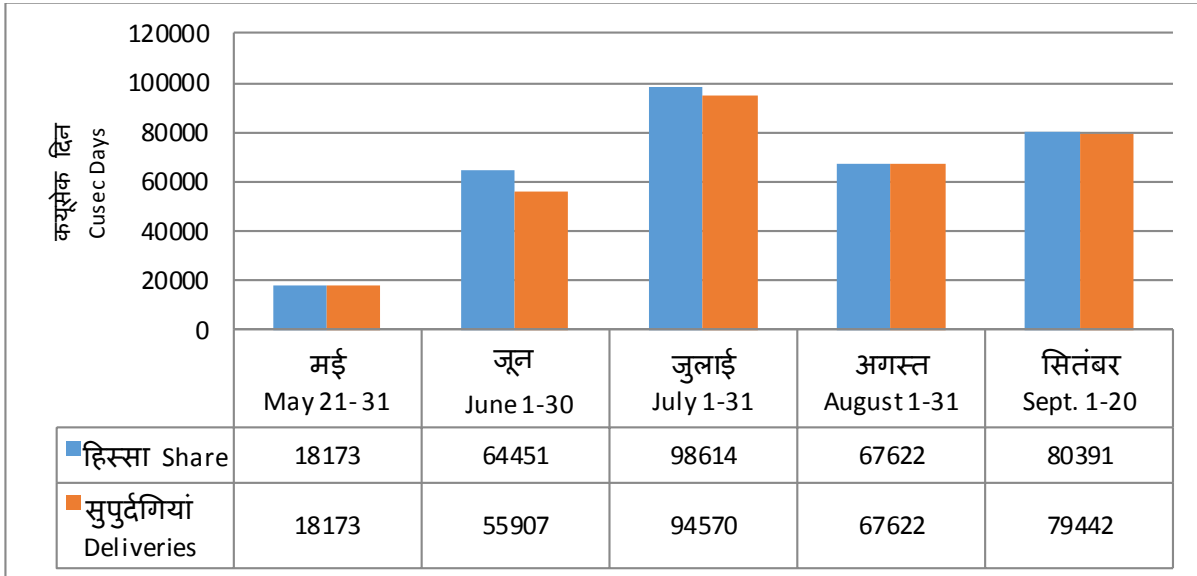
1. सभी आंकड़े क्यूसेक दिनों में ।
2. सभी सुपुर्दगियां आवश्यकता अनुसार तकनीकी समिति की बैठक में लिए गए निर्णय अनुसार ।

दिनांक 21.5.2018 से 20.05.2019 तक की अवधि के लिए रावी-ब्यास जल से हरियाणा को सप्लाई किए गए जल की स्थिति को दर्शाने वाली विवरणिका

Statement showing position of water supplies to Haryana out of Ravi-Beas water for the period from 21.5.2018 to 20.05.2019.

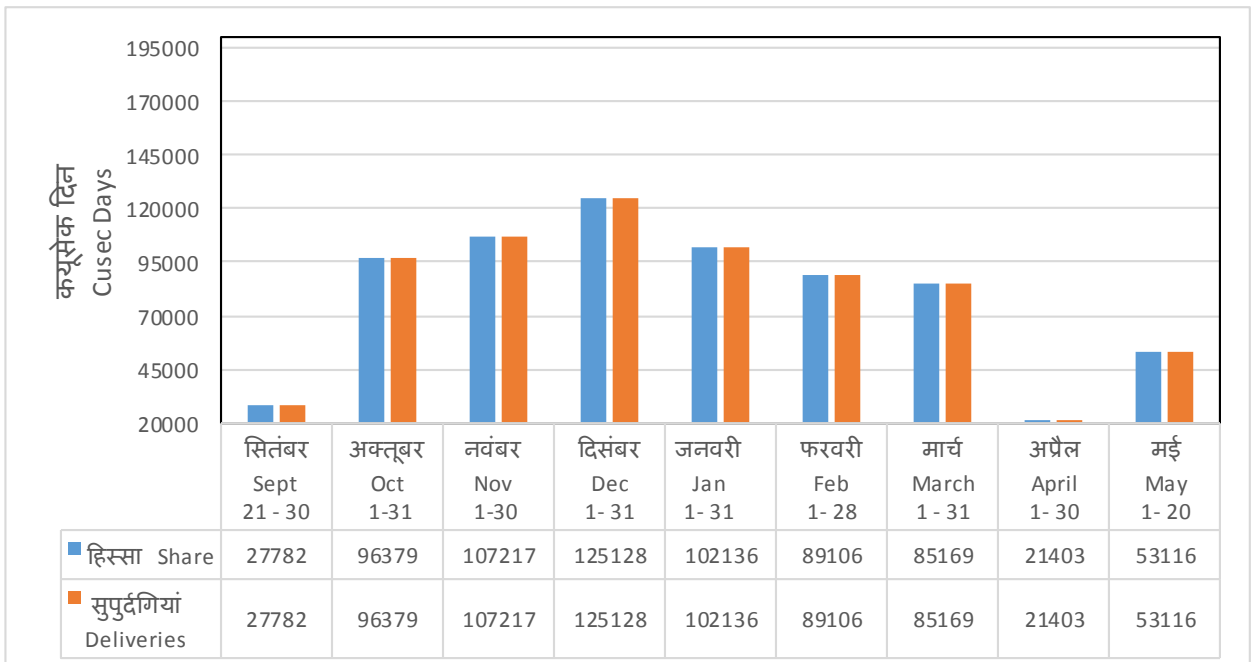
Filling Period (21.05.2018 to 20.09.2018)

भराई अवधि (21.05.2018 से 20.09.2018)



रिक्तीकरण अवधि (21.9.2018 से 20.5.2019)

Depletion Period (21.9.2018 to 20.5.2019)



Note(1) All figures are in cusec days.

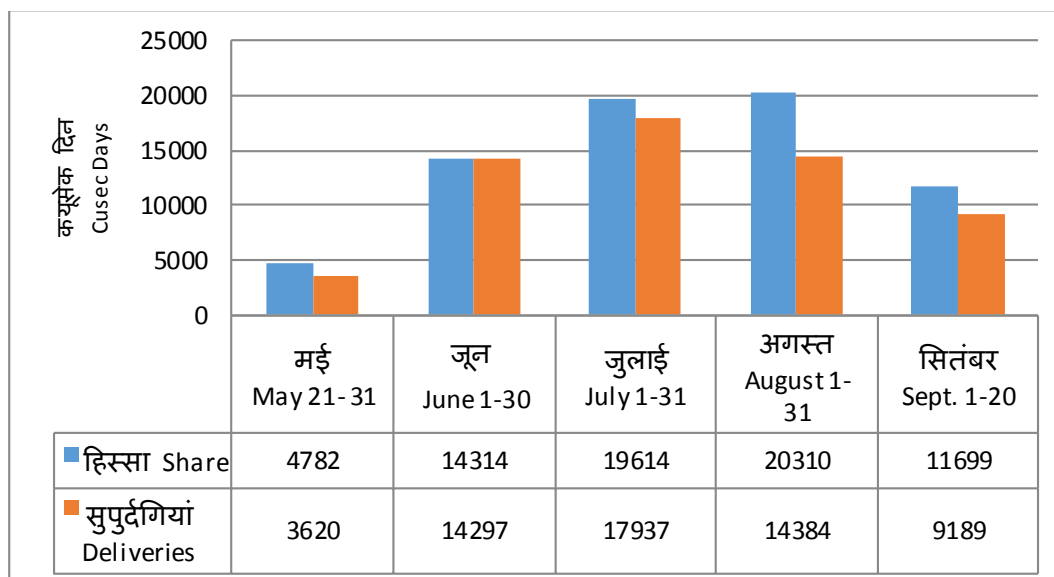
(2) The deliveries have been made as per requirements decided in Technical Committee Meeting.

नोट:-

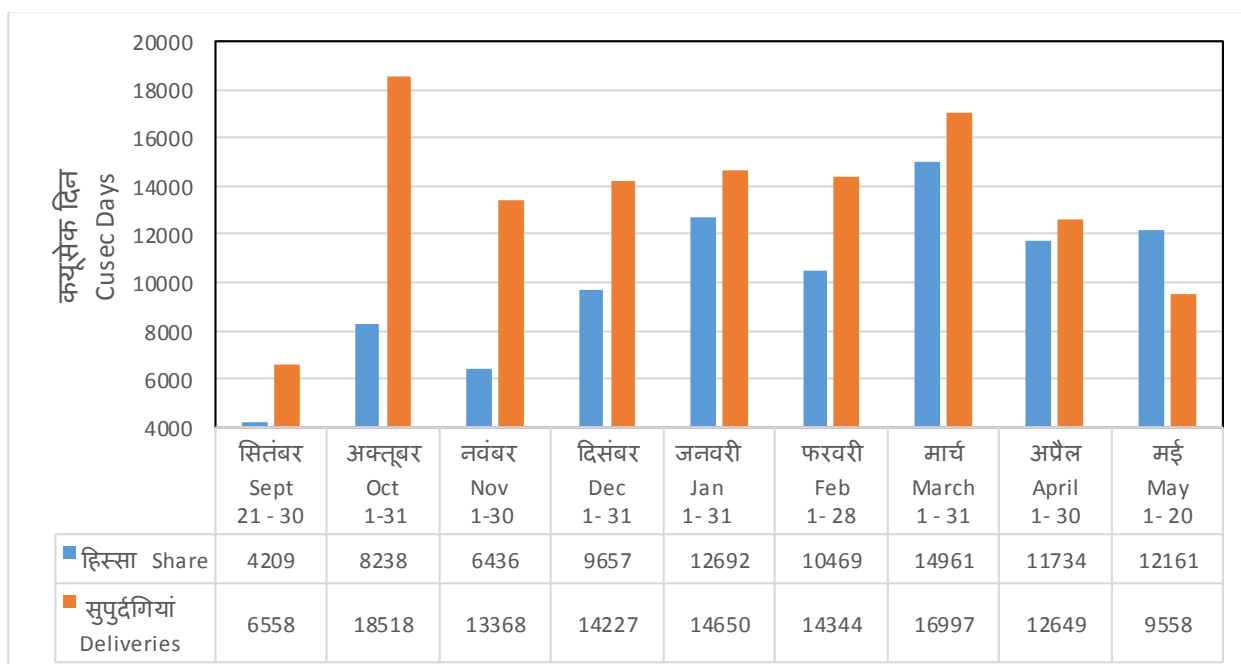
1. सभी आंकड़े क्यूसेक दिनों में ।
2. सभी सुपुर्दगियां आवश्यकता अनुसार तकनीकी समिति की बैठक में लिए गए निर्णय अनुसार ।

दिनांक 21.5.2018 से 20.05.2019 तक की अवधि के लिए सतलुज जल की हरियाणा के रास्ते राजस्थान को हुई सप्लाई की स्थिति को दर्शाने वाली विवरणिका
Statement showing position of water supplies to Rajasthan via Haryana out of Satluj water for the period from 21.5.2018 to 20.05.2019

भराई अवधि (21.5.2018 से 20.9.2018)
Filling Period (21.5.2018 to 20.9.2018)



रिक्तीकरण अवधि (21.9.2018 से 20.5.2019)
Depletion Period (21.9.2018 to 20.5.2019)



Note(1) All figures are in cusec days.

(2) The deliveries have been made as per requirements decided in Technical Committee Meeting.

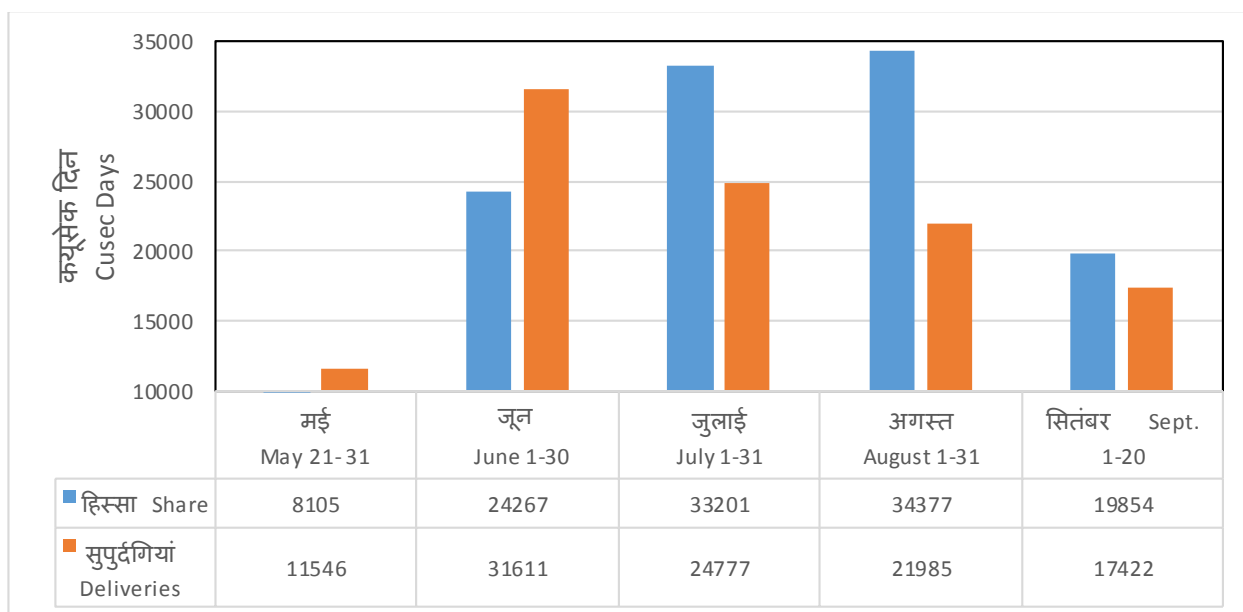
नोट:-

1. सभी आंकड़े क्यूसेक दिनों में ।
2. सभी सुपुर्दगियां आवश्यकता अनुसार तकनीकी समिति की बैठक में लिए गए निर्णय अनुसार ।

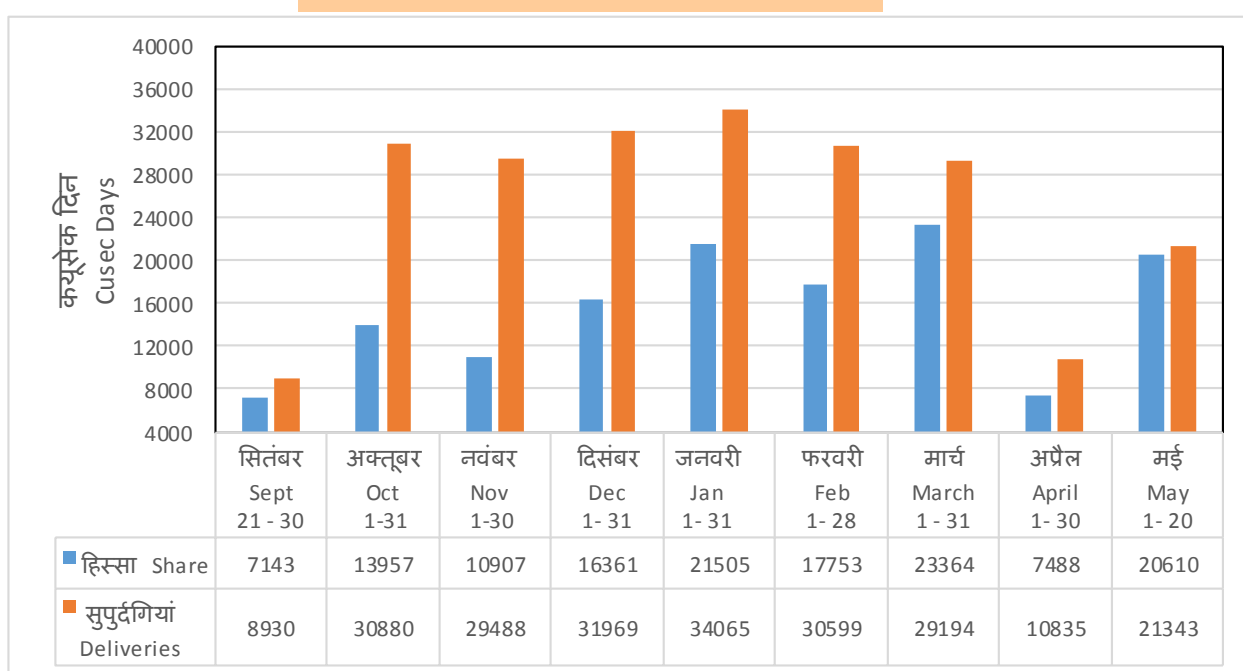
दिनांक 21.5.2018 से 20.05.2019 तक की अवधि के लिए सतलुज जल की पंजाब के रास्ते राजस्थान को हुई सप्लाई की स्थिति को दर्शाने वाली विवरणिका

Statement showing position of water supplies to Rajasthan via Punjab out of Satluj water for the period from 21.5.2018 to 20.05.2019

भराई अवधि (21.5.2018 से 20.9.2018)
Filling Period (21.5.2018 to 20.9.2018)



रिक्तीकरण अवधि (21.9.2018 से 20.5.2019)
Depletion Period (21.9.2018 to 20.5.2019)



Note(1) All figures are in cusec days.

