

BRAHMAPUTRA BOARD

CITIZEN'S CHARTER

Vision:

Leadership role in water resources management of Brahmaputra and Barak Basin for sustainable development of water resources to provide optimum benefits to the people with emphasis on control of flood and bank erosion.

Mission:

- To assess basin-wise water resources and plan for its optimal utilization.
- To identify water related problems and suggest suitable measures for their mitigation with emphasis on control of flood and bank erosion.
- To plan and implement water resources projects in Brahmaputra and Barak Basin including flood control & anti-erosion schemes.

Objectives :

- To prepare Master Plan of river basins for optimum utilization of water resources with special focus on flood management & bank erosion.
- To assist states in Brahmaputra and Barak Basin in planning and implementation of flood control & anti-erosion schemes.
- To formulate & execute water resources projects including flood control & anti-erosion schemes identified in the Master Plan.

Functions:

- Collection, compilation and analysis of basin-wise data for preparation of Master Plan.
- Preparation of Detailed Project Report (DPR) of Multi Purpose Project identified in the Master Plan and their execution.
- Preparation of DPR of Drainage Development Schemes identified in the Master Plan and their execution.
- Assist states in Brahmaputra and Barak Basin in preparation of estimates/DPR of flood control & anti-erosion schemes and other water resources projects including their implementation and undertake monitoring during construction.
- Take up execution of flood control, anti-erosion, drainage development schemes and other water resources projects with the consent of the concerned State Govt.

Profile:

The Brahmaputra Board has carried out detailed planning and documentation of the enormous water resources of the" North Eastern Region and related problems and potentials which includes preparation of Master Plan, survey, investigation and preparation of detailed project reports of the multipurpose projects and of the drainage congested areas and Anti-erosion schemes. Giving importance to development and utilisation water resources of the Brahmaputra and Barak Valleys for hydro power, navigation, and other beneficial purpose. Its assignment also includes preparation of DPR of the Dams and other projects identified in Master plan as approved by the Central Government and to take up construction and maintenance of the projects approved by Central Government and works connected therewith as proposed in the Master Plan and also to maintain and operate such dams and works.

Preparation of Master Plan :

Brahmaputra Board has so far identified Master Plan of Brahmaputra and Barak river system, rivers of Tripura, south flowing rivers of Meghalaya and rivers of Sikkim and North Bengal area falling in Brahmaputra Basin. Due to enormity of task, the work has been divided into three parts as under :

- Master Plan Part- I i.e. Main stem of Brahmaputra approved by Govt. of India
- Master Plan Part- II i.e. The Barak river and its eight important tributaries approved by Govt. of India.
- Master Plan Part-III i.e. The Master plan of 55 tributaries of the river Brahmaputra, including Majuli island and 8 rivers of Tripura, 3 south flowing rivers of Meghalaya and 3 rivers of Sikkim and North Bengal falling in Brahmaputra Basin.

Out of 57 identified Master Plans, so far 49 numbers of Master Plans completed by the Board and approved by the Government of India have been sent to the concerned States for necessary action and implementation. 8 (eight) Sub-basin Master Plans have been completed and circulated to Board Members for comments/views for approval of the Board. The Master Plans prepared river basin/sub-basin –wise, include information on Water Resources available, temporal distribution of Water Resources, design flood, water requirement for various uses, water balance study, problem areas identified, past works done, suggested measures for tackling balance problem, probable cost of measures suggested, benefits likely to accrue on implementation of Master Plan recommendations etc. The main recommendations include both structural and non-structural measures for flood management on short, medium and long-term basis apart from multi-purpose projects.

Investigation and Preparation of DPR for Multipurpose Project

Brahmaputra Board has identified and taken up the survey and investigation and preparation of DPR for 14 (fourteen) Multipurpose projects till now. DPR for Single Dam project proposal for Subansiri and Dihang were prepared by Brahmaputra Board but could not be taken up for execution because of objections from Government of Arunachal Pradesh on account of large submergence. Therefore, Brahmaputra Board has modified Subansiri and Dihang Projects proposal with a series of 3 dams of each river basin. Subsequently, these 3 projects on Subansiri and 3 projects on Dehang were handed over to NHPC in March, 2000. Tipaimukh project, for which Brahmaputra Board prepared DPR has been handed over to NEEPCO for execution. Similarly, investigations of the Bhairabi project was completed in March, 2000 and DPR prepared by the Brahmaputra Board was handed over to Mizoram Government for execution. Pagladiya Dam Project is under execution by the Brahmaputra Board. Brahmaputra Board completed the Feasibility Report for Debang & Kynshi –I M.P.P during X Plan. Dibang dam Project has been handed over to NHPC LTD for DPR preparation and implementation. The Kynshi Stage-I & II projects have been entrusted to private developers by Government of Meghalaya. Preparation of DPRs for Kushi MPP and Noa - Dehing MPP are in progress and targeted for completion during XI Plan. Brahmaputra Board also completed the S&I work of Lohit Dam Project which has also entrusted to private developer by the Govt. of Arunachal Pradesh. DPR for Jadhah dam Project is targeted for completion during 2013-14. DPR for Simsang MPP is targeted for completion during 2012-13 and for Killing Dam Project target date for completion is 2013-14.

Present Position of Pagladiya Dam Project:

The project meant for flood moderation to benefit an area of 40000 ha, irrigation to 54,160 ha and incidental power generation of 3 MW is proposed across Pagladiya River at Thalkuchi in Baska District which falls under Bodoland Territorial Autonomous District (BTAD) in Assam. The project envisages construction of 25m high and 21km long earth dam with a concrete spillway. Government of India had sanctioned the project in January, 2001 at an estimated cost of Rs. 542.90 crore for construction by Brahmaputra Board.

- Works carried out since 2001
 - Pre-construction survey, investigation, studies, design, drawings etc.
 - Taking possession of land (956 ha) for Resettlement and Rehabilitation (Rand R) purpose
 - Construction of project roads, offices, etc.
 - Preparation of technical specifications and tender document
 - Pre-qualification of contractors for main works

The implementation of the project is dependent on two activities to be carried out by the State Government of Assam viz (i) Zirat Survey (property assessment) of the Project Affected Families (PAF) for finalizing the Resettlement and Rehabilitation (Rand R) Plan and (ii) land allotment/ acquisition for Rand R and project construction. These two activities could not be carried out due to the resistance from a section of the PAF.

Even after efforts at various levels upto Hon'ble Minister (Water Resources) and others with Government of Assam, no headway has been achieved.

The possibility of an alternative dam site upstream of Thalkuchi was explored keeping into account the resultant submergence to be within the Indian Territory.

Brahmaputra Board carried out studies to explore the alternate site in the upstream of Thalkuchi, but the site is not suitable due to the following reasons-

1. The whole reservoir area falls in the Bhabar Zone where the reservoir leakage is much higher.
2. The population density upto 10 km U/S of Thalkuchi is such that the displacement of population due to submergence is not likely to change significantly and as such no apparent benefit will be achieved.
3. The catchment area intercepted will be reduced to 1/3rd of that of Thalkuchi which will reduce the benefit that will accrue from the project.

This stalemate situation was discussed in the 53rd Meeting of Brahmaputra Board held on 02-06-2011 wherein it was decided to temporarily close the offices under the project. Accordingly, the manpower deployed in the project sites has been transferred to other offices of Brahmaputra Board. The temporary closure of the offices under Pagladiya Dam Project has already been completed. In the 6th High Powered Review Board Meeting held on 18-01-2012, the Secretary, Govt. of Assam referred to the statement made by the Hon'ble Chief Minister, Assam about one more effort he would like to make with Bodo Territorial Council (BTC) to break the deadlock on Pagladiya Project. In the 54th Meeting of the Brahmaputra Board held on 11-02-2012 at Aizawl, the Members were apprised about the financial liability involved due to which there was no alternative but to temporarily close down the offices.

The expenditure incurred on Pagladiya Dam Project till 31-03-12 is Rs. 25.64 crore.

As stated above efforts are on to overcome the stalemate situation of Pagladiya Dam Project. During XII Plan it is expected that deadlock on Pagladiya Dam Project could be broken with the joint effort of Brahmaputra Board, State Government of Assam and Bodo Territorial Council.

Execution of Drainage Development Scheme:

Harang Drainage Development Scheme: The Harang Drainage Development Scheme with an estimated cost of ` 30.49 crore was executed by Brahmaputra Board in the Cachar District of Assam. The scheme benefits 11850 ha. chronically drainage congested area in Barak Valley, Assam for agriculture. The scheme was physically completed in March'2011 with total expenditure of ` 30.44 crore up to March'2012.

East of Barpeta Drainage Development Scheme: The East of Barpeta drainage development scheme with an estimated cost of ` 2.9562 crore was taken up for

execution in March 2009 and completed in June' 2011. Expenditure against this scheme is ₹ 2.71 crore up to March'2012.

Barbhag Drainage Development Scheme (₹ 11.7042): The scheme was taken up with an original estimated cost of ₹ 7.2307 crore and during execution the estimate was revised to ₹ 11.7042 crore due to change of sluice design. Raising and strengthening of embankment, re-sectioning of channel and construction of sluice are the main component of the scheme. Up to March' 2012, 30.96% physical progress has been achieved against the expenditure of ₹ 3.81 crore. The only remaining work is construction of sluice, tender for which is under process. The cost of DPR is updated to ₹ 13.90 crore and submitted to Central Water Commissioner for according Techno Economic clearance.

Amjur Drainage Development Scheme (₹ 14.15 crore): The scheme was techno-economically cleared for an amount of ₹ 14.15 cr. in January, 2006. The work order for raising and strengthening of existing embankment has been awarded and 32.50% of total works have been completed up to March' 2012. Expenditure against this scheme is ₹ 10.98 crore. Detailed design of sluice regulator is under process at CWC, New Delhi.

Other Drainage Development Schemes :

3 (three) nos. of DDS viz. (1) Jengrai (2) Jakaichuk (3) Singla were taken up for execution during the year 2006-07. The progress of works of the Jakaichuk DDS are held up due to local problem and due to change of design the works of Jengrai DDS is delayed. Progress of these DDS up to March' 2012 are as follows:

Name of Scheme	Physical Progress	Financial Progress (₹ in crore)
(1) Jengrai	27%	1.04
(2) Jakaichuk	45%	1.35
(3) Singla	3.5%	0.20

North Eastern Hydraulic & Allied Research Institute (NEHARI)

The North Eastern Hydraulic & Allied Research Institute (NEHARI) was established at Rudreswar (North Guwahati) as an outcome of Assam Accord with the following facilities:

- i) Hydraulic Laboratory with facilities for 4(four) model trays & flumes.
- ii) Material testing laboratories viz
 - a) Soil (b) concrete & (c) construction material and foundation rock.