(2) The deliveries have been made as per requirements decided in Technical Committee Meeting.

नोट:-

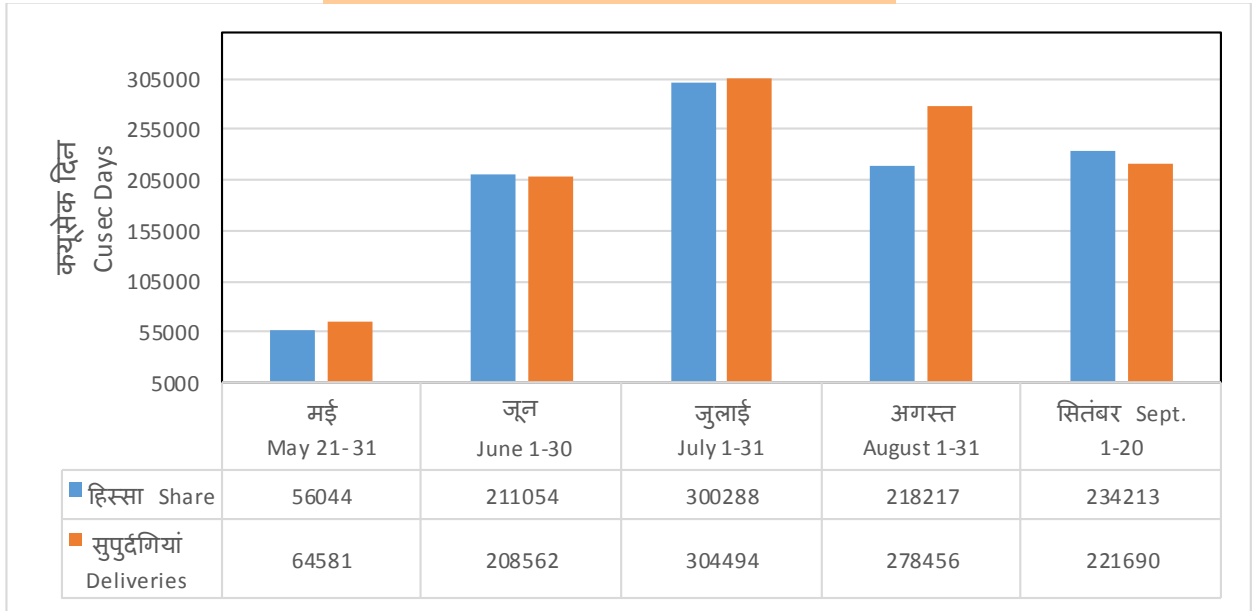
1. सभी आंकड़े क्यूसिक दिनों में ।
2. सभी सुपुर्दगियां आवश्यकता अनुसार तकनीकी समिति की बैठक में लिए गए निर्णय अनुसार ।

दिनांक 21.5.2018 से 20.05.2019 तक की अवधि के लिए रावी-ब्यास जल से राजस्थान को हुई जल आपूर्ति की स्थिति को दर्शाने वाली विवरणिका

Statement showing position of water supplies to Rajasthan out of Ravi-Beas water for the period from 21.5.2018 to 20.05.2019

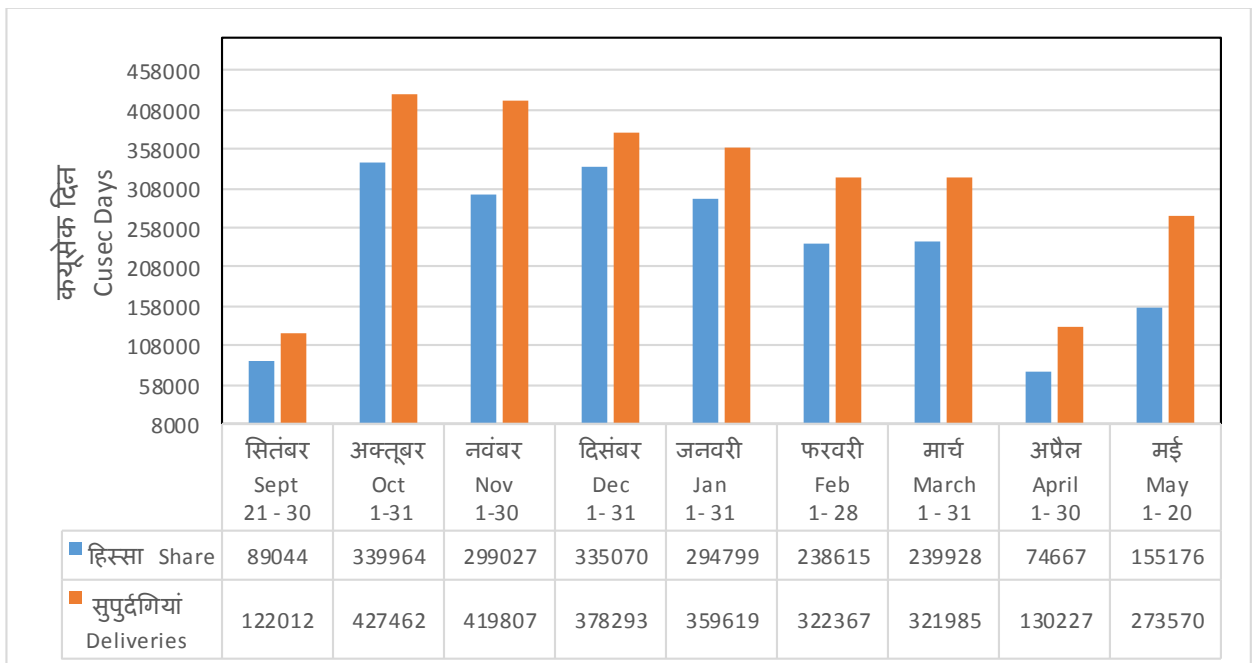
भराई अवधि (21.5.2018 से 20.09.2018)

Filling Period (21.5.2018 to 20.9.2018)



रिक्तीकरण अवधि (21.9.2018 से 20.5.2019)

Depletion Period (21.9.2018 to 20.5.2019)



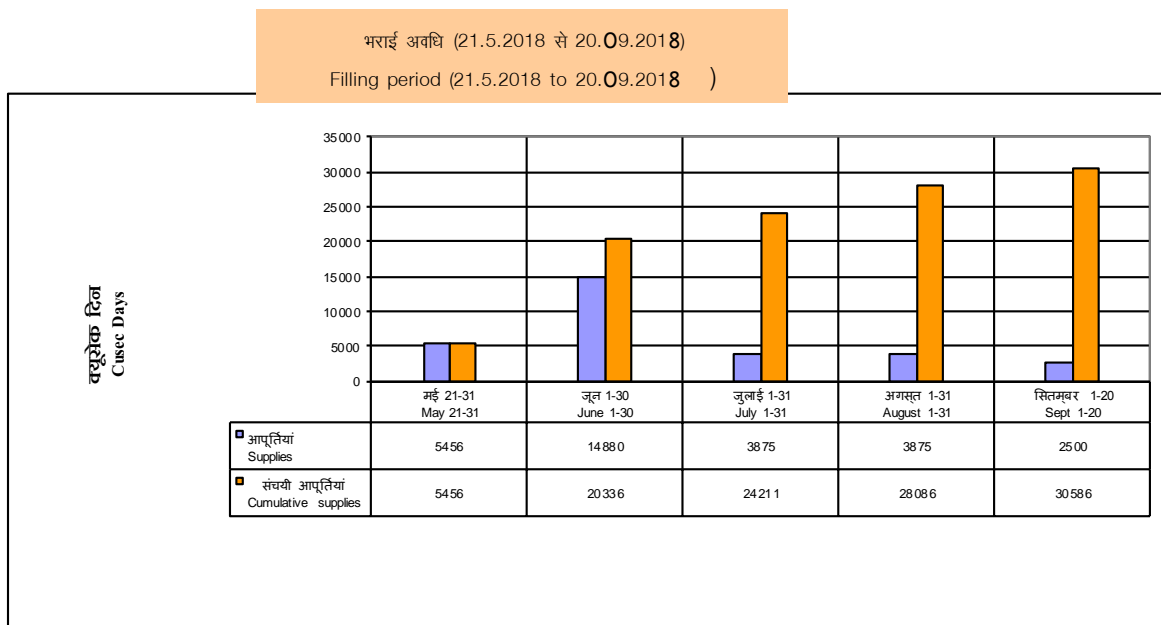
Note(1) All figures are in cusec days.

नोट:-

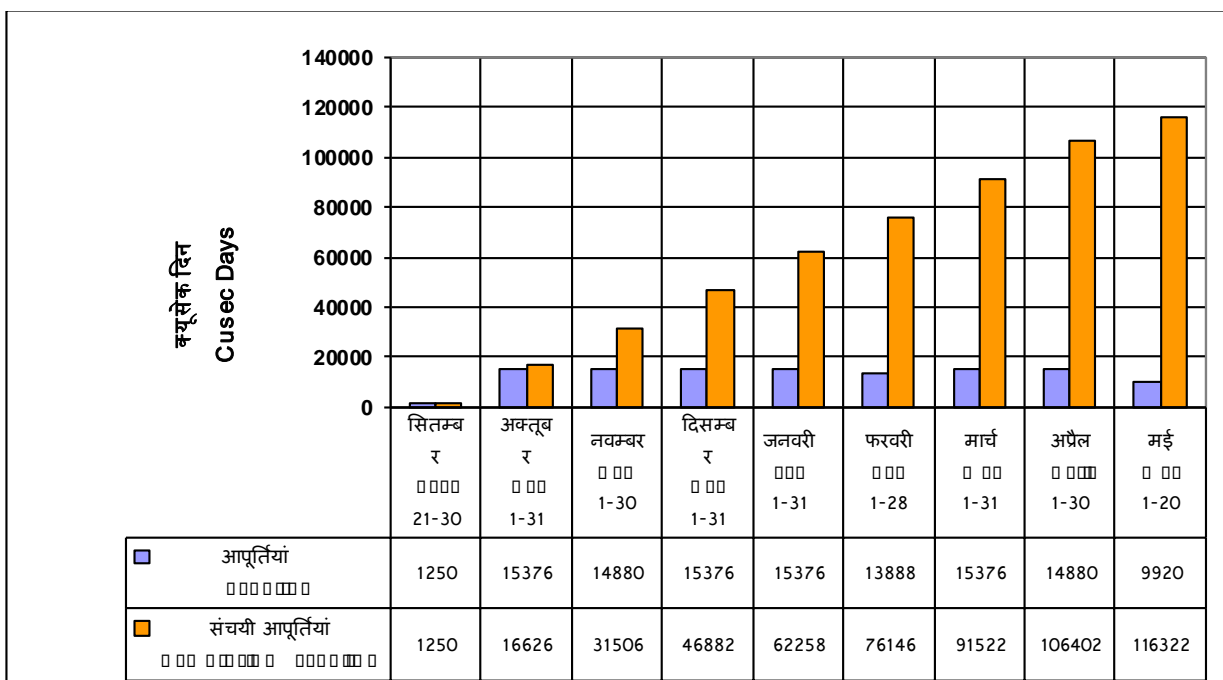
1. सभी आंकड़े क्यूसिक दिनों में ।

दिनांक 21.5.2017 से 20.9.2018 तक की अवधि के लिए दिल्ली जल बोर्ड को की गई जल आपूर्ति की स्थिति दर्शाने वाली विवरणिका

Statement showing position of water supplies made to Delhi Jal Board for the period from 21.5.2018 to 20.09.2018



रिक्तीकरण अवधि (21.9.2018 से 20.5.2019)
Depletion period (21.9.2018 to 20.5.2019)



नोट(1)

सभी आंकड़े क्यूसेक दिनों में।

Note(1)

All figures are in cusec days.

5.3 Substation automation and remote operation

BBMB has taken a significant step in automation of Substations in its Transmission System. Fully automated 220 kV Sub Station at Barnala with remote operation from 220 kV Sub Station at Sangrur (40 km from Barnala) has been commissioned. The Sub Station is now unmanned with Control Room locked up and no staff is deployed in shift duty. The benefits include reduced O&M cost, increased system reliability, reduced downtime, remote monitoring of operations etc. Similar work for other Sub Station's located at Hlssar, Charkhi Dadri Ballabgarh and Samaypur has been initiated.

5.4 Roof Top Solar Power Stations

BBMB has commissioned Grid connected Roof Top Solar projects of 435 kWp at 220 kV Substations of Jalandhar, Jamalpur, Narela, Delhi and office buildings at Chandigarh. Further, 1.5 MWp roof top solar PV plants are at different stages of execution at various project sites and substations of BBMB in addition to implementation of Ground Mounted and Floating Solar Power Plants at Nangal and Talwara.

5.5 Protection/Technical Audit

For system strengthening and technological upgradation of BBMB power houses and transmission system, BBMB carries out third party protection audit of its substations/switchyard and technical audit of power houses.



अध्याय-6 Chapter-6

परिचालन एवं अनुरक्षण Operation & Maintenance

6.1 Power Wing

In addition to routine maintenance activities, following works of significance were carried out on various Power Houses/Transmission System of BBMB during the year 2018-2019:-

6.1.1 Bhakra Power Houses

A Maintenance of Units

Unit No.	Period of Maintenance		Remarks
	From	To	
1.	28.05.2018	03.07.2018	Annual Maintenance alongwith replacement of existing governor with new digital Governor.
	26.02.2019	17.03.2019	Annual Maintenance
4.	01.04.2018	07.05.2018	Annual Maintenance of machine alongwith replacement of existing governor with new digital Governor.
5.	27.10.2018	17.11.2018	Half Yearly Maintenance
6.	01.04.2018	23.05.2018	Annual Maintenance alongwith replacement of existing governor with new digital Governor.
	26.03.2019	11.04.2019	Annual Maintenance
7.	12.12.2018	31.12.2018	Mid term Maintenance
8.	15.10.2018	09.04.2019	Capital Maintenance
9.	11.01.2019	29.01.2019	Full Term Maintenance
10.	25.02.2019	18.03.2019	Mid Term Maintenance

B. Major Works

1. Fabrication of M.S. Chowkhats, M.S Gates, Tree Guards, M.I Railing, Brackets of wash Basin, wooden Chairs, M.S. Angles Brass Spindles & Dust Bins etc. etc. for Addl. S.E. B.C. & Township Division Nangal.
2. Fabrication of M.S. Flanges, Sheddars, Nut & Bolts, M.S Pipe Railing, Brake Block, Rubber Seals, Tree Guard, Anchor Pin, Anchor Plantas, Fish Plates, Pipe Railing, Shafts Sleeve Stud, Brackets & M.S. Frames etc. for Addl. S.E. Bhakra Mech. Divn. Nangal.
3. Mfg. M.S Angle, Locking Plates, Roller Pin, Blot, Tree Guard, Wooden Chair, Steel Almirah, Rubber Seal, Bush Plumber Block, Nut, Table Brackets, etc. for Addl. S.E. Nangal Dam Division, Nangal.
4. Fabrication of Tree Guard, Wooden Chair, Barrigates Steel Almirah, M.S. Frame etc. for Addl. Superintending Engineer, Bhakra Dam Division Nangal.
5. Mfg. of Steel Almirah, Bush etc. Addl. S.E. R.M. & S.R. Division, Nangal Township.
6. Mfg. Steel Almirah, etc. for Addl. Superintending Engineer, Water Regulation Division, Nangal.
7. Mfg. of Wooden Chair, Steel Almirah, Weight Bridge for Addl. S.E. Proc:C/Stores & Disposal Division Nangal.