NEHARI was operationalised at a total cost ₹ 14.00 cr. during 1996. NEHARI has so far undertaken testing of soil, concrete and rock samples as requisitioned by various organizations/ project authorities of N.E. Region besides laying of 7(seven) nos. of

physical model study. Out of these, following physical model studies were undertaken on sponsorship basis

1. Brahmaputra River Model of Phulbari Reach – sponsored by NEC
2. Physical Model of River Jia-Bharali - sponsored by BRTF(Vartak)
3. Physical Model of River Jiadhal - sponsored by NEC

Model Studies carried out for works executed by Brahmaputra Board

1. Model studies of Majuli Island for long term solution of flood problem.
2. Model studies for construction of guide bund for a specified reach in Majuli in the river Brahmaputra.

Since in the North Eastern Region clear weather is available for a limited period only (October to March) scope for physical model studies under open sky is also limited. To overcome the situation, a couple of Hangers over the model trays have been constructed during 2010.

NEHARI has got working arrangements with the two premier institutes of the country, namely Central Water & Power Research Station (CWPRS), Pune and Central Soil & Material Research Station (CSMRS), Delhi.

Flood Management Works

Avulsion of Brahmaputra at Dhola–Hatighuli:

The combined flow of Debang and Lohit river was originally out falling into Dehang river at about 25 km downstream of Saikhowa reserve forest at Kobo. The discharge in the rivers Dholla, Dangri and Dibru increased year after year due to avulsion of Lohit through Anantanala and Balunala which took place in the year 1992. This problem was further aggravated due to Debang flowing from north to south direction and pushing the flow of Lohit towards its south bank. Avulsion/offshoot channel of Lohit and Debang was flowing with 90% of their discharge and out falling into Brahmaputra at North Balijan instead at Kobo during 2001-02.

The Brahmaputra Board initially took up the Phase-I work amounting to ` 10.47 crore during January 2003 and succeeded in diverting Debang river to its original course. Again, Phase-II work amounting to ` 4.95 crore was completed to push the river Lohit towards its north bank during 2004. Further, Phase-III works for an amount of ` 8.47 crore has been completed during 2007-08. Subsequently, Dhola-Hatighuli-Phase-IV has been started and the works of R.C.C. porcupine, tie-bund and pilot channel are underway. Expenditure incurred upto March, 2012 is ` 26.18 crore and physical progress achieved is 48.09%.

Protection of Majuli Island:

On request of Govt. of Assam, the DPR on protection of Majuli Island from flood and erosion was prepared by Brahmaputra Board based on the recommendations in the Master Plan and submitted to the CWC during August, 2000. The CWC had techno-economically cleared the scheme in August 2003 for Rs 86.56 crore. The Project envisaged implementation of protection works in 3(three) phases such as Phase-I, II and III.

In order to reduce erosion of Majuli Island, protection works were undertaken in 2004-05 as immediate measures at an estimated cost of Rs 6.22 crore. These works were followed by protection works under Phase-I for Rs 41.28 crore as a part of DPR cleared by CWC for Rs 86.56 crore for execution in three phases.

The Govt. of India has constituted a Standing Committee of Experts for Majuli Island under the Chairmanship of the Member (RM), Central Water Commission and the Chairman, Brahmaputra Board, the Chief Engineer (FM), CWC, Director CWPRS, Prof. K.G. Rangaraju, retired Prof. of IIT (Roorkee), Prof. D.C. Goswami Guwahati University and Prof. Gananath, PD College, Majuli as members vide notification dated 19-11-07. Estimate for phase-I works had been revised to Rs 56.07 crore incorporating the recommendations of standing committee as per field requirement after their visits. The work of Phase-I has been completed in April, 2011 at an expenditure of Rs 53.40 crore.

Protection of Majuli Island Phase - II and III

As a long term measure, based on the findings of the model studies, the DPR for Phase-II and III has been techno-economically cleared for ` 115.07 crore. The estimate is revised for ` 115.99 crore and techno-economical clearance from CWC is also obtained in January, 2011. The works under these phases are in progress. 39.07% of the works under these phases have been completed upto March, 2012 at the expenditure of ` 39.09crore.

Protection of Nagrijuli Rangia Town and Mukalmuwa/Barbhag area from flood and erosion of Barnadi river:- Protection works of Nagrijuli Rangia Town and Mukalmuwa/Barbhag area from flood and erosion of Barnadi river was taken up by Board and successfully completed during 2009-10.

Anti erosion measures to protect Kushiabil & Durgajan Village at Dimapur of river Dhansiri (S) – (` .2.4 crore): Protection of Kushiabil & Durgajan village from erosion of river Dhansiri (S) in Dimapur, Nagaland was taken up by Board in 2 (Two) phases. The Phase-I works were completed during 2005-06 and the works under Phase-II were completed during 2007-08.

Flood Control and River Management Works under Flood Management Programme (State-Sector Scheme)

During X Plan, the Govt. of India approved for execution of schemes in the state of Assam under "Critical Flood Control & Anti-erosion Scheme in Brahmaputra and Barak Valley (State sector)" with funding pattern of 90:10 as grant and state share. An amount of ₹ 146.20 crore was released by the MoWR during X Plan for execution of these schemes.

In November, 2007, the Government of India has approved the Cabinet Note for the implementation under "Flood Management Programme" a state sector scheme under Central Plan to provide central assistance to the State Governments amounting to ₹ 8000 crore during XI Plan period (2007-12) for taking up river management, flood control, anti-erosion, drainage development, flood proofing work and restoration of damaged flood management works etc.

The status of Central Assistance provided under "Flood Management Programme" to the States of Assam, Arunachal Pradesh, Nagaland, Sikkim, Mizoram, Manipur, Tripura and West Bengal under the jurisdiction of Brahmaputra Board is given against Para 6 of working of Brahmaputra Board.

During XII Plan Board has been entrusted with the responsibility of DPR appraisal and monitoring of progress of schemes under Flood Management Programme of Ministry of water Resources in the jurisdiction entrusted in XI plan. The DPR appraisal and monitoring of schemes are under progress.

Long term strategy for Flood Management and Erosion Control in Brahmaputra river :-

Long term strategy for the flood control of Brahmaputra River Basin has been brought out in the Master Plan of main stem of Brahmaputra, prepared by Brahmaputra Board and approved by Government of India. These long term strategies are given below:-

- Multipurpose storage dam projects;
- Watershed management;
- River training works ;

Some reaches of river Brahmaputra experiences heavy erosion on both the banks which sometime results in development of side channels also. The causes of heavy erosion are identified to be excessive sediment loads, steep bed gradients, erodable nature of bank materials etc. The erosion is mostly observed at places both on the upstream and downstream of stable reach or nodal points. It has been suggested in the master plan that the reaches of the river where erosion is acute should be studied and examined on scientific basis to find out causes of formation of Char-land in the middle and side channels along either bank. It has also been suggested in the master plan that the reach-wise behavior of the river in regard to the other conditions like velocity distribution, boundary condition, silt carrying capacity and other parameters should be examined from one nodal point to the other.

Over the years, only short-term measures were taken for river training on site specific points. Some beginning has to be made to start long-term measures to tackle riverbank erosion problems.

In view of a long term solution to flood and erosion control in the region, Brahmaputra Board has prepared a conceptual proposal for “River Stabilization Measure in the main stem of Brahmaputra”. Brahmaputra Board had approached the IIT, Guwahati for Mathematical Model Study of River Brahmaputra. In response, the IIT, Guwahati submitted a proposal for “Mathematical Model Study of River Brahmaputra with emphasis on Climate Change” which has already been recommended for implementation by Central Water Commission at an estimated cost of ` 2.80 crore. To accord Administrative Approval of the Proposal and to finalise the ‘Terms of Reference’ of the Draft MoU submitted by IIT Guwahati, 48th Meeting of Standing Committee of Brahmaputra Board was held on 07-03-2012

Organizational Structure:

The organizational structure of the Brahmaputra Board, which is headed by the Chairman, is shown at **Annexure-III**.

The following offices of the Board are located at Basistha, Guwahati-781029.

- a) Secretariat of the Brahmaputra Board
- b) Office of the Chief Engineer (Planning & Design)
- c) Office of the Chief Engineer (Investigation & Works)
- d) Office of the Superintending Engineer, Guwahati Circle
- e) Office of the Executive Engineer. Guwahati Division.

The office of the Executive Engineer, North Guwahati Division is situated at Rudreswar, Guwahati- 781030. The North Eastern Hydraulic & Allied Research Institute (NEHARI) is also situated here which is being run by the Board on ad-hoc arrangement. The NEHARI is functioning since 1996. The office of the Chief Engineer, Pagladyia Dam Project was established at Nalbari, Assam.

On creation of the Brahmaputra Board in 1981-82, it took over the works of survey and investigation of Dihang (Siang) and Subansiri projects and also the hydro-meteorological network in Brahmaputra Valley along with the entire infrastructure from the then Flood Control Department, Govt. of Assam. A large number of work-charged staff of the Flood Control Department had also come over to the Board during 1982 on “as-is-where-is” basis. After preparation of the DPRs of Dihang and the Subansiri projects and the Master Plan Part- I pertaining to the main stem of Brahmaputra river, the work load and the staff position were reviewed by the government and as per decision of the Govt. of India, all deputationist who came to Board on “as-is-where-is” basis, were reverted to their parent department within 28-02-1989. The Flood Control Department however, did not agree to take back the work-charged staff who were

engaged in various activities of the Board and they remained with status as Board's work-charged employees. However, during transfer of the projects to the NEEPCO and NHPC, about 30% of the w/c employees were transferred to the NEEPCO and the NHPC.

Grievance Redressal Mechanism:

In its pursuit of excellence, the Brahmaputra Board believes in an open door policy. Yet to further promote fair and equitable employee relations in the organization and to ensure harmonious relationship with the environment, the Board has established a grievance redressal procedure for its employees. In order to systematize and strengthen the redressal process, it provides for a time bound mechanism. Grievance Redressal Mechanism procedure provides a channel for an employee to invoke the procedure for seeking remedy to an anomaly arising out of implementation of Board's policy / rules such as salary payment, recovery of dues, working conditions, leave, quarters allotment, medical facilities, withholding of benefits under rule, transfer, seniority, promotion, pay fixation and like issues. The procedure has been formulated so as to aim at resolving the grievances raised, orally or in writing, within a prescribed time frame. It also provides various stages of redressal, giving an opportunity to an aggrieved employee to seek remedy even from the highest authority.