8. Mfg. of Wooden Chair for Chief Engineer, Bhakra Dam, Superintending Engineer/Head Quarter Nangal.
9. Mfg. of incumbency Board etc. for Sr. Personal Officer, Nangal Township.
10. Mfg. of Steel Garbage Container, M.S. Angle etc. for Addl. S.E. Township Division BBMB Talwara.
11. Mfg. of Sign Board etc. for Addl. S.E. R.M. Division, BBMB, Talwara.
12. Mfg. of Rubber Seal G.M. Rod. Etc. for Addl. S.E. Mech. Division, BBMB Talwara.
13. Mfg. of Steel Almirah, Wooden Chair etc. for Director Design, BBMB Nangal.
14. Mfg. of Centre Table, Wooden Chair etc. for Dy. Chief Engineer, Mechanical Circle, Nangal.
15. Mfg. of Pantoon G.M. Bush Pipe, Wire Sheave Pulley, Brass Bush etc. for Addl. Superintending Engineer, Electrical & Workshop Division, Sunder Nagar.
16. Mfg. of Meter Box etc for Addl. SE Electrical Division BBMB Talwara.
17. Mfg. of Nut and Bolt for Addl. S.E. Electrical and Mechanical Division, BBMB Pandoh.
18. Mfg. of Nut & Bolt, Steel Plates, Shaft Shear Pin, M.S Plates, Gun Metal Seat, M.S Angle, Gland Plates, Tower with Channel etc. for Addl. Superintending Engineer, STP & D Division, BBMB Power Wing Nangal.
19. Mfg. of Dustbin, Steel Almirah, M.S. Gate Titling Dust Bin etc. for Resident Engineer, Bhakra Power House.
20. Drilling in Plates, Mfg. of Wooden chair etc. for Resident Engineer, Ganguwal & Kotla Power House.
21. Mfg. of Wheel Shaft Brass Nut & Bolt, Rubber Seal Bush, Shaft Assembly. etc. for Addl. S.E. O & M Division BBMB Power Wing Ganguwal.
22. Mfg. of Guide Vanes, Grease adopter, Drilling Plates, Brass Seal, Repair Guide Vanes Bush Housing of Guide Vanes. etc. for Resident Engineer, DPH Slappar.
23. Mfg. of M.S. Ladders. for Addl. S.E. O&M Division, BBMB Kurukshetra.
24. Mfg. of M.S Angle, M.S. Frame for Addl. S.E. O&M Division BBMB (PW) Jalandhar.

6.1.2 Ganguwal and Kotla Power Houses

A Maintenance of Units

Unit No.	Period of Maintenance		Remarks
	From	To	
Ganguwal			
1	20.04.2018	24.04.2018	Quarterly Maintenance
2	26.09.2018 16.11.2018	29.09.2018 23.11.2018	Quarterly Maintenance Annual Maintenance
3	10.04.2018 13.11.2018 24.11.2018 04.03.2019	20.04.2018 16.11.2018 & 03.12.2018 09.03.2019	Annual Maintenance Half Yearly Maintenance Annual Maintenance
Kotla			
1	07.04.2018 24.11.2018 04.03.2019	17.04.2018 27.11.2018 09.03.2019	Annual Maintenance Quarterly Maintenance Annual Maintenance
2	29.09.2018 12.11.2018	01.10.2018 24.11.2018	Half Yearly Maintenance Annual Maintenance
3.	22.04.2018	27.04.2018	Annual Maintenance

B. Major Works

Ganguwal & Kotla Power Houses

- Provided 4 no. new AC's each in both Ganguwal and Kotla Power House control room.
- Replaced dewatering Valve of Unit no.2 at Ganguwal and Unit No.3 at Kotla Power House.
- R.Phase CT of 132 kV Kotla Ropar Circuit no.2 replaced at Kotla Power House.
- Replaced B Phase PT of 132 kV Kotla-Ropar Circuit no.2
- Replaced dewatering valve of unit no.3 at Ganguwal Power House.
- Replaced dewatering valve of Unit no.2 at Ganguwal Power House.
- Replaced R Phase PT of Bus-2 at Ganguwal Power House.

6.1.3 Pong Power House

A. Maintenance of Units

Unit No.	Period of Maintenance		Remarks CP.138
	From	To	
1	28.05.2018	03.07.2018	Annual Maintenance of machine alongwith replacement of existing Governor with new digital Governor. Annual Maintenance
	26.02.2019	14.07.2019	
4.	01.04.2018	07.05.2018	Annual Maintenance of machine alongwith replacement of existing Governor with new digital Governor
5.	27.10.2018	17.11.2018	Half Yearly Maintenance
6.	01.04.2018	23.05.2018	Annual Maintenance of machine alongwith replacement of existing Governor with new digital Governor. Annual Maintenance
	26.03.2019	17.03.2019	

B. Major Works

- The work of Modernization of 03 Nos. OTIS make Passenger Elevators installed at penstock emergency gate shaft P1, P2 and P3 at PPH was started by M/S OTIS Chandigarh .
- After erection and testing of new Elevators of penstock emergency gate shafts P1, P2 and P3. The new Elevators were successfully commissioned.
- The work of replacement of existing governors of Unit No.4, 6 and 1 with new microprocessor based digital electro hydraulic governors having feature of RGMO/FGMO and SCADA compatible have been taken in hand by M/S ANDRITZ HYDRO PRIVATE LIMITED one by one.
- After erection, testing and commissioning of new governors of Unit No 4 and 6 synchronized with the system and put on load successfully .
- Repair /Replacement of underwater 4 nos. guide tracks of DT gate of Unit No 2 was started by Xen, Erection Division Roorkee.

- The work was started by the Agency on 08.04.2018 and continued till 02.07.2018. The work was stopped on 03.07.2018 due to low visibility in water. After restoration of visibility, the work was started on 21.11.2018 and completed on dated 07.01.2019. The old existing damaged guides have been successfully replaced with new ones on dated 30.01.2019 from EL 1058 feet (bottom) to EL 1091 feet (water level) about 132 feet (33x4) against 100 feet (25x4) s per work order.
- The installation of 03 nos. submersible pumps carried out by M/s Rockwell Pumps & Motors Pvt. Ltd. Ghaziabad (UP). The final testing and commissioning of 03 Nos. submersible pumps was successfully completed.
- The installation work of Auto back wash duplex strainer has been carried out by representative of M/s BHEL in Unit No 1 on 28.06.2018 against PO No 624/ PHD/Pong 299 dated 16.11.2013. The new auto backwash duplex strainer of Unit No. I was successfully commissioned.
- The work of new AC Plant was started on 17.05.2018 by M/s Advance Enterprises, Chandigarh against PO No.671/ PHD/Pong 309 dated 13.02.2017. The new AC Plant was successfully commissioned by firm.
- The work of new 5 Nos. water pressure filters along with alum dozer ,valves and other pipe fittings was started on 17.05.2018 by M/s CWG Water Treatment Pvt. Ltd., Panchkula, against PO No 678/PHD/Pong 310 Dated 16.08.2017 New Drinking Water Treatment Plant was successfully installed and commissioning by firm.
- On checking , leakages was observed from concrete near 200 mm dia penstock filling by pass pipe line D/S side inside bonnet cover chamber at EL 1138 feet floor The fault was successfully attended w.e.f. 02.08.2018 dated 06.08.2018.
- On dated 17.09.2018 machine tripped under stator earth fault. On checking, it was observed that heavy flash occurred on Y phase main parallel path bus section near neutral outgoing terminal which damaged the adjoining buses of R & B phases and insulation and bake lite supporting blocks provided below faulty section :-
 Replaced the damaged bus section of red, yellow & blue phase with old spare ones with new buses fabricated in local workshop from copper flats. After carrying out necessary repair work unit was synchronized with system on dated 26.09.2018 at 19.30 hrs.
- Replacement work of main stator and carrying out capital mtc. of Unit No 2 of PPH taken in hand by M/s BHEL on 21.02.2019 against Work order No. 694 /PHD/Pong-31 Dated 07.09.2018 and 66/ PR 1545 Dated 05.06.2017. The dismantling of Unit No 2 was co and the remaining work is under progress.
- Carried out the annual Mtc. of 75 MVA Generator Transformer of Unit No. 4, Unit Aux. Transformer, Aux.-Board D4DA, T.G Panel & 220kV SF-6 Ckt. Breaker and its allied equipments and replace both isolators 221 & 222.
- Replacement of faulty 75 MVA Generator Transformer of M/s ABB with old and used 67 MVA, 11/220 kV Generator Transformer of M/s BHEL, make on Unit No. 6 on dated 08.01.2019 to 08.02.2019.

- Attended the fault of 11/220 kV, 75MVA Generator Transformer of Unit No. VI, differential relay and gas relay stage-II, operated (Internal fault) w.e.f. 24.12.2018 to till date.
- Strengthening of existing cable racks by providing additional support of galvanized channel section in Zone VI & VII of cable gallery at Pong Power House.
- Providing and Fixing Floor Tiles alongwith Water Supply & Sanitary Fitting in Shed No. 03 & 4 under Pong Power House.

6.1.4 Dehar Power House

A Maintenance of Units

Unit No.	Period of Maintenance	Remarks
1.	28.01.2019 to Continue	Capital Maintenance
2.	06.09.2018 to 08.01.2019 15.11.2018 to 08.01.2019	Recification of stator winding Inter-turn fault. Annual Maintenance
3.	25.02.2019 to 22.03.2019	Annual Maintenance
4.	23.01.2019 to 18.02.2019	Annual Maintenance
5.	25.01.2018 to 19.07.2018 05.03.2018 to 25.08.2018 16.10.2018 to 05.11.2018	Rehabilitation & Restoration of damaged stator. Capital Maintenance Annual Maintenance
6.	19.03.2018 to 26.04.2018	Annual Maintenance
Rotary Valves M/C 1 & 2	28.01.2019 to Continue	Capital Maintenance
Butterfly was No.1 Controlling M/C 1&2	28.01.2019 to 01.04.2019	Capital Maintenance

6.1.5 Renovation, Modernization & Uprating (R,M&U) of Bhakra Left Bank Power House

R, M&U of old power houses not only gives new lease of life to the machines but is also a significant step towards meeting the aspirations of the nation by adding low cost green peaking power to the system.

BBMB has undertaken an ambitious R,M&U of its existing hydro generating unit. Through RM&U, BBMB has already added 329 MW of incremental capacity. Presently, R,M&U of 5 No. machines of Bhakra Left Bank Power House is under progress. All the five machines will be uprated from 108 MW to 126 MW each. Three Units have already been uprated from 108 to 126 MW and other two units will be uprated during the year

2020, thus providing additional capacity of 36 MW (Total 365 MW). The contract stands awarded to the consortium led by M/s Sumitomo Corporation, Japan. Total cost of R,M&U works is 489.77 crore approx. (Inclusive of cost of equipment to be procured by BBMB i.e. Generator Transformers, Numerical protection schemes and exclusive of IDC, Bank/Finance/ Legal charges etc.).

The first unit (Unit-2) was commissioned on 18th July, 2013 after successful R,M&U. Similarly the second Unit (Unit No.5) which was under R,M&U works w.e.f. 11th April, 2011, has also been commissioned on 2nd October, 2013. The third Unit (Power House Unit No.4) was taken over for operational run after R,M&U on 05.08.2015.

Based on the report of CPRI, Bangalore, of Generator shaft of Unit 5, spare new Generator Shaft (as earlier ordered on M/s Andritz Hydro) alongwith the new spider rim and other related parts ordered on dated 14.10.2016 on M/s Andritz Hydro GmbH, Austria have been replaced with existing components of Unit No. 5 of Bhakra Left Bank Power House.

The work for the replacement of shaft, spider, rim and other related parts alongwith various activities had been started on 21.10.2016 and put on commercial run on dated 15.06.2018. The Unit is running with output of 126 MW.

The shutdown on the next Power House Unit i.e. Unit No.3 for R, M & U works shall be taken in first week of April, 2019. Work of Stator Assembly of Unit No.3 has been stated on 22nd January, 2019 and shall be commissioned by May, 2020. The R, M & U works of the last 5th Unit (Power House Unit No.1) shall be based on commissioning of fourth unit (Power House Unit No.3). In case shutdown of this unit is taken in the month of May, 2020, the R, M & U works are anticipated to be completed by January, 2021.

6.1.6 **Transmission System**

General performance of BBMB sub-stations and transmission lines remained satisfactory. The details of the major works carried out are as under:-

i) Power Transformers

- Gasket of 400/220 kV, 150 MVA Transformer T-3 at 400 kV substation, BBMB, Panipat has been replaced.
- Old 10/12.5 MVA, 132/11kV Transformer has been dismantled and new 16/20 MVA 132/11kV transformer has been commissioned at 220kV substation, BBMB, Kurukshetra. This work has been carried out in a minimum period i.e. 18.3.2019 to 22.3.2019.

ii) Circuit Breakers

- Old One No. 33 kV OCB (HEL make) of 66/33 kV, 20 MVA T/F T-1 has been replaced with New VCB (BHEL make) at 220 kV S/Stn. Dhulkote.
- Damaged 33 kV Limb of VCB of Ind.Phase-1 Circuit has been replaced with complete unit at 66 kV S/Stn. Chandigarh.
- Old One No. 220 kV SF-6 Circuit Breaker (ABB make) of 220 kV Jamalpur – Ganguwal Ckt.-2 has been replaced with New SF-6 Breaker (CGL make) at 220 kV S/Stn. Jamalpur.
- Old One No. 220 kV SF-6 Breaker (ABB make) of 220 kV Jamalpur – Jalandhar Ckt.-2 has been replaced with New SF-6 Breaker (CGL make) at 220 kV S/Stn. Jamalpur.