Other Forums:

A number of bipartite forums comprising the representatives of employees and the management have been established which are as follows:-

a) **Complaint Committee on sexual harassment & gender justice:** In pursuance of the Hon'ble Supreme Court's order, a complaint mechanism to deal with such cases in the Board was constituted with seven committee members including a Chairperson and Member Secretary which came into force from 31.12.1997. The Committee has thereafter been reconstituted with effect from 08.11.2010. However, no case has so far been registered.

b) **Forum for Disciplinary & Vigilance Cases:-** The Board has a Vigilance Wing headed by a part-time Chief Vigilance Officer and assisted by one part-time Vigilance Officer.

Right to information act, 2005:

In pursuance of Govt. of India, MoWR, letter No. 31/15/2004-IT/B&B/200 dated. 22.12.2005, the Right to Information Act, 2005 has been introduced in Brahmaputra Board on 31.12.2005. After introduction of the Right to Information Act-2005, the Brahmaputra Board has notified all relevant information pertaining to Brahmaputra Board and has published the same in its website as a part for administration and implementation of the Act. The information in the website is being updated from time to time complying with the directives and provisions of the Right to Information Act-2005. [N.B. This Charter is a summary of the services rendered by the Brahmaputra Board which is committed to provide to the people and is not a part of the policy condition or service condition of our employees]

Benefit of Schemes/Projects

Sl. No.	Name of Project/Schemes	Dist./Taluk Benefited	Total expected Benefited area.
1	Harang Drainage Dev. Scheme	Cachar	11850 Ha.
2	Barbhag D.D.S.	Nalbari	4000 Ha.
3	Joysagar D.D.S.	Nagaon	2410 Ha.
4	East of Barpeta D.D.S.	Barpeta	2852 Ha.
5	Singla D.D.S.	Cachar	97 Sq. Km.
6	Jengrai D.D.S.	Jorhat	14 Sq.Km.
7	Jakaichuk D.D.S.	Sivsagar	2308 Ha.
8	Kailashahar D.D.S.	North Tripura	1000 Ha.
9	Amjur D.D.S.	Cachar	72 Sq.Km.
10	Pagladiya Dam Project	Nalbari	Flood 40,000 Ha. Irrigation 54,160 Ha.
11	Avulsion of Brahmaputra at Dhola Hatighuli, Ph-I	Tinsukia & Dibrugarh	16,200 Ha.
12	Avulsion of Brahmaputra at Dhola Hatighuli, Ph-II	-Do-	-Do-
13	Avulsion of Brahmaputra at Dhola Hatighuli, Ph-III	-Do-	-Do-
14	Majuli Island from Flood & Erosion, Ph-I	Jorhat,	6,197 Ha.
15	Majuli Island from Flood & Erosion, Ph-II & III	Jorhat,	-Do-
16	Kushia beel	Dimapur	150 Ha.
17	Protection of Nagrijuli Rangia Town and Mukalmuwa/ Barbhag area.	Baksa	35.11 Ha.

COMPOSITION OF THE BRAHMAPUTRA BOARD

APPOINTED UNDER CLAUSE (A) & (B) SUB-SECTION (3) OF SECTION (4) OF BRAHMAPUTRA BOARD ACT, 1980 (46 OF 1980)

Full Time Member

1. Chairman
2. Vice-Chairman
3. General Manager
4. Financial Adviser

Part Time Member:

1. Secretary, Water Resources Department, Govt. of Assam,
2. Chief Engineer, PWD (R) Govt. of Meghalaya
3. Chief Engineer, Irrigation & F. C. Deptt., Govt. of Nagaland.
4. Chief Engineer, PWD (WR) Govt. of Tripura.
5. Secretary, Irrigation & F.C. Deptt., Govt. of Manipur
6. Chief Engineer, (WRD), Govt. of Arunachal Pradesh
7. Chief Engineer (Civil), Power & Electricity Deptt., Govt. of Mizoram
8. Member (RM), Central Water Commission, New Delhi..
9. Member (HE), Central Electricity Authority, New Delhi.
10. Director General of Meteorology, IMD, New Delhi.
11. Commissioner (B&B), Ministry of Water Resources, New Delhi.
12. Financial Adviser, Ministry of Water Resources, New Delhi.
13. Financial Adviser, NEC, Shillong.
14. Chief Engineer, Inland Waterways Authority of India, Noida.
15. Joint Secretary (H), Ministry of Power, New Delhi..
16. Joint Secretary (NRM), Deptt. of Agriculture & Co-operation, Natural Resource Management Division, MoA, New Delhi.
17. Deputy Director General, GSI, North Eastern Region, Shillong.

Special Invitee:

1. Adviser, (NE), Planning Commission, New Delhi.
2. Chief Engineer (B&BBO), Central Water Commission, Shillong.
3. Secretary, Irrigation & Waterways Department, Govt. of West Bengal, Kolkata.
4. Secretary, Irrigation Department, Govt. of Sikkim, Gangtok.
5. Secretary, DoNER, New Delhi.

Annexure-II

COMPOSITION OF THE HIGH POWER REVIEW BOARD

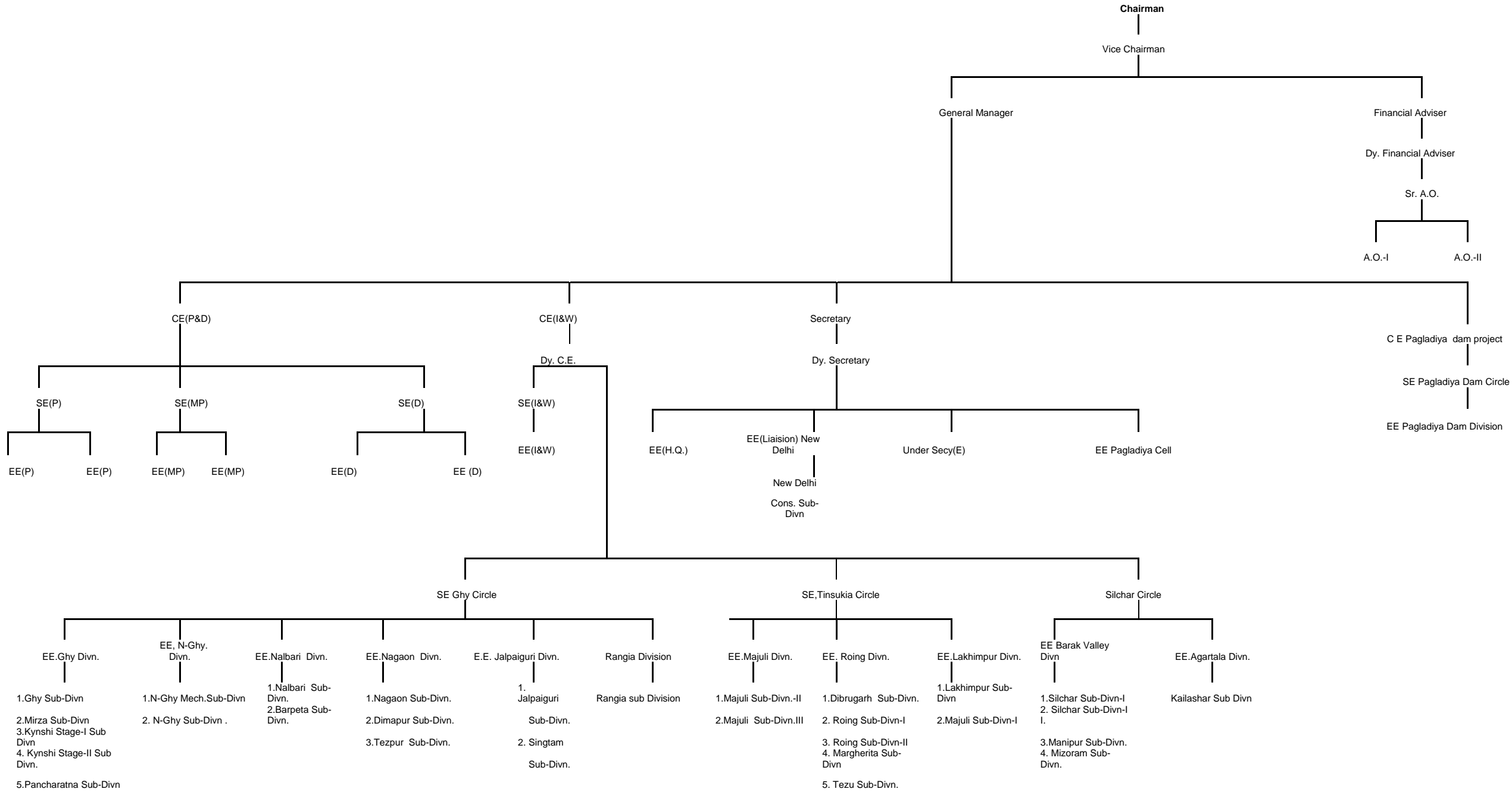
APPOINTED BY THE GOVERNMENT OF INDIA VIDE RESOLUTION NO.2(17)/ 80-FC/460 DTD.19TH MARCH,1982 AS AMENDED

1. Union Minister for Water Resources	Chairman
2. Chief Minister of Assam or a Cabinet Minister duly authorized by him	Member
3. Chief Minister of Manipur or a Cabinet Minister duly authorized by him	Member
4. Chief Minister of Meghalaya or a Cabinet Minister duly authorized by him	Member
5. Chief Minister of Nagaland or a Cabinet Minister duly authorized by him	Member
6. Chief Minister of Tripura or a Cabinet Minister duly authorized by him	Member
7. Chief Minister of Mizoram or a Cabinet Minister duly authorized by him	Member
8. Chief Minister of Arunachal Pradesh or a Cabinet Minister duly authorized by him	Member
9. Union Minister / Minister of State for Finance	Member
10. Minister of State for Water Resources	Member
11. Union Minister / Minister of State for Energy	Member
12. Union Minister / Minister of State for Agriculture	Member
13. Union Minister / Minister of State for Surface Transport	Member
14. Secretary, Ministry of Water Resources, Govt. of India	Member
15. Chairman, Central Water Commission	Member
16. Chairman, Brahmaputra Board	Member-Secretary
17. Member (RM), Central Water Commission	Permanent Invitee

Name, designation and phone nos. of key personnel of Brahmaputra Board.