- One no. 245 kV SF-6 Circuit Breaker replaced on 220 kV Bhiwani-Ch.Dadri Ckt.3 at 400 kV Substation, BBMB, Bhiwani.
- One no. 220 kV SF-6 Circuit Breaker replaced on 220 kV Bhiwani-Charkhi Dadri Circuit-4 at 400 kV Substation, BBMB, Bhiwani.
- 36 kV VCB replaced on 66/33 kV Transformer at 220 kV Substation, BBMB, Ballabgarh.

iii) Current Transformers (CTs)

- Damaged 220 kV CT (TELK make) of 220 kV Sangrur- Barnala Single circuit has been replaced with New CT (TELK make) at 220 kV S/Stn. Barnala.
- One No. 66 kV New CT (Microplast make) has been commissioned on 66/33 kV, 20 MVA Transformer T-3 at 66 kV S/Stn. Chandigarh.
- Old 3 No. 66 kV CTs (AE make) of 66 kV Jamalpur – Chandigarh road feeder have been replaced with New CTs (Mehru make) at 220 kV S/Stn. Jamalpur.
- Old One No. 220 kV CT of 220 kV Bus Coupler has been replaced with New CT (ABB make) at 220 kV S/Stn. Jamalpur.
- Damaged One no. 220 kV CT (TELK make) of 220 kV Bus Sectionlizer has been replaced with New CT (TELK make) at 220 kV S/Stn. Jamalpur.
- 5 no. 132 kV CTs (BHEL, TELK, Warsazawa Poland make) of various feeders have been replaced due to abnormal Tan Delta value with New CTs (EPAC make) at 220 kV S/Stn. Jamalpur.
- 3 no. 245 kV CTs (ABB make) commissioned on 220 kV Barnala – Lehra Mohabbat S/C at 220 kV S/Stn. Barnala.
- Old 9 no. 245 kV CTs (Asea make) of 220 kV Sangrur – Hissar Ckt-1 & 2 and 220 kV Bus Coupler have been replaced with New CTs (ABB make) at 220 kV S/Stn. Sangrur.
- Old One no. 220 kV CT (TELK make) of Bus Coupler-2 has been replaced with New CT (ABB make) at 220 kV S/Stn. Jamalpur.
- Old 2 no. 220 kV CTs (TELK make) of Bus Coupler-1& 2 has been replaced with New CT (ABB & Hepta care power make) at 220 kV S/Stn. Jamalpur.
- 26 nos., 220 kV CTs has been replaced with new CTs at 400kV substation, BBMB, Panipat.
- 3 nos. 72.5 kV CT has been replaced with new at 220kV substation, BBMB, Delhi.
- One no. 245 kV (Yellow Phase) CT replaced on 220 kV Bus Coupler at 220 kV Substation, BBMB, Ballabgarh.
- Red, Blue & Yellow Phase), 3 No. 245 kV CT's replaced on 220 kV Bus Coupler at 220 kV Substation, BBMB, Samaypur.
- Red & Yellow Phase, 2 no. 245 kV CT replaced on 220kV Samaypur-Ballabgarh Ckt. I at 220 kV Substation, BBMB, Samaypur.
- Blue Phase one no. 220 kV CT replaced on Samaypur-Ballabgrh Ckt.I at 220 kV Substation, BBMB, Samaypur.
- Blue Phase one no.220 kV CT replaced on Bus Sectionalizer at 220 kV Substation, BBMB, Samaypur.
- Yellow Phase, one no. 245 kV CT replaced on 220 kV Samaypur-Ballabgarh Ckt.II at 220 kV Substation, BBMB, Samaypur.
- Red Phase, one no. 245 kV CT replaced on 220 kV Samaypur-Ballabgarh Ckt.II at 220 kV Substation, BBMB, Ballabgarh.
- Red & Blue Phase, two no. 245 kV CT replaced on 220kV Samaypur-Ballabgarh Ckt. III at 220 kV Substation, BBMB, Samaypur.
- Red & Blue Phase, two no. 33 kV CT replaced on Rahgarh Road 33 kV HTM Feeder at 220 kV Substation, BBMB, Hisar

- Red & Yellow Phase, two no. 245 kV CT replaced on 220 kV Samaypur – Charkhi Dadri Ckt at 220 kV Substation, BBMB, Samaypur
- Yellow Phase, one no. 245 kV CT replaced on Bus Coupler-1 at 220 kV Substation, BBMB, Samaypur
- Red, Yellow & Blue Phase, 3 no. 245 kV CT replaced on 220kV Samaypur-Ballabgarh Ckt. III at 220 kV Substation, BBMB, Ballabgarh.
- Red, Yellow & Blue Phase, 3 no. 245 kV CT replaced on 220kV Ballabgarh-Charkhi-Dadri Ckt. at 220 kV Substation, BBMB, Ballabgarh.
- Blue Phase, one no. 245 kV CT replaced on Bus Coupler at 220 kV Substation, BBMB, Ballabgarh.
- Red Phase one no. 245 kV CT replaced on 220 kV Ballabgarh-Samaypur Ckt.I at 220 kV Substation, BBMB, Ballabgarh.
- One no. 245 kV CT replaced on 220 kV Bhiwani-Charkhi Dadri Ckt.IV at 220 kV Substation, BBMB, Charkhi Dadri.
- Red Phase one no. 245 kV CT replaced on 220 kV Ballabgarh-BTPS Ckt.1 at 220 kV Substation, BBMB, Ballabgarh
- Red & Blue Phase 2 no. 245 kV CT replaced on 220 kV Ballabgarh-BTPS Ckt.2 at 220 kV Substation, BBMB, Ballabgarh
- Three no. 66 kV CT replaced on 220 kV Ballabgarh-Palwal Ckt.1 at 220 kV Substation, BBMB, Ballabgarh
- Two no. (Red & Blue Phase) 245 kV CT replaced on Bus Coupler-1 at 220 kV Substation, BBMB, Ballabgarh
- Red Phase one no. 245 kV CT replaced on 220 kV Bhiwani-Charkhi Dadri Ckt. III at 220 kV Substation, BBMB, Charkhi Dadri.
- Red & Blue phase 2 no. 220 kV CT replaced on 220 kV Hisar-Sangrur Ckt.2 at 220 kV Substation, BBMB, Hisar.

iv) **CVT/PTs**

- 3 no. new PTs (CGL make) provided on 220 kV Bhakra – Jamalpur Ckt-2 at 220 kV S/Stn. Jamalpur.
- One no. 245 kV CVT has been replaced with new 220kV PT at 220kV Substation, BBMB, Kurukshetra.
- Blue Phase, one no. 245 kV CVT replaced with PT on 220 kV Ballabgarh-BTPS Ckt. II at 220 kV Substation, BBMB, Ballabgarh.
- 3 no. 33 kV PT replaced on Bus-2 at 220 kV Substation, BBMB, Ballabgarh
- 3 no. 33 kV PT replaced on Bus-1 at 220 kV Substation, BBMB, Ballabgarh

v) **Lightning Arrestors (LAs)**

- Damaged 120 kV LA (CGL make) of 220/132 kV, 100 MVA Transformer T-2 has been replaced with New LA (Oblum make) at 220 kV S/Stn., Jamalpur.
- Damaged (132 kV side) 120 kV LA (Oblum make) of 220/132 kV, 100 MVA T/F T-3 has been replaced with Old & Used LA (Jayshree make) at 220 kV S/Stn., Jamalpur.
- One no. 198 kV LA (CGL make) of 220 kV Bhakra – Jamalpur Ckt-2 has been replaced due to high I.R. Value with Old & Used LA (Lamco make) at 220 kV S/Stn., Jamalpur.
- Damaged 2 no. 198 kV LAs of (CGL make) 220 kV Bhakra – Jamalpur Ckt-I and 220 kV Jamalpur – Ganguwal Ckt.-II have been replaced with New LAs (Alstom & Lamco make) at 220 kV S/Stn., Jamalpur.
- Damaged 198 kV LA (CGL make) of 220 kV Ganguwal – Jamalpur Ckt-I has been replaced with new LA (Lamco make) at 220 kV S/Stn., Jamalpur.

- Damaged 2 Nos. 120 kV Las of 220kV Substation, BBMB, Kurukshetra have been replaced with new Las.
- Yellow Phase, one no. LA replaced on 66 kV Railway Ckt. II at 220 kV Substation, BBMB, Ballabgarh.
- Red & Blue phase 2 no. LA replaced on 66 kV Ballabgarh-Hyderabad Ckt at 220 kV Substation, BBMB, Ballabgarh.
- Damaged Yellow phase L.A. replaced on 220 kV Hisar-Chirawa Ckt. at 220 kV Substation, BBMB, Hisar.

vi) Isolators

- 3 no. 245 kV Isolators (GR Power make) and One No. Earth switch (GR Power make) commissioned on 220 kV Barnala – Lehra Mohabbat Single Circuit Line at 220 kV S/Stn. Barnala.
- One no. 220 kV Bus Isolator replaced on 220 kV Samaypur-Ballabgarh Ckt.I at 220 kV Substation, BBMB, Samaypur.
- 220 kV Bus -I Isolator replaced on 220 kV Samaypur-Ballabgarh Ckt.II at 220 kV Substation, BBMB, Samaypur.
- One no. Bus-I Isolator replaced on 220 kV Ballabgarh-Sohna Ckt at 220 kV Substation, BBMB, Ballabgarh.
- One no. line Isolator & 2 No. Bus Isolators replaced on 220 kV Ballabgarh-BTPS Ckt. I at 220 kV Substation, BBMB, Ballabgarh
- One no. line Isolator & 1 No. Bus Isolator replaced on 220 kV Ballabgarh-BTPS Ckt. II at 220 kV Substation, BBMB, Ballabgarh.
- Two no. Isolators replaced on 220/66 kV Transformers at 220 kV Substation, BBMB, Ballabgarh.
- One no. Line Isolator replaced on 220 kV Ballabgarh-Samaypur Ckt.II at 220 kV Substation, BBMB, Ballabgarh
- One no. Bus Isolator replaced on 220 kV Ballabgarh-Palwal Ckt.I at 220 kV Substation, BBMB, Ballabgarh

vii) Protection & Testing

- 2 Nos. Defective Micom P-442 Numerical protection scheme of 220 kV Bhakra – Jamalpur Ckt-I & 2 has been replaced with Old & Used Micom P-442 Numerical protection Scheme (Areva make) at 220 kV S/Stn. Jamalpur.
- Razoia DP scheme replaced with Micom P-442 on 220 kV Hisar - Industrial Area-1 at 220 kV Substation, BBMB, Hisar.
- SIPROTEK Relay replaced with MICOM P430 relay (Numerical type) on 66kV of Railway Circuit-II, at 220 kV Substation, BBMB, Ballabgarh.
- SIPROTEK Relay replaced with MICOM P430 relay (Numerical type) on 66kV of Railway Circuit-I, at 220 kV Substation, BBMB, Ballabgarh
- Numerical Distance Protection Schemes of 220 Panipat-Narela Ckt-I, II & III has been replaced with Distance Protection Schemes of M/s AREVA and M/s ABB different make of Main-I and Main-II protection scheme, at 220 kV substation, BBMB, Narela.

viii) Overhauling of Breakers

- 3 no. 66 kV SF-6 Breakers of 66 kV Bus Coupler, 66 kV Sangrur-Rangian Ckt.& 66 kV Incoming Ckt. have been overhauled at 220 kV S/Stn. Sangrur.

- 5 no. 220 kV SF-6 Breaker of 220 kV Bus Coupler, 220 kV Sangrur-Jamalpur Ckt.1 & 2, & 220 kV Sangrur- Hisar Ckt-1 & 2 have been Overhauled at 220 kV S/Stn. Sangrur
- Overhauling of 400kV SF-6 breaker X-3, X-4, X-5 & X-6 has been carried out at 400 kV Substation, BBMB, Panipat

ix) Deposit Works

- Modification of 220 kV Ganguwal – Jagadhri line (Chandigarh-Jagadhari section) between Span No. 182-186/CJ & 202-203/CJ & 159-160. CJ due to 4 lanning of Panchkula- Yamuna Nagar Section (Highway NH-73) Deposit work of NHA).
- Modification of Span No. 195-196 of 220 kV Ganguwal-Dhulkote double circuit line due to 4-lanning of Kharar-Kurali section of NH-21 (New NH-205) near Kurali (Deposit work of NHA under self-execution scheme)
- Modification of Span no. 362-365 of 220 kV Ganguwal-Dhulkote double circuit line due to 4-lanning of Ambala-Kaithal section of NH-65 near Sadhopur (Ambala) (Deposit work of NHA self-execution scheme).
- 1 no. 66 kV Tower (BD Type) of 66 kV Chandigarh-Kishangarh Line shifted due to bridge in lieu of level crossing No. 126.20 at km 44/2-3 on Ambala–Kalka section near Modern Housing complex Manimajra, UT, Chandigarh.
- Work for erection of new Towers No. 327 A & 328 of 220kV Panipat-Charkhi Dadri line has been completed due to electrification and doubling of existing railway line (Deposit work of Railway).

x) Civil Works

- R&R of Ground floor path way and meeting hall at SLDC Complex at Chandigarh.
- Re-Carpeting of existing metalled road at 220 kV S/Stn. Jamalpur
- R&R of damaged berms by laying curbs & channels along the colony road at 220 kV S/Stn. Dhulkote.
- R&R of water supply and sanitary fitting in 2 no. WC and Bathroom in Control room at 220 kV S/Stn. Barnala.
- Providing berms by laying kerbs, chequered tiles & channels along the colony roads at SLDC complex at Chandigarh.
- Replacement of damaged cement concrete floors with Anti-skid floor tiles in New residential colony at 220 kV Sub-stations, Dhulkote.
- Development of Plant Nursery at SLDC Complex Chandigarh.
- Re-carpeting of existing metalled road at 220 kV S/Stn. Barnala.
- Repair of damaged roads by filling up the pot holes & re-carpeting the existing roads in new BBMB colony at 220 kV Sub-stations Dhulkote.
- Replacement of existing false ceiling alongwith lighting fixture with new false ceiling alongwith LEDs fixtures in the control room at 220 kV Sub-stations, Sangrur.
- R&R of Subordinate rest house at Dhulkote.
- R&R of wooden Cup Board & showcase in the office of CE/TS, SE/HQ, Dir P&C & Dir/P&D (TS) at SLDC complex at Chandigarh.
- Providing 2 no. additional bathroom in the 1st floor of computer block building at SLDC complex at Chandigarh.
- The work for Tower foundation protection of Tower no. 121 and 291 of 400kV Dehar-Panchkula Line has been completed.
- Renewal and replacement and repair of the existing buildings/boundary wall etc. at various Substation under this circle carried out.

xi) Miscellaneous Works

- During Automation following equipment's have been commissioned/ replaced of 220 kV Sub-stations :-
 1. 4 Way C&R Panels (ABB Make)
 2. 3 nos. S/Stn. Automated Panel
 3. Replaced old 12 no. CTs (TELK make) with New CTs (ABB make)
 4. Replaced 8 no. Isolators (F&S make) & 2 no. Line Isolators with Earth switch (F&S make) with new 8 no. Isolators (G.R. Power switch make) & 3 no. Line Isolator-cum-Earth switch (G.R. Power make)
 5. Providing 8 nos. Camera (4 nos. Switch yard, 2 nos. Control Room, 1 no Control Room building & 1 no. Main Gate.
- Providing 2 nos. Nitrogen Injection & Fire Prevention System on 220/66 kV, 100 MVA Transformer T-1 & T-2 at 220 kV S/Stn., Jamalpur.
- 151 nos. string of Conventional/anti-fog disc. insulators of 220kV yard at 400kV substation, BBMB, Panipat has been replaced with polymer insulators.
- Old 41 nos. Conventional disc insulators in 220kV yard at 220kV Substation, BBMB, Delhi has been replaced with polymer insulators.
- New 27.5KVA DG set has been commissioned at 220kV Substation, BBMB, Delhi.
- 36 no. C Wedge Clamp replaced on Bus-IA at 220 kV Substation, BBMB, Samaypur.
- 10 no. C Wedge Clamp replaced on Bus-2A at 220 kV Substation, BBMB, Samaypur.
- 44 Ton (4 unit) AC commissioned at 220 kV Sub Station, BBMB, Samaypur.
- 12 no. C Wedge Clamp replaced on Bus 2 B at 220 kV Substation, BBMB, Samaypur.
- 14 no. C Wedge Clamp replaced on Bus-I B at 220 kV Substation, BBMB, Samaypur.
- 11 no. C Wedge Clamp replaced on Bus-I A at 220 kV Substation, BBMB, Samaypur.
- 4 nos. 2.0 Ton capacity Split AC installed & commissioning at 66kV Substation, Chandigarh.
- 2 nos. High wall mounted Split Type AC installed & commissioning at 220kV Substation, Ballbgarh.

xii) Automation of 200kV Sub Station

BBMB has taken a significant step in automation of Substations in its Transmission System. Fully automated 220 kV Sub Station at Barnala with remote operation from 220 kV Sub Station at Sangrur (40 km from Barnala) has been commissioned. This Sub Station is now unmanned with Control Room locked up and no staff is deployed in shift duty. The benefits include reduced O&M cost, increased system reliability, reduced downtime, remote monitoring of operations etc. Similar work for other Sub Station's located at Hlssar, Charkhi Dadri Ballabgarh and Samaypur has been initiated.

xiii) Roof Top Solar Power Stations

BBMB has commissioned Grid connected Roof Top Solar projects of 435 kWp at 220 kV Substations of Jalandhar, Jamalpur, Narela, Delhi and office buildings at Chandigarh. Further, 1.5 MWp roof top solar PV plants are at different stages of

execution at various project sites and substations of BBMB in addition to implementation of Ground Mounted and Floating Solar Power Plants at Nangal and Talwara.

6.2 Irrigation Wing

6.2.1 Bhakra Nangal Project

A Bhakra Dam

- Observation of data from various instruments / devices, installed inside & outside of the body of Bhakra Dam and sent the same to o/o Design Directorate, BBMB, Nangal Township for processing and analyzing the same.
- The geodetic survey work of Bhakra Dam was carried out during the year by taking précising to work observation, traverse observation and allied precise double leveling with on the points fixed on both upstream and downstream side of the dam
- The lawn spreading, maintenance of plantation remained in progress both on left sides and right sides abutment Bhakra Dam during the year under horticulture sub division.
- The premix carpet work has been done on both sides i.e. left side & right side at Bhakra Dam up to discharge board Olinda.
- Construction of cement concrete road at Pump House Neilla at Bhakra Dam.
- Construction of srain along road from Olinda Bridges to village Salangri.
- Construction of Lavatory block for workers at carpentry shop, Timber Ropeway, Euclid shop and Gwalthai Barrier at Bhakra is in progress.
- Construction of staff room in Fire Stations at Olinda is in progress.
- Construction of Boundary wall around Police Barracks and residence Accommodation of CID Inspector at Colony Bhakra Dam is in progress.
- Construction of Pucca Morcha adjacent to check post for security Personnel's at various Locations in Bhakra Dam Area is in progress
- 02 nos. Fire stations remained functional during the year, one at Olinda (Bhakra) & second one at Nangal for the fire safety of the projects and allied works.

B Nangal Dam and Nangal Hydrel Channel (NHC)

Inspection of Nangal Dam, NHC and its allied works were carried out from time to time and following repair and maintenance works were carried-out during the period from April, 2018 to March, 2019 is as under :-

- Routine maintenance of NHC from RD-0 to RD-200337 remained in progress. In addition routine maintenance of Residential and Non-residential Buildings at Nangal Dam, Canal Colonies at Ganguwal, Kotla, Bharthgarh, Ghanouli and Ropar.
- Restoration of Drain (Drainage System) in between Rd-0 to 6000 left side of NHC.
- Replacing of damaged/old CGI sheet roofing of Nangal Dam Office, Store shed & providing flooring of vitrified tiles of office of Nangal Dam Division, Nangal at Nangal Township.
- Replacement of wooden planks with steels chequered plates of upper deck of River Head regulator from bay No. 3 to 26 of Nangal Dam.
- Painting Super structure of RHR and CHR of Nangal Dam.
- Restoration of drainage system of right side bank of NHC from RD-20000 to RD-27000 of NHC.
- Restoration of Drain (Drainage System) in between RD-53800 to RD-59200 right side of Nangal Hydrel Channel.

- Repairing of honey combed concrete lining slabs by providing 12.5 mm thick cement plaster 1:3 cement plaster from RD-27000 to RD-32726 left side during partial closure of Nangal Hydrel Channel.
- Providing and fixing polyvinyl chloride ceiling, repair of wire gauze and glass panes of Ganguwal Rest House.
- Repairing of concert lining slab above water level with 12.5 mm thick cement plaster 1:3 from RD-32726 to RD-37200 right side of Nangal Hydrel Channel.
- Restoration of barbed wire fencing from T.B Hospital to Anandpur sahib Hydrel Channel and clearing of rubbish/Jungle along Nangal Pond/ VIP road at Nangal
- Patch work with close graded premix surfacing 20 mm thick from RD-32726 to RD-59325 right side of Nangal Hydrel Channel.
- Patch work bituminous macadam 50 to 75 mm thickness on Nangal Dam bridge has been completed.
- Replacing of 02 nos. old sign. boards sheet with reflected sheet of high intensity micro prismatic grade at different locations at Nangal.
- Providing and fixing sign board with retro reflective high intensity micro prismatic sheeting at various location of Nangal Hydrel Channel and downstream Nangal Dam.
- Providing and fixing steel structure comprising of pillars and truss at Village Majri.
- Providing 60mm thick cement concrete interlocking paver block of M-35 grade cement concrete 1:2:4 with stone ballast or shingle on sides of paths in canal colony Ganguwal.
- Repairing RCC slab to laid on super passage at RD-53920 near village Bikapur.
- Spray of roundup herbicide on NHC banks and other allied structures to control/eliminate thick growth of weeds/grass/jungle and painting of works of NHC.
- Providing rain shelter on west side at Bharatgarh on Ropar-Sri Anandpur Sahib Road.
- Finishing wall with acrylic smooth exterior paint of required shed with two coat applied @ 1.67 ltr. / 10 sqm in Ganguwal rest house.
- Providing and fixing steel structure comprising of pillars and turss at Village Bhallri.
- Providing snowcem in inspection gallery and other miscellaneous construction structure at Nangal Dam.
- Cleaning /clearing polythene bags/ wastage of material from RD-1550 to RD-10000 both sides of Nangal Hydrel Channel is in progress.
- Providing and fixing chain link fencing on right side of Nangal Hydrel Channel from RD-1550 to RD-10000 is in progress.
- Construction of retaining wall to check sloughing & hill slope left side of Ganguwal is in progress.
- Restoration dowel & bank profile by providing good earth from RD-141000 to RD-146000 on both side of Nangal Hydrel Channel in Ghanouli Section.
- Providing cement based paint at bottom slab of Sirsa aqdt. (One bay trail basis).
- Providing cement concrete on the damaged path toward Kotla Sub Division, Kotla office and M&M type quarter.
- Filling cement bags with sand, sewing and stacking along NHC in Kotla Sub Division, Nangal Dam Sub Division and repair & aluminum pating on barbed wire, angle-iron, concrete post of railing around Power House spillway at Kotla against the estimate "AM&R of Nangal Hydrel Channel unit-III from RD-62165 to RD-200337 Kotla Sub Division, Kotla for the year 2018-19.
- De-silting of downstream cistern portion and under adjoining national highway bridge of charan Kamal syphon at RD-103006 of Nangal Hydrel Channel before monsoon season

- of 2018” NIT No.27/2018/ND charge to the work :- “AM&R of NHC unit-III from RD-62165 to RD-200337 Kotla Sub Division, Kotla for the year 2018-19”.
- De-silting of downstream cistern portion and under adjoining national highway bridge of Kiratpur Sahib Syphon at Rd 104148 of Nangal Hydrel Channel before monsoon season of 2018” NIT No. 25/2018/ND. Chargeable to the work:- AM&R of NHC unit- iii from RD-62165 to RD 200337 of Kotla Sub Division Kotla, for the year 2018-2019.
 - Restoration of drainage system of right side bank of NHC from RD 112312 to 134000 of Nangal Hydrel Channel.
 - Repairing of honey combed concrete lining slabs on side slopes with 12.50mm thick cement sand plaster 1:3 from RD 107800 to RD 137538 both side of NHC during partial closure of Nangal Hydrel Channel during April- 2018 with indent 4000Cs+ 500 RTP in Bharatgarh Section (up to old top of lining.)
 - Special repair to tile lining joints on side slopes with 1:3 cement sand mortar from RD 134150 both side of Nangal Hydrel Channel of Nangal Hydrel Channel in April- 2018 in Bharatgarh Section.
 - Repairing of honey combed concrete lining slabs on side slopes with 12.50mm thick cement sand plaster 1:3 from RD 137538 to RD 168318 both side of Nangal Hydrel Channel during partial closure of Nangal Hydrel Channel in April- 2018.
 - Repairing of honey combed concrete lining slabs on side slopes with 12.50mm thick cement sand plaster 1:3 from RD 168318 to RD 200337 both side of Nangal Hydrel Channel during partial closure of Nangal Hydrel Channel in April- 2018, with indent of 4000 cusec at tail & + 500 cusec for Ropar Thermal Plant.
 - Special repair to tile lining joints on side slops with 1:3 cement sand mortar from RD 181000 to RD 2000337 both side of Nangal Hydrel Channel during partial closure of Nangal Hydrel Channel in April- 2018 in Ropar Section.
 - Special repair to lining joints on side slops with 1:3 cement sand mortar from RD 151150 to RD 151150 both side of Nangal Hydrel Channel during partial closure of Nangal Hydrel Channel in April- 2018 in Ghanouli Section.
 - Repairing of collapsed slab No. 42 to 45 & 51 to 63 at RD 140000 to 141000 of Nangal Hydrel Channel and slabs No. 78, 79 & 80 between RD 126000 to 127000 L/s of Nangal Hydrel Channel was restored with the help of diving team/departmental machinery/labour during 04/2018 & slab No. 29 in Ghanouli section was restored with the help of departmental machinery/labour.
 - Providing painting & white washing, oil bound smooth exterior paint at various site of Kotla sub Division, Kotla (Painting & white wash and finishing wall in the acrylic smooth exterior paint in 04 nos. M&M type quarter at Kotla) annual maintenance & repair to residential buildings Unit-III Kotla Sub Division, BBMB, Kotla.
 - “Providing painting & white washing, oil bound smooth exterior paint at various sites of Kotla Sub, Division, Kotla (Painting, white washing, oil bound and preparation surface of in Kotla Rest House) Charge to “AM&R upkeep of Kotla Rest house for the year 2018-19.
 - Providing Painting & white washing, oil bound smooth exterior paint at various site of Kotla Sub Division, Kotla (White washing, oil bound, to 36 Nos. LIG type double storey quarter at canal colony Kotla) chargeable to Annual maintenance & repair of unit-IV –C-Works & K-Building (R) 36 nos. LIG type double storey quarters in Canal Colony Kotla.
 - Providing painting & white washing, oil bound smooth exterior paint at various site of Kotla Sub Division, Kotla (Providing Oil bound distemper after scrapping & proposed of surface Kotla Sub Division office complex).Chargeable:- Annual maintenance & repair of Nangal Hydrel Channel Unit-III from RD-62165 to RD-200337 of Kotla Sub Division, Kotla”.

- Repair of deteriorated concrete near of expansion joint of Sirsa Aqueduct over pier No.7 with epoxy based polymer cement concrete.
- Providing temporary protection work to check scouring around the piers from 04 to 14 Sirsa Aqueduct at RD-159958 of Nangal Hydel Channel by providing stone in wire creates.
- Providing 3" inner dia G.I pipe line & replacement of centrifugal pump for lifting raw water from NHC to Kotla Rest House, Kotla.
- Arresting leakage of the Sirsa aqueduct expansion joints over piers using polythane foam and hydro structure resin injection techniques.
- Strength assessment using NDT techniques and recommendations on repair and strengthening measures for Sirsa aqueduct structure on NHC.

C. Bhakra Spillway (Inspection/Repair by Pneumatic Caisson method)

The work of Bhakra Spillway repair has been in progress since 1983 with the help of pneumatic caisson method. The assembling of sinking set and floating equipment was started on 18.12.2018. The job order was placed with various divisions and after joining of the workmen on job order, Pantoon was lowered in spillway. The pantoon lowered in the spillway was dismantled for the clearance of both bays for the operation and testing of river outlets gates from 1-8 at EL 1433 feet as proposed by Addl. S.E. , Bhakra Mechanical division, Nangal. The both the bays were cleared on 3.04.3019.

D. Nangal Workshop

Nangal Workshop is responsible to execute/fabricate/repair of significant works carried out at all projects of Bhakra Beas Management Board Including Irrigation & Power Wing such as Steel Structures, pontoons, Dredger pipes, Dustbins, M.S.Pipe /Trash Racks, Guide Vanes, Bush Hosing, Casting of ferrous & Non-ferrous metal/manufacturing of Rubber seals of various gates & other equipments, manufacture/repair of shafts, bushes, sleeves, other machine parts & sheet metal works etc.

Some of the miscellaneous works executed at Nangal Workshop are as under:-

- Fabrication of M.S. Chowkhats, M.S Gates Tree Guards, M.I Railing, Brackets of wash Basin, wooden Chairs, M.S. Angles Brass Spindles & Dust Bins etc. etc. for Addl. S.E. B.C. & Township Division Nangal.
- Fabrication of M.S. Flanges, Sheddars, Nut & Bolts, M.S Pipe Railing, Brake Block, Rubber Seals, Tree Guard, Anchor Pin, Anchor Plates, Fish Plates, Pipe Railing, Shafts Sleeve Stud, Brackets & M.S. Frames etc. for Addl. S.E. Bhakra Mech. Divn. Nangal.
- Mfg. M.S Angle, Locking Plates, Roller Pin, Blot, Tree Guard, Wooden Chair, Steel Almirah, Rubber Seal, Bush Plumber Block, Nut, Table Brackets, etc. for Addl. S.E. Nangal Dam Division, Nangal.
- Fabrication of Tree Guard, Wooden Chair, Barrigates Steel Almirah, M .S. Frame etc. for Addl. Superintending Engineer, Bhakra Dam Division Nangal.
- Mfg. of Steel Almirah Bush etc. Addl. S.E. R.M. & S.R. Division, Nangal Township.
- Mfg. Steel Almirah, etc. for Addl. Superintending Engineer, Water Regulation Division, Nangal.

- Mfg. of Wooden Chair, Steel Almira, Weight Bridge for Addl. S.E. Proc:C/Stores & Disposal Division Nangal.
- Mfg. of Wooden Chair for Chief Engineer, Bhakra Dam Superintending Engineer/Head Quarter Nangal.
- Mfg. of incumbency Board etc. for Sr. Personal Officer, Nangal Township.
- Mfg. of Steel Garbage Container, M.S. Angle etc. for Addl. S.E. Township Division BBMB Talwara.
- Mfg. of Sign Board etc. for Addl. S.E. R.M. Division, BBMB, Talwara.
- Mfg. of Rubber Seal G.M. Rod. Etc. for Addl. S.E. Mech. Division, BBMB Talwara.
- Mfg. of Steel Almira, Wooden Chair etc. for Director Design, BBMB Nangal.
- Mfg. of Centre Table, Wooden Chair etc. for Dy. Chief Engineer, Mechanical Circle, Nangal.
- Mfg. of Pantoon G.M. Bush Pipe, Wire Sheave Pulley, Brass Bush etc. for Addl. Superintending Engineer, Electrical & Workshop Division, Sunder Nagar.
- Mfg. of Meter Box etc for Addl. SE Electrical Division BBMB Talwara.
- Mfg. of Nut and Bolt for Addl. S.E. Electrical and Mechanical Division, BBMB Pandoh.
- Mfg. of Nut & Bolt, Steel Plates, Shaft Shear Pin, M.S Plates, Gun Metal Seat, M.S Angle, Gland Plates, Tower with Channel etc. for Addl. Superintending Engineer, STP & D Division, BBMB Power Wing Nangal.
- Mfg. of Dustbin Steel Almira, M.S. Gate Titling Dust Bin etc. for Resident Engineer, Bhakra Power House.
- Mfg. of Drilling in Plates, Wooden chair etc. for Resident Engineer, Ganguwal & Kotla Power House.
- Mfg. of Wheel Shaft Brass Nut & Bolt, Rubber Seal Bush, Shaft Assembly. etc. for Addl. S.E. O & M Division BBMB Power Wing Ganguwal.
- Mfg. of Guide Vanes, Grease adopter, Drilling Plates, Brass Seal, Repair Guide Vanes Bush Housing of Guide Vanes. etc. for Resident Engineer, DPH Slappar.
- Mfg. of M.S. Ladders. for Addl. S.E. O&M Division, BBMB Kurukshetra.
- Mfg. of M.S Angle, M.S. Frame for Addl. S.E. O&M Division BBMB (PW) Jalandhar.