Name and address	STD Phone	Fax/e-mail
1. Kashindra Yadav, Chairman Brahmaputra Board Basistha, Guwahati-781029	0361- 2301309 (O) 0361- 2300290 (R)	Fax: 0361-2301099 1. e-mail: bbrd-ghy@nic.in
2. Y.ABDUL BASHEER Vice Chairman Brahmaputra Board Basistha, Guwahati-781029	0361-2300607 (O)	Fax No. 0361-2302890 e-mail : vcboard@yahoo.com
3. Y.ABDUL BASHEER General Manager(I/C) Brahmaputra Board Basistha, Guwahati-781029	0361-2302527(O)	Fax : 0361-2307452 1. e-mail: bbrd-ghy@nic.in 2. e-mail: bbrd_ghy@sify.com
4. Y.ABDUL BASHEER Chief Engineer (P&D)(I/C) Brahmaputra Board Basistha, Guwahati-781029	0361-2302527(O)	Fax : 0361-2303580 3. e-mail: bbrd-ghy@nic.in 4. e-mail: bbrd_ghy@sify.com
5. JOY BARMAN Secretary Brahmaputra Board Basistha, Guwahati-781029	0361-2300128(O)	Fax : 0361-2308588 1. e-mail: bbrd_ghy@sify.com 2. e-mail: jbarman74@gmail.com
6. D.J. BORGHAIN Chief Engineer (I&W) Brahmaputra Board Basistha, Guwahati-781029	0361-2302867(O) 0361-2200612(R)	Fax : 0361-2302867 1. e-mail : bbrd-ghy@nic.in 2. e-mail : borgohain.dhrubajyoti@gmail.com
7. P.C.Hazarika Dy. Financial Adviser Brahmaputra Board Basistha, Guwahati-781029	0361-2300607(O)	Fax : 0361-2302890 e-mail: hazarika.phatickchandra@gmail.com

ORGANISATIONAL CHART OF BRAHMAPUTRA BOARD



Names, Designations and other particulars of Public Information Officers

The names, designation and other particulars of Public Information Officers of Brahmaputra Board are given below :

Appellate Authority

Name: Y.Abdul Basheer
Designation : General Manager(I/C),
Address :Brahmaputra Board, Basistha, Guwahati-781029
Tel No. 0361-2302527 (O)
94351-08175 (M)
Fax No. 0361-2307452
e-mail : 1.bbrd-ghy@nic.in & bbrd_ghy@sify.com

Central Public Information Officer

Name: Shri Joy Barman
Designation: Secretary,
Address : Brahmaputra Board, Basistha, Guwahati-781029
Tel No. 0361-2300128(O),
Fax No. 0361-2300128
e-mail: jbarman74@gmail.com

Assistant Public Information Officer

1. Name :Shri Jatin Ch. Mazumder
Designation : Executive Engineer (HQ),
Address : Brahmaputra Board, Basistha, Guwahati-781029
Tel.No. 0361-2307453 (O)
94350-85885 (M)
2. Name : Sri Nazrul Islam
Designation : Superintending Engineer,
Address : Tinsukia Circle ,Brahmaputra Board, Tinsukia.
Tel. No. 0374-2331058 (O)
0374-2330756 (R)
3. Name : Sri Dinesh Chandra Barman
Designation : Superintending Engineer (i/c) ,
Address : Silchar Circle ,Brahmaputra Board, Silchar.
Tel. No. 03842-234208(O)

Fax No. 03842-234208
4. Name : Sri Chand Mohan Das
Designation : Superintending Engineer,
Address : Guwahati Circle,Brahmaputra Board, Basistha,
Guwahati-29.
Tel.No. 0361-2301320 (O)
94350-47859 (M)
- 5 Name : Sri Aswini Kumar Kalita
Designation : Executive Engineer,
Address : Guwahati Division, Brahmaputra Board
Basistha, Guwahati-29
Tel. No. : 0361-2308589 (O)

6. Name : Sri Hemanta Kr. Gogoi
Designation : Executive Engineer
Address : Majuli Division, Brahmaputra Board, Majuli.
Tel. No. 03804-222316(O)
7. Name : Sri Prahlad Chandra Saloi
Designation : Executive Engineer
Address : Roing Division, Brahmaputra Board, Roing (AP)
Tel. No. 03803-223246(O)
94350-47862 (M)
8. Name : Sri Ranendra Kalita,
Designation : Executive Engineer
Address : Lakhimpur Division, Brahmaputra Board, North
Lakhimpur.
Tel. No. 03752-232307
94351-70974 (M)
9. Name : Sri Babla Dey,
Designation : Executive Engineer (i/c)
Address : Agartala Division, Brahmaputra Board, Agartala.
Tel. No. 0381-2330306
94369-07085 (M)
10. Name : Sri Rajmohan Das
Designation : Executive Engineer
Address : Nalbari Division, Brahmaputra Board, Nalbari.
Tel. No. 03624-220572(O)
03624-221254 (R)
94350-47301 (M)
11. Name : Sri Rajmohan Das
Designation : Executive Engineer
Address : Pagladiya Division, Brahmaputra Board, Nalbari
Tel. No. 03624-224318 (O)
94350-47301 (M)
12. Name : Smti Bharati Patowari Baruah
Designation : Executive Engineer
Address : Rangia Division, Brahmaputra Board, Rangia
Tel. No. 03621-241672 (O)
94350-47865 (M)
13. Name : Sri Rajmohan Das
Designation : Superintending Engineer, (i/c)
Address : Pagladiya Dam Circle, No. I, Brahmaputra Board,
Nalbari
Tel. No. 03624-240070 (O)
94350-47301 (M)
14. Name : Sri Dinanath Buzabarua
Designation : Executive Engineer
Address : Nagaon Division, Brahmaputra Board, Nagaon.
Tel. No. 03672-254923 (O)
94351-00682 (M)