E Bhakra Mechanical Division, Nangal

Bhakra Mechanical Division, Nangal is mainly responsible for operation, maintenance/repair works of permanent installations including radial gates, river outlet gates, trash racks, spillway radial gates etc., maintenance & overhauling of all the Mechanical equipment including heavy earthmoving machinery, transport vehicles, at Bhakra Nangal Project and railway network which have been provided for carriage of workmen & material from Nangal to Bhakra Dam and other such works.

6.2.2 Beas Project

6.2.2.1 Beas Project Unit-I (BSL)

A Monitoring of the behavior of Pandoh Dam, various components of BSL Project and Dehar Power Plant, with the help of data observed on various instruments /devices was done and it was

found that structure behavior of these works has functioned quite satisfactory during the period under report.

B Problem of Excessive Sulphate contents in seepage water of galleries/tunnels at Pandoh Dam.

The problem of sulphate contents in seepage water is being monitored regularly. The flow of high sulphate content in the affected seepage hole of D & G Galleries of Pandoh Dam is in stabilized condition. The Ultrasonic Pulse Velocity tests conducted by the CS & MRS, New Delhi during August, 2016 showed that no significant deterioration of concrete quality has taken place with the time over the monitoring period. The overall quality of concrete is good.

C Repair of Pandoh Spillway.

After the flood season of 2017 the repairs of Pandoh Spillway were carried out and an area of 1279 sqm. was repaired as per practice in vogue.

D Flushing of PBT intake Pocket.

In order to prevent the entry of bed material and to minimize the ingress of silt into PBT, two number flushing operation of PBT intake pocket was carried out from 13.08.2018 to 14.08.2018 and 24.09.2018 to 25.09.2018 in which 1777.74 hect.m of silt removed from Pandoh Reservoir.

E Silt observation in the Balancing Reservoir.

During the period July, 2018 to September, 2018, the three dredgers have removed 96.35 Hect.m of silt from balancing reservoir. As per latest silt survey carried out, the balance silt deposits at the end of period was of the order of 57.67 Hect.m

F Emergency Gates of Baggi Control Works:

During the annual maintenance of right and left bays of Baggi Control Works stilling basin, the leakage of all the emergency gates was normal. Repair and maintenance of Gate no. 4 was carried out. General maintenance of mechanical works, stop logs etc. has been done as per normal procedure & schedule.

G Penstock Headers & Branches

Routine maintenance regarding Penstock Headers, Branches and dresser couplings has been carried out. Internal inspection and repair of penstock branches nos. 5 & 6 will be executed as per availability of shut down of respective machines.

6.2.2.2 Beas Project Unit-II (Pong Dam)

A Monitoring of the behavior of Pong Dam, various components of Pong Dam & Power Plant, with the help of data observed on various instruments/devices was done and it was found that structural behavior of these works has functioned quite satisfactory.

B Crustal Deformation along the periphery of Pong Reservoir.

Observation of bench mark elevation fixed along the periphery on left and right sides of reservoir upto 15kms, were taken by staff during October/November, 2017 at maximum RWL and at minimum RWL during May/ June, 2018. The maximum vertical deformation observed is 5.1 mn on left side of reservoir at bench mark no. 69 for average. Max. RWL 443.916 m (1456.75 ft) and average Min. R.W.L 473.577m (1553.71 ft).

C Sedimentation of Pong Reservoir.

Sedimentation survey of Pong reservoir carried out during 2017-18 has revealed that average annual rate of siltation from year 1974 to 2018 (44 years) works out to 24.29 Mm³ (19695 Ac. Ft) against the design figure of 25.29 Mm³ (20500 Ac. Ft.). The

average silt yield/annum/sq.mile of catchment area (1974 to 2018) works out to 5007.93 m³ (4.06 Ac. Ft). The average trap efficiency during 1975-76 to 2017-18 is about 97.41%. The percentage of total sediment deposit is 26.42 in dead and 73.58 in live storage of the reservoir.

6.2.3 Dam Safety Activity

Beas Dam & Bhakra Dam

The Pre-monsoon and Post-monsoon inspection of various units of Bhakra Beas Complex carried out by field engineers and nothing abnormal reported.

The 5th Dam Safety committees comprising of eminent experts constituted by BBMB vide latter dated 17-10-2017, carried out the inspection of Beas Satluj link project in two phases in May 2018 and Nov 2018.

In general, the committee has observed that overall conditions of all the structures of project is excellent. The reports of 5th Dam Safety Committee regarding inspection of (i) Bhakra Dam and power Plants. (ii) Nangal Dam, Nangal Hydal Channel and Canal Power Houses (iii) Beas Dam and Pong Power Plant were got approval published and circulated to all concern including Center Water Commission.

The recommendations/observations made by Dam Safety Committees is being monitored and implemented on regular basis by Dam Safety Directorate, BBMB, Nangal.

6.2.4 BBMB Hospitals

BBMB hospitals are providing outdoor as well as indoor medical facilities to the employees of BBMB as well as to the general public of the area. Sufficient diagnostic aids like X-Ray, pathological investigations, ECG, physiotherapy, ultrasound and other facilities like blood transfusion are being provided. Revised National T.B. Control Programme (RNTCP), Immunization Programme, etc. are also being run. In Eye Department, I.O.L. operations are being performed. Public health care and family welfare facilities are also being provided in the hospitals.

6.2.5 Visitors

During the year 2018-19, 7,239 persons visited Pong Dam and 4.84 Lac at Bhakra Dam.

6.3 National Hydrology Project

Bhakra Beas Management Board (BBMB) has set up Earth Receiving Station (ERS) at Chandigarh for inflow flood forecasting (i.e. short term 3 days and medium term 7 to 10 days) for optimum utilization of Bhakra and Pong Reservoirs and Canal Network. BBMB was the 'first mover' in the country under the World Bank funded Hydrology Phase-II project.

Under this project 93 no. Real Time Data Acquisition stations comprising Automatic Rain Gauge Stations, Automatic Full Climate Stations, Snow Water Equivalent, Water Level Recorders etc. including 6 nos. co-operator stations of IMD and 10 No. Automatic Stage Recorder at Contact Points of Partner states have been installed in the catchment of River Sutlej and Beas by using state of the art technology. The schematic arrangement of Real Time Decision Support System involves real time transmission of Hydro meteorological data through INSAT-3D at 1 hour interval to Earth Receiving Station at Chandigarh.

Real Time Data is processed using Rainfall Runoff Model, Hydro Dynamic Model, Flood Model and Water Allocation of MIKE software. The outcome/ scenario generation is further shared on NHP Dashboard accessible to all.

MOWR, Govt. of India in association with World Bank has initiated, National Hydrology Project (NHP) in India to carry forward the work and objectives of Hydrology Project Phase-II under the NHP. To this effect, BBMB has been allocated Rs. 30.00 Crore for strengthening and expansion of existing Data Acquisition system (DAS), development of alternate models and technology enhancement along with capacity building in the organisation to achieve better results.

Under NHP, a series of annual Water Management Conferences are envisaged, which are proposed to be hosted by different implementing agencies. First such International Conference has been organized by Bhakra Beas Management Board (BBMB) during the period December 10-11, 2018 at Indian School of Business (ISB) Mohali. About 500 participants comprising water resources professionals, experts from academia and research institutions, industry and students/research scholars including foreign experts from various countries (i.e. Australia, United Kingdom, USA, Spain, Netherlands, Republic of Korea, Canada, Germany, Sri Lanka, Vietnam) participated in the event. The conference provided an excellent platform to exchange ideas and good practices, create and strengthen partnerships, learn about new developments in the field of equipment and discuss about different aspects of sustainable water management i.e., meeting the current needs without compromising the ability of future generations to meet their water needs.



अध्याय-7 Chapter-7

जल-शक्ति अध्ययन Water Power Study

Actual Water Power Data for the operation of Bhakra Reservoir for the period 1.4.2018 to 31.3.2019

Month	Period	Inflows (Cs days)					Gains or Losses between Nangal & Ropar (Cs days)	Delhi Jal Board (Cs days)	W.J.C Contribution (Cs days)	Releases from Bhakra Reservoir (Cs days)	Closing reservoir level (ft)	Av. power from Bhakra Power Houses		Av. power from Gw I. & Kotla Power Houses		Total Power available from Bhakra Complex		Gen. from Dehar Power Plant in LU
		Satluj	Dehar Power Plant	Bye Pass Chute	Total Col. (4+5)	Total Col. (3+6)						MW	LU	MW	LU	MW	LU	
Starting reservoir level on 31.03.2018 = 1550.10 ft																		
April 2018	01-10	4302	2084	-	2084	6386	-300	496	-	12243	1544	321	77	136	33	457	110	42
	11-20	4452	2263	-	2263	6715	-300	496	-	8658	1541	225	54	99	24	324	78	46
	21-30	5488	3539	-	3539	9026	-300	248	-	12056	1536	310	74	119	29	428	103	70
May	01-10	6788	3992	-	3992	10780	-600	496	-	22773	1519	572	137	147	35	719	173	77
	11-20	7576	3802	-	3802	11378	-600	496	-	22312	1501	540	130	145	35	685	164	74
	21-31	8902	5471	-	5471	14373	-600	496	-	20158	1491	483	116	148	36	631	151	103
June	01-10	15805	8270	-	8270	24075	-600	496	-	18093	1506	427	103	146	35	573	138	145
	11-20	21986	8167	-	8167	30153	-600	496	-	25220	1508	604	145	146	35	750	180	143
	21-30	14301	6549	-	6549	20850	-600	496	-	32007	1493	744	179	148	36	892	214	120
July	01-10	20080	8197	-	8197	28277	1000	125	-	23532	1502	544	130	147	35	691	166	143
	11-20	26277	8460	-	8460	34737	1000	125	1670	20035	1526	493	118	145	35	638	153	145
	21-31	42049	8439	-	8439	50487	1000	125	1842	18899	1568	509	122	140	34	649	156	147
Aug.	01-10	37468	8463	-	8463	45931	1000	125	2720	18200	1594	525	142	146	35	670	161	147
	11-20	53403	7592	-	7592	60995	1000	125	1239	16446	1625	523	142	145	35	667	160	133
	21-31	34017	8451	-	8451	42468	1000	125	2750	16938	1641	556	133	145	35	701	168	147
Sept.	01-10	25924	8482	-	8482	34406	-	125	2750	19640	1649	665	160	150	36	815	-	149
	11-20	17156	7854	-	7854	25010	-	125	2095	19648	1651	671	161	150	36	821	197	139
	21-30	28526	7047	-	7047	35573	-	125	16	11697	1665	396	95	115	27	511	123	126
Oct.	01-10	11451	7788	-	7788	19239	-	496	16	11688	1668	410	98	132	32	542	130	136
	11-20	9125	4927	-	4927	14052	-	496	-	12243	1669	430	103	144	35	574	138	93
	21-31	6871	3745	-	3745	10616	-	496	-	12102	1608	426	102	140	34	567	136	70
Nov.	01-10	6357	3495	-	3495	9852	-	496	-	11837	1667	419	100	137	33	556	133	66
	11-20	5831	3051	-	3051	8882	-	496	-	9797	1667	343	82	109	26	452	109	57
	21-30	5401	2814	6	2820	8220	-	496	-	8901	1666	300	72	102	25	402	97	53
Dec.	01-10	5054	2268	-	2268	7312	100	496	-	10076	1665	338	81	105	25	443	106	42
	11-20	4495	2148	-	2148	6643	100	496	-	12831	1661	440	106	129	31	568	136	40
	21-31	4309	1986	-	1986	6295	100	496	-	16092	1655	560	134	150	36	710	170	36
Jan. 2019	01-10	4199	1814	-	1814	6014	200	496	-	14378	1651	493	118	152	36	645	155	32
	11-20	4009	1793	-	1793	5802	200	496	-	15846	1645	547	131	151	36	698	168	32
	21-31	4266	1803	-	1803	6068	200	496	-	17125	1638	579	139	150	36	729	175	33
Feb.	01-10	5959	2032	-	2032	7991	400	496	-	13842	1635	461	111	141	34	602	145	39
	11-20	5541	2724	-	2724	8265	400	496	-	12166	1632	399	96	139	33	539	129	52
	21-28	6529	4820	-	4820	11349	400	496	-	14795	1631	493	118	148	36	641	154	89
Mar.	01-10	5755	3167	-	3167	8922	200	496	-	15337	1627	506	121	124	30	630	151	62
	11-20	4807	3106	-	3106	7913	200	496	-	17616	1620	574	138	147	35	722	173	60
	21-31	5496	4786	-	4786	10282	200	496	-	17029	1616	547	131	146	35	693	166	91

Actual the Operation of Pong Reservoir for the period 01.04.2018 to 31.03.2019

Months	Period	Inflows at Pong (cs)	Gains or Losses between Pong & Mandi Plain(cs)	Net diversion Ravi to Beas (cs)	Releases from Pong Reservoir (cs)	Closing Reservoir level (ft)	Generation from Pong	
							MW	LU
1.	2.	3.	4.	5.	6.	7.	8.	9
Starting Reservoir level on 31.03.2018 = 1292.84 ft.								
April 2018	01-10	1619	-	1530	1236	1293	19	4
	11-20	1941	-	1837	1277	1294	20	5
	21-30	1413	-	960	1656	1293	25	6
May	01-10	1495	-500	2846	4610	1291	69	17
	11-20	1966	-500	3915	4146	1289	61	15
	21-31	1218	-500	3473	4505	1286	65	16
June	01-10	3794	-500	2795	3338	1287	48	11
	11-20	3571	-500	1769	6458	1283	92	22
	21-30	5592	-500	1708	6687	1283	92	22
July	01-10	9365	1125	2708	9228	1282	129	31
	11-20	16235	1125	1943	9218	1290	129	31
	21-31	35324	1125	2834	8780	1311	135	32
Aug.	01-10	43265	1125	1642	5971	1332	102	25
	11-20	60985	1125	478	4686	1358	88	21
	21-31	41889	1125	2247	6960	1372	140	34
Sept.	01-10	24098	1125	2732	12006	1376	244	59
	11-20	14629	1125	3140	11253	1377	233	56
	21-30	57708	1125	2983	11179	1393	239	57
Oct.	01-10	8985	750	4505	13498	1391	293	70
	11-20	5363	750	3400	13980	1388	301	72
	21-31	4100	750	4216	13106	1385	280	67
Nov.	01-10	2624	375	4526	11251	1382	237	57
	11-20	2848	375	4466	10243	1379	214	51
	21-30	3093	375	2873	12804	1376	266	64
Dec.	01-10	2491	375	3278	12921	1372	265	64
	11-20	2120	375	2869	13808	1367	279	67
	21-31	2402	375	2399	14130	1363	280	67
Jan. 2019	01-10	2368	375	2945	12459	1359	243	58
	11-20	2600	375	1886	13032	1354	250	60
	21-31	4497	375	928	12473	1351	236	57
Feb.	01-10	7292	375	634	12475	1349	232	56
	11-20	6659	375	606	13106	1346	243	58
	21-28	9324	375	668	12420	1344	229	55
March	01-10	5159	375	4337	10914	1342	200	48
	11-20	4342	375	5211	10832	1339	196	47
	21-31	3822	375	4971	3086	1340	55	13



अध्याय-8 Chapter-8

पुरस्कार एवं सम्मान Honours and Awards

8.1 The Awards won by BBMB during the year 2018-19 upto 31.03.2019:

1. Professional Awards:

- BBMB has been selected as the winner under the category “Best Hydro Power Generator” by IPPAI. The award ceremony was held on 24th November, 2018 at Belgundi, Belgaum, Karnataka.
- BBMB has been awarded for CBIP Award 2019 in the category of “Best Maintained Project (fully completed and functional for more than 10 years)”. BBMB has also been awarded for CBIP Award 2019 in the category of “Best Performing Utility in Hydro Power Sector”.

2. Hindi Awards:

- Bhakra Dam Administration has been awarded First Prize by the Official Language Department, Ministry of Home affairs, Govt. of India for doing maximum official work in Hindi in "B" region.
- Bhakra Beas Management Board was selected by the Department of Official Language for Second Prize in Boards'/Autonomous Bodies' category in region "B" under Rajbhasha Kirti Puraskar for the year 2017-18. The award was given by Hon'ble Vice President of India on 14th September, 2018, in a prize distribution function held in Vigyan Bhawan, New Delhi.
- For Implementation of Official Language in "B" region, BBMB has created history by winning first, second and third prizes in the category of subordinate offices. These awards have been won by the Chief Engineer, Bhakra Dam, Nangal, Chief Engineer, Transmission System, Chandigarh and Chief Engineer, System Operation, Chandigarh.
The prizes were given by Sh. Kiren Rijiju, Hon'ble Minister of State for Home Affairs, Govt. of India, in a prize distribution function held at Chandigarh on 19.11.2018.

3. Painting Competition Award:

- BBMB has been awarded two National Prizes for “Best State Level Nodal Officer Category” and “Best UT Level Nodal Officer Category” for achieving highest percentage of students participation in painting competition on Energy Conservation by school children of the state of Haryana and UT, Chandigarh for the year 2018. These awards were presented by Hon'ble Smt. Sumitra Mahajan, Speaker of Lok Sabha, in the august presence of Sh. R.K. Singh, Hon'ble Minister of State (Independent Charge) for Power, New and Renewable Energy, Govt. of India, at a function held at Vigyan Bhawan, New Delhi on the National Energy Conservation Day on 14th Dec. 2018s

8.2 Sports Awards:

In addition to above categories, BBMB excelled equally well in **the field of Sports** and has won the following Prizes:

- BBMB won Volleyball Tournament organised by Damodar Valley Corporation at Malthon Township, Dhanbad.
- BBMB won Kabaddi Tournament organised by Power Grid Corporation of India Ltd. at Hyderabad.
- BBMB won Athletic Men & Women Tournament organised by BBMB at Nangal Township.
- In the meeting of Power Sports Control Board held at Delhi, BBMB has been awarded the best organiser award for conducting the Athletic Meet.
- BBMB Bridge team, in individual category, won Bronze Medal in Inter Central Power Sector undertaking Bridge Tournament held from 19th to 21st November, 2018 at Bangalore.
- BBMB's men team stood first in Inter Central Power Sector undertaking badminton tournament. This tournament was held from 28th to 30th November, 2018 in Chennai.
- BBMB Volleyball team won the Gold Medal in Inter Central Power Sector undertaking Volleyball tournament held from 19th to 21st December, 2018 at Rishikesh.
- BBMB attained runner up position in the 19th Inter CPSU Cricket Tournament organized by Power Grid Corporation of India at Gurgarm on 09.02.2019.



अध्याय-9
Chapter-9

पर्यावरण प्रबन्धन
Environment Management

9.1 Environment Management

Environmental Appraisal of river valley projects was initiated in 1979 as an administrative requirement but was subsequently made mandatory by Govt. of India in January 1994 through a notification of Impact Assessment. New river valley projects including hydel power, major irrigation and their combination including flood control are required to obtain environmental clearance as per Gazette Notification No. S.O. 60 (E) dated January 27, 1994 (subsequently amended) covering both preventive and mitigative measures. The present Environmental Impact Assessment (EIA) /Environment Management Plan (EMP) for the river valley projects cover the following action plans:-

- Catchment Area Treatment (CAT) Plan
- Afforestation Plan
- Survey of flora and fauna and action plan for restoration
- Rehabilitation and Resettlement Plan (R and R), if any
- Command Area Development (CAD) Plan.

Regarding Bhakra and Beas Projects, there were provisions for R&R plans but there were no provisions for other plans, like CAT, CAD, Afforestation Plans, etc. as these were constructed prior to 1979. However, BBMB, on its own, has started studying and evaluating the post-construction status of environmental components and their impacts, if any, for short-term and long-term mitigative measures at all project stations.

9.2 Socio-Economic Impacts Of BBMB Projects

The beneficial impacts of Bhakra and Beas Projects have been much more compared to that envisaged at the planning stage. Bhakra and Beas Projects being multi-purpose projects, have two big storage reservoirs namely, 'Gobind-Sagar' and 'Maharana-Partap Sagar', which provide irrigation and drinking water to Punjab, Haryana, Rajasthan, Delhi and Chandigarh. These Reservoirs and their connected canal system have not only brought the '**Green Revolution**' but also the '**White and Industrial Revolutions**' in Northern Region.

BBMB Projects brought socio-economic upliftment of the region by way of enhanced employment opportunities, better energy and irrigation facilities, enhanced industrialization, ecological improvement in the downstream areas of the dams due to prevention of floods, etc.

In addition, these Reservoirs attract not only tourists but also promote fishery.

The Pong Dam Lake (Maharana-Partap Sagar) has been included in the list of 'Wetlands of International Importance' in August, 2002 under the Ramsar Convention on Wetlands of 1971. More than one lac migratory birds of 220 species visit Maharana Partap Sagar every year. Nangal Lake has been included under National Wetland Conservation Programme in January, 2008 by Ministry of Environment & Forests, Govt. of India.

BBMB organized a National workshop with the help of Central Board of Irrigation and Power, New Delhi in the month of August, 2005 at New Delhi on the subject "**Impact of Bhakra-Nangal Project**". Through this workshop, BBMB has brought forward the facts regarding positive impact of Bhakra-Nangal Project before the nation.

9.3 Environment Management Plan For BBMB

Following measures were taken regarding implementation of Environment Management Plan for BBMB:-

- A study of EIA for Beas Satluj Link Project of BBMB was got conducted in 1999 from NEERI, Nagpur for proper silt management from Sundernagar balancing reservoir & as per their recommendations, the silt is being removed during Monsoon only to avoid environmental degradation.
- Final report of the Expert Committee has been submitted to Hon'ble Himachal Pradesh High Court, Shimla with the conclusion that dredging will be carried out only during monsoon for management of silt at BSL Project. After the decision of Hon'ble H.P. High Court Shimla, matter was placed before the Board in its 211th meeting and as per approval of the Board, SLP has been filed in the Hon'ble Supreme Court of India. Hon'ble Supreme Court of India vide order dated 14.12.2012 has directed the H.P. Pollution Control Board not to take any coercive steps in terms of judgment of Hon'ble High Court. Thereafter the matter was listed for 21.1.2013. Hon'ble Supreme Court has granted leave in the matter and has also directed interim protection granted vide order dated 14.12.2012 to continue.
- 3 no. dredgers deployed to ensure flexible and reliable dredging capability during the monsoon season for dredging out maximum silt from the Balancing Reservoir.

- Measurement of flow discharge and total suspended solids at various sites in Kansa Khud and river Beas are being observed during monsoon. L-section and Cross-section along Suketi Khud are also being observed for pre-monsoon period and for post monsoon period every year to study the deposit of the silt, if any.
- Catchment Area Treatment (CAT) Plan for BSL project up-stream of Pandoh Dam to Larji Dam for river Beas and its tributaries was got prepared from Himalayan Forest Research Institute, Shimla.
- In Bhakra and Beas catchments a no. of new hydroelectric projects are coming up and CAT plans are to be framed by respective project proponents.
- Other mitigation measures like organized promotion of fish production, one time farm management of silt effected agriculture land, tarring of village roads etc.
- To prepare solid waste management plans for its safe & and scientific disposal around the project areas.
- BBMB is an ISO 14001:2008 certified organization for Environmental Management System for its hydro projects and generation units.
- R&R aspects of Bhakra and Pong dams are being met with.

9.4 Release Of 15% Minimum Flow From Pandoh Dam

HP Govt., vide notifications dated 16.7.2005 and 9.9.2005, had issued the directions regarding release of minimum flow to the extent of 15% immediately downstream of diversion structures of the existing and upcoming hydel projects in Himachal Pradesh. Pandoh Dam of BBMB being a diversion dam comes under the ambit of this notification. BBMB has been releasing 15% of minimum flow at Pandoh Dam since September, 2005. However, BBMB has also taken up the issue of exemption regarding its applicability to BBMB projects being old projects with HP Govt. and the Ministry of Environment and Forests (MoEF) through Ministry of Power.

9.5 Plantation Programme

BBMB has been improving ecological environment by following regular 'Plantation Programme' undertaken every year on its vacant land, maintaining & improving gardens, terraces, fringe areas of the reservoirs, project

colonies, offices, etc.. BBMB has fixed the target of planting 6 lakh trees in periphery of reservoirs and adjoining catchment area during the year 2019-20

9.6 Rock Garden At Talwara

BBMB has developed a modern Rock Garden, first of its kind under the stewardship of Padam Shri Nek Chand, Founder of 'Chandigarh Rock Garden' on about 20 acres of vacant land at Talwara Township. The Rock Garden at Talwara has been developed from the waste and surplus material collected from Beas Dam Project. It has unique features, like an Engineering Section, Modeling dam Construction, an Environment Section and Children Park. This modern Rock Garden was inaugurated by Chairman, BBMB on 16th August, 2005 in the presence of Padam Shri Nek Chand. New development works including preparation of ground for land scapes, are being taken up every year in this prestigious garden.

9.7 Social Welfare Activities

BBMB is very much alive to its social responsibilities. At every project station, BBMB is liberally spending towards welfare activities for local people residing in the vicinity of the projects. During the year, BBMB hospitals provided specialized outdoor as well as indoor medical facilities, alongwith ambulance, to the people residing in villages in the vicinity of the projects. Public Health Care and Family Welfare Facilities were also provided. Blood donation camps were organized. Moreover, free medical camps were held to provide ready medical help alongwith medicines, at the doorstep of the villagers. Moreover it is has been decided to make provision @ 2% of the annual Irrigation works budget for carrying out various social welfare activities by BBMB in consultation with respective local authorities/ Deputy Commissioners of the areas for people living in the vicinity of BBMB projects especially in rural areas.



अध्याय-10
Chapter-10

मानव संसाधन विकास
**Human Resource
Development**

10.1 Human Resource Development

10.1.1 Training Policy of BBMB

A BBMB framed its own training policy in the year 2003 in line with the Ministry of Power's "Training Policy for Power Sector-March 2002" and implemented it for imparting extensive and regular training to its personnel from the year 2003-04 onwards. To review the existing policy and prepare biennial perspective training plan, a Standing Core Group headed by FA&CAO was constituted in October, 2007 to guide the entire training functions in BBMB. Working Procedure for nomination of officers/ officials for various Training Courses/ Seminars/Symposia etc. has been prepared which is applicable w.e.f. 09.06.2015 and is being amended as per requirement from time to time.

B The motto of BBMB Training Policy is to "ensure Training for all once a year for each employee". Based on the policy, the target of 7 Manday of training for JE to CE level including other classes-I, II & III. Mandays of training for Class- III & IV level is proposed to be accomplished. The training need assessment for the manpower is done before beginning of the Financial year and the Annual Plan showing the 'Target' under different heads, like Institutional Training, In-house Training, etc. and the 'Man days of Training to be imparted' are fixed. Additionally, In-House Training Calendar for the Financial year is prepared by the respective HODs. The Training Programmes are accordingly carried out at different Project Stations and Training achievements are monitored on monthly vis-à-vis the targets. The Institutional Training Calendar depicting different modules such as, Technical Training, Personality Development, IT & Computer skills, Health & Life Style Management, HR & Finance, Fire Safety with First Aid, Workers Training, Misc. Modules , etc. were also prepared for the year 2018-19 as well.

C After reviewing its prevalent Training Policy, a need of focused and extensive training to all staff was felt as new staff was inducted from partner States to fill the gap made by retirements. Employees being from different States/Departments and work cultures, it becomes imperative that they must be trained as per requirements and working culture of BBMB under induction training programme. In addition, due to frequent transfers/repatriation of staff from and to their parent departments, it is essential to conduct training programmes on regular basis so as to keep all the newcomers abreast with BBMB work requirements and culture. Moreover, it is endeavoured to include all categories of in-position employees in the training programmes to improve their technical/managerial skills and to equip them with the latest know-how & innovative technologies. Orientation Programmes are also arranged at Project Stations from time to time for newly inducted Engineers of Irrigation Wing & Power Wing.

D Various types of training are being imparted by BBMB are as under:-

- i) Institutional Training wherein personnel are nominated from BBMB to attend Training Programmes/Seminars/ Conferences/ Workshops at various Institutes situated at different stations or by organizing

Training Programmes for BBMB personnels through outside experts/ faculties etc.

- ii) In-house Training Programmes through BBMB's own experts/ faculties etc.
- iii) Induction training to personnel joining BBMB either on fresh recruitment or from partner states.
- iv) DRUM training on Distribution Reforms to Power Utilities/Discom of partner States.
- v) On-Job, Site Training to Engineers from other Organizations, like HCS Probationers from Haryana Irrigation, NPTI, PSTCL etc.
- vi) Practical Training/Training visits to students of Under-Graduate/Post Graduate courses of Engineering from different Colleges in India.

The above training programmes are being conducted for giving training to each category of officers/ staff of BBMB i.e. Engineers, Ministerial staff, like Superintendents/ Assistants, etc. Non-technical class and workers.

As institutional training is not cost effective for Worker class/ Ministerial staff categories of employees, Management decided to have extensive In-house training programmes at all the Project Stations/Work places. Interactive Workshops/Seminars, etc. at all the Project Stations/Work places are being organized at large scale on diverse topics such as Technical Management, Motivation, Health, Finance etc.

BBMB has created its own infrastructure for imparting training to its employees. A lecture hall at SLDC Complex, Chandigarh to arrange In-house lectures/ Workshops/ Seminars has been established in the year 2003. A Training Centre named "Bhakra Beas Training Centre" has commenced working at Nangal since March, 2005. This Training Centre has a lecture hall with all the latest learning-aids, two different model-rooms for Irrigation and Power Wings and a discussion room to impart Institutional Training to Power Sector Engineers and Technicians of BBMB & other Power Utilities.

Training programme on "Distribution, Reforms, Upgrades & Management" (DRUM) has been started at this centre since 2005-06 and every month a training on "DRUM" is being imparted in which Engineers from the Partner States/Utilities also participate. In the year 2018-19, BBMB is continuing with the DRUM training programme on self-sustaining "No-Profit No-Lose" basis remained continued in BBMB.

The teaching staff of BBMB Schools is nominated for attending Capacity Building Programmes conducted by CBSE to update them with the new Technology in the education system

10.1.2 Achievements in respect of training during 2017-18 & 2018-19

The achievement in respect of 'Training Mandays covered' in BBMB for training BBMB personnel during 2017-18 & 2018-2019 is as under :-

Training Mandays

		Training Mandays				TOTAL Achievement
		Executives		Non-Executives		
Year	Target of Mandays Fixed	Institutional training	In-house training	Institutional training	In-house training	
2017-2018	16000	1822	2174	352	13497	17845
2018-2019	16000	2299	2136	811	13113	18359

10.2 Implementation Of Reservation Policy For SC And ST.

BBMB discharge its function as laid down in Section 79(1) of the Punjab Re-organization Act, 1966 for which staff for the operation and maintenance of BBMB works is provided by partner State Governments/SEBs on transfer basis .However, in the event of inability of partner States/SEBs to provide the requisite staff, BBMB resorts to direct recruitment and promotion in respect of Group 'C' and 'D' employees.

Thus the staff in BBMB is drawn from the partner States according to the allocated share of posts. Such employees are governed by the same terms and conditions as are applicable to them in their parent departments. The reservation for the members of SC/ST categories of employees is watched by the parent departments of State Government according to their policy/rules/regulations. BBMB's own recruited employees are governed by BBMB Class III and Class IV Employees (Recruitment and Conditions of Service) Regulations, 1994 and BBMB Class I & II Officers (Recruitment and Conditions of Service) Regulations, 2015. As per the provision of Bhakra Beas Management Board Class-III and Class-IV employees (recruitment and conditions of Service) regulation 1994 and BBMB Class I & II Officers (Recruitment and Conditions of Service) Regulations, 2015, BBMB followed Punjab Government reservation Policy till April, 2017. Now as per Gazette Notification of Govt. of India, BBMB is following Central Government Reservation Policy since May, 2017. The amended clause 11 of ibid regulations specifies that "the members belonging to the Scheduled Castes, the Scheduled Tribes, Backward Classes, Ex-Serviceman, Physically handicapped persons and the dependents of deceased employees in the service, shall have the reservation in the service and all other concessions as prescribed by the Central Government from time to time". Roster Registers are being maintained by various Administrations/ HODs of BBMB.

The existing strength/percentage of Schedule Caste employees as on 01.01.2019 is as under:-

Group	Total existing BBMB own recruited employees	Scheduled caste	Percentage
A	80	18	22.5%
B	464	99	21.3%
C	2328	626	26.80%
D	2484	796	32.04%
Total	5356	1539	28.73%

For providing general welfare measures for SC employees, instructions have been issued to all field offices requesting them to provide the following facilities, if so demanded by the members of SC, on the occasion of birthday of Dr.B.R.Ambedkar, Maharishi Balmiki Ji and Sri Guru Ravi Dass Ji:-

- i) Bus facilities for Shobha Yatra at token charges of Re.1/- per km.
- ii) Auditorium for function on above occasions, free of charge.

Instructions have also been issued to all Head of Departments in BBMB that the heads of organization and senior officers should frequently meet their SC/ST officers/staff, particularly on occasions like Dr.B.R.Ambedkar Jayanti, Maharishi Balmiki Ji Jayanti, etc.

In addition to above, BBMB has given representations to the members of the Scheduled Castes by nominating one SC member of the rank of Addl.SE/Senior Executive Engineer in all Selection Committees.

10.3 Management-Employee Relationship

Meetings of the management with the representatives of the Staff/Unions were convened from time to time and the demands raised by the Unions and their grievances were settled amicably.

10.4 Integrity And Honesty: Imprint Of Vigilance Organisation

The Vigilance Organisation in Bhakra Beas Management Board comprises a part time Chief Vigilance Officer (CVO), Dy.CVO of the rank of Superintending Engineer and Six Vigilance Officers (VOs) in the rank of Superintending Engineer/ Dy.Director,/A.Ds/Sr.AO have been posted under CVO to carry out the vigilance work. Any complaint(s) received is got investigated by the VO and bases on finding/record appropriate action is taken.

The Vigilance Organization in BBMB is doing earnest efforts to inculcate the following discipline among all the employees and working of BBMB, as a measure of preventive vigilance as under:-

- (i) To check and control the very tendency on one's part to delay the matters.
- (ii) To record speaking orders in clear terms on the files giving merits of the orders.
- (iii) To avoid decision being influenced by those who might have an axe to grind.
- (iv) To be always receptive to any suggestion by a colleague, superior or a subordinate which may result in saving to the exchequer.
- (v) To be firm in conviction that integrity is to be safeguarded and any price paid in this regard is insignificant.
- (vi) Identification and focus on sensitive spots, regular and surprise checks/inspections of such spots.
- (vii) Identification of officials suspected of corruption, and proper scrutiny of personnel who are posted in sensitive posts which involve public dealing establishment and purchase related work and ensure their rotation after every 3 years as per CVC guidelines.
- (viii) To keep a watchful eye on all breeding places of corruption.
- (ix) To expose without fear those involved in acts of self-gratification.
- (x) To take pride in humble living and acts of honesty.
- (xi) To follow the rules, procedures, instructions, manuals, etc, meticulously.
- (xii) To avoid drawing illogical and dubious inferences so as to derive undue benefits whenever an ambiguity in rules is encountered.
- (xiii) Agreed list & list of doubtful integrity are prepared and it is ensured that officers/officials of doubtful integrity are not posted on sensitive posts.
- (xiv) Expedite the inquiries and their follow-up action to get decision from parent States/State Electricity Boards.
- (xv) Implementation of disciplinary actions without any delay wherever BBMB itself can take the action.
- (xvi) Various advisory have been issued for system improvement in BBMB.
- (xvii) Preventive circular for improving awareness as well as system improvement in working of BBMB were also taken up from time to time.

During the year 2018-19 (01.04.2018 to 31.03.2019) 20 complaints were received 15 Nos. complaints have been disposed off & remaining 5 complaints are under investigation.

Besides above, **Vigilance Awareness Week – 2018** was celebrated w.e.f. 29.10.2018 to 03.11.2018 in BBMB offices at Chandigarh as well as at Project Stations. An interactive session on “**Eradicate Corruption-Build a New India**” was also conducted on 01.11.2018 at Chandigarh and Nangal.

10.5 Implementation Of The Official Language Policy Of The Union In BBMB

Officials in the BBMB are normally posted on transfer basis from the partner states i.e. Punjab, Haryana, Rajasthan and Himachal Pradesh. Out of this, 60% staff is from the Punjab state/Power Utilities of Punjab, whose mother tongue is Panjabi and they perform all the official work either in Panjabi or in English only. Under these circumstances, it had been very difficult to implement the official language policy of the Government of India in the board. There was a time when only 4-5 per cent work was done in the Board, however, due to commitment of higher officers and under their expert guidance, use of Hindi in the official work of the Board started gradually.

The Department of Official Language issues an Annual Programme every year in order to promote the progressive use of the official language Hindi. The targets fixed in the Annual Programme has since achieved by the Board.

Compliance of Section 3(3) of the Official Language Act, 1963

Details of the documents issued by the Board Secretariate and the Board as a whole, under Section 3(3) of the Official Language Act, 1963 during the year 2018-19 are given below:

	Documents issued under Section 3(3)	Documents issued in English only
Board Secretariate	408	Nil
Board as a whole	5015	Nil

Reply of the letters received in Hindi

All the letters received in Hindi are invariably replied in Hindi by the Board Secretariate and its sub-ordinate offices. Status of the reply in respect of the letters received in Hindi during the year 2018-19 is given below:

	Total Letters Received in Hindi	Reply in Hindi	Reply in English
Board Secretariate	16,652	11,267	Nil
Board as a whole	5,00,058	4,03,128	Nil

Note : Remaining letters filed.

Correspondence in Hindi

Number of letters sent in Hindi by the Board Secretariate and its subordinate offices since last few years, has registered a manifold increase due to the collective efforts of the staff and the officers of the Board for implementation of the official language, and the targets fixed in the Annual Programme has been achieved. 98% letter in the Board Secretariate and 92% in the Board as a whole had been sent in Hindi during the year 2018-19. The details are given below:

	Total letters	Sent In Hindi	Sent in English
Board Secretariate	42,723	41,950	773
Board as a whole	7,99,624	7,38,562	61,062

Noting in Hindi

Almost 91 % notings are written in Hindi.

Dictation in Hindi

75% dictation by the officers are given in Hindi.

Recruitment of Hindi Typists/Stenographers

Cent percent Hindi/Bilingual Typists/Stenographers are recruited in the Board.

Purchase of Hindi books for the Library

Details of the expenditure incurred on purchase of Hindi books for the Library of the Board Secretariate and subordinate offices during the year 2018-19 is given below:

Total Expenditure on Purchase of Books	Expenditure on Purchase of Hindi Books
Rs.55,332/-	Rs.28,085/- (51%)

Computers

A total of 540 computers and 16 laptops are available in the Board till date, bilingual (Hindi/English) facility is available on all the computers and laptops.

Website

Board's Website is bilingual and information given in both the languages is regularly updated.

Official Language Implementation Committee

Official Language Implementation Committees have been constituted in all offices of the Board and quarterly meetings of these committees are regularly held. Details of the meetings of the Official Language Implementation Committee of the Board Secretariate during the year 2018-19 are as under:-

Quarter	Date of Meeting
April-June	26 June, 2018
July-September	07 September, 2018
October-December	02 January, 2019
January-March	26 March, 2019

Hindi Workshop

Following Hindi Workshops/Official Language Seminars have been organized in the Board Secretariate during the year 2017-18:-

Quarter	Date of the Workshop
April-June	27 June, 2018
July-September	12 September, 2018
October-December	23 September, 2018
January-March	29 March, 2019

Hindi Fortnight

Hindi Fortnight is organized in the Board Secretariate and all the subordinate offices during the month of September every year. During the year 2018-19, Hindi Fortnight was celebrated in the Board Secretariate from 1st September, 2018 to 15th September, 2018. Several programmes were organized during the occasion.

Following Hindi Competitions were organized during the Hindi Fortnight:-

1. Hindi Shabd-gyan Pratiyogita,
2. Hindi Tankan Pratiyogita on Computer,
3. Hindi Nibandh avam Anuvad Pratiyogita,
4. Hindi Noting and Drafting Pratiyogita, and
5. Shrutlekh Pratiyogita.

Officers and staff have participated in these competitions with great enthusiasm. Officers and Staff who secured First, Second and Third place were awarded cash prize of Rs. 3,000/-, Rs. 2,500/- and Rs. 2000/- respectively. Besides, under the Incentive Scheme, 40 employees were also honoured with cash award for doing maximum work in Hindi.

At the end of Hindi Phakwara, a prize distribution ceremony was held on 02 November, 2018 during which a "Hasya Kavi Sammelan" was organized. Officers and Staff of BBMB offices located in Chandigarh attended the ceremony with great enthusiasm.

Besides, a “Desh Bhakhti Geet Gayan Partiyogita” was also organized by BBMB on 05 September, 2018 under the aegis of Town Official Language Implementation Committee, Chandigarh and a large number of personnel from all the Central Government Offices participated in this event.

Bilingual/Hindi Publications

Following materials/books are published by the Board bilingually/in Hindi:-

- Annual Administrative Report
- BBMB Samachar (House Journal)
- All the material published in News Papers
- BBMB Janta and Corporate Brochure
- "Jeevan Dhara" Patrika
- DOs and DON'Ts for better Vigilance compliance
- Board's Diary and Calendar
- Telephone Directory

Besides, following books have been published by the Board till date:-

- Administrative Glossary
- Rajbhasha Sahayak Pustak
- Technical Glossary
- Bhakra Beas ki kahani
- Beas Satluj Link Project

Do Shabd

Two English words and their Hindi synonyms are displayed daily on a white board in order to facilitate the employees in day to day official working in Hindi.



अध्याय-11
Chapter-11

परामर्शी सेवाएं
**Consultancy
Services**

11.1 Consultancy Services

The Govt. of India, in the year 1999, has entrusted additional functions of providing & performing engineering and related technical consultancy services in field of Hydro Electric Projects & Irrigation Projects to BBMB.

11.2 Activities of Consultancy Directorate

(i) Implementation of Integrated Management System

For effective implementation of Management System Certifications, BBMB has been divided into 7 centers viz. 6 CE(s) and Board Secretariat. In addition to the earlier acquired QMS:9001 & EMS:14001 with total of 14 Management System Certifications, BBMB in a commitment towards the Safety of its stake holder including its employees, has endeavored to acquire Occupational Health & Safety Management System (OHSMS:18001) for all its 7 Centers & simultaneously implementing Integral Management System (IMS) comprising of EMS, QMS & OHSMS.

By 31st March, 2019 BBMB has already acquired OHSMS and subsequently implementation of IMS for CE/System Operation and Board Secretariat Chandigarh.

The process of obtaining ISO certification for latest QMS (9001:2015)/EMS(14001:2015) & OHSMS (18001:2007) is under progress for the rest of MR's & shall be accomplished in due course of time.

(ii) Painting Competition on Energy Conservation

BBMB was nominated as Nodal Agency to implement the Painting Competition on Energy Conservation Scheme 2018 launched by BEE, Ministry of Power, Govt. of India. Painting Competition includes school level, State level and National Level competition. BBMB team organized on the Spot State Level Painting Competition on Energy Conservation 2018 for the Student of Class 4th,5th & 6th of Group-A & Class 7th,8th & 9th of Group-B for the State of Punjab, Haryana & UT Chandigarh followed by Prize Distribution Function in the Inderdhanush Auditorium, Sector-5, Panchkula on 14.11.2018.

In the history of organizing Painting competition on Energy Conservation since 2005, BBMB in collaboration with participations of Education Department of State of Haryana, Punjab & UT Chandigarh achieved more than 25 lakhs students, which is more than 1/3 of the total participations of around 88.39 lakhs for the year 2018 at School level Painting Competition from all over India. The State of Haryana recorded participations of more than 19 lakhs students and UT Chandigarh recorded participation of 51486 strudents for the year 2018. The departments of these states/UT were adjudged as Best Education Department for the year 2018 by MOP. This achievement was unparalleled in the history of BBMB so far.

With tireless day & night efforts & with the active support of the BBMB organizing team, all the events for school level, state level and National level were organized successfully. BEE, Ministry of Power has awarded BBMB Nodal officer Er. Balvir Singh Sinhmar, Director HRD with both the National Performance Award viz. :

- a. in the Category of Best Nodal Officer of the State for maximum School Level Participation from the State of Haryana and
- b. in the Category of Best Nodal Officer of the UT for maximum School Level Participation from UT Chandigarh.



अध्याय-12
Chapter-12

सूचना का अधिकार
Right of Information

Public Grievances /RTI (Chapter 31 And 32)

Right to Information Act 2005 is in place and fully operational w.e.f. 12th October, 2005. The Act provides for setting out the practical regime of right to information in order to promote openness. Transparency and accountability in public offices. BBMB has adopted and implemented the Act in letter and spirit. The necessary infrastructure has been provided for Operationalization of the Act. BBMB designated nine Assistant Public Information Officers (APIOs) and eight Public Information Officers (PIOs) at different locations. In line with requirements of the Act, eight Appellate Authorities have also been designated. The official Website of BBMB (www.bbmb.gov.in) depicts official designations, addresses and phone nos. of these officers. Comprehensive details regarding the procedure in respect of applying for information have been given on the website. The information regarding 17 No. manuals which have been prepared as per provisions of Section 4(2) of the RTI Act, (Pro-Active disclosure) is also available on the website. The information is regularly updated from time to time as per provisions of the RTI Act. The quantum of applications received under the Act appeals made & other related details are given in Annexure-1 below:-

Annexure-1

Details relevant to RTI Act for the years 2018-2019 (As on 31.03.2019)

Sr.No	No. of requests received	No. of decision	Decision where applications for information rejected												Number of cases where disciplinary action was taken against any officer in respect of Administration of this Act.	Amount of Charges collected (Rs.)		
			No. of times various provisions were invoked															
			Section 8(1)										Other Section					
			a	b	C	D	e	F	g	h	I	j	9	11	24	Other		
1.	477	477	NIL										NIL		NIL	13589/-		

TRANSMISSION NETWORK