15. Name : Sri Ridip Kumar Barua
Designation : Executive Engineer
Address : North Guwahati Division, Brahmaputra Board
Rudreswar, North Guwahati-781-31
Tel. No. : 0361-2914332(O)
94353-43759 (M)
16. Name : Sri Ramesh Panwar
Designation : Executive Engineer
Address : Jalpaiguri Division, Brahmaputra Board Jalpaiguri,
Tel. No. : 03561-224645 (O)
94755-16814 (M)
17. Name : Sri Partha Sarathi Sarma,
Designation : Executive Engineer (i/c)
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WORKING OF BRAHMAPUTRA BOARD

1. Constitution: The Brahmaputra Board was constituted in 1980 by an Act of Parliament (Act 46 of 1980 called "The Brahmaputra Board Act") with the objective of planning and integrated implementation of measures for control of floods and bank erosion in Brahmaputra and Barak Valley and for matters connected therewith. It started functioning since January 11, 1982 with headquarters at Guwahati, Assam. The jurisdiction of the Board includes the Brahmaputra and Barak Valleys and rivers of Tripura. As initially notified under the Act, the states of Arunachal Pradesh, Assam, and Meghalaya, parts of the states of Manipur, Mizoram, Nagaland, and Tripura were included in the jurisdiction. The jurisdiction has been extended in June, 2006 to include Sikkim and a part of West Bengal falling within the Brahmaputra Basin.

2. Organization: The Board consists of the Chairman, Vice-Chairman, General Manager full time Member, Financial Adviser Ex-officio member and 17 part time Members representing 7 States of the North Eastern Region, North Eastern Council, concerned Ministries of Government of India namely Water Resources, Finance, Agriculture, Power, Surface Transport and Organisations of Government of India, namely Central Water Commission, Central Electricity Authority, India Meteorological Department and Geological Survey of India.

3. Major functions:

- The main function of the Board as per the Act is survey and investigations in the Brahmaputra Valley and preparation of Master Plans for the control of flood and bank erosion and improvement of drainage giving due importance to the development and utilization of Water Resources of the Brahmaputra Valley for irrigation, hydropower, navigation and other beneficial purposes.
- Preparation of Detailed Project Reports (DPR) and estimates of projects proposed in the Master Plans as approved by the Central Government.
- Construction of Multipurpose Dams and other works proposed in the Master Plans as approved by the Central Government.

4. Main activities undertaken: Since inception the Board has carried out detailed planning and documentation of the water resources of the North Eastern Region and the related problems and potentials, which includes survey and investigations, preparation of Master Plans and Detailed Project Reports etc. Since 1999-2000, the Board has taken up various project construction works also in the areas of drainage development and erosion and flood control. The details are as under:

- **Master Plans:** Out of 57 identified Master Plans, so far 49 numbers of Master Plans completed by the Board and approved by the Government of India have been sent to the concerned States for necessary action and implementation. 6 (Six) Sub-basin Master Plans have been completed and circulated to Board Members for comments/views for approval of the Board. Remaining 2 (two) Master Plans have been completed and are being circulated to Board Members for comments/views. The Master Plans prepared river basin/sub-basin – wise, include information on Water Resources available, temporal distribution of Water

Resources, design flood, water requirement for various uses, water balance study, problem areas identified, past works done, suggested measures for tackling balance problem, probable cost of measures suggested, benefits likely to accrue on implementation of Master Plan recommendations etc. The main recommendations include both structural and non-structural measures for flood management on short, medium and long-term basis apart from multi-purpose projects.

• **Preparation of DPR for Multipurpose Projects:** Status of the total 14 nos. of projects so far taken up by the Board is as follows.-

- DPRs completed for five projects (Siang Single Stage, Subansiri Single Stage in Arunachal Pradesh, Tipaimukh in Manipur and Mizoram, Pagladiya in Assam and Bairabi in Mizoram). Pagladiya Dam Project is under execution by the Board. Siang and Subansiri Dam Projects have been handed over to the National Hydro Electric Power Corporation (NHPC) for execution. Tipaimukh and Bairabi Dam projects have been handed over to the North East Electric Power Corporation (NEEPCO) and the Govt. of Mizoram respectively. DPR for Dibang Project in Arunachal Pradesh was partially completed and handed over to NHPC for DPR completion and implementation. Brahmaputra Board completed the investigation works of Lohit Dam Project. However, the project has already been allotted to private developers by the Arunachal Pradesh Government. The Meghalaya Government handed over the Kynshi Stage –I and Kynshi Stage –II projects to private developer and Board has stopped all the investigation works of these two projects.

Preparation of DPR for 5 projects are in various stages of investigation / DPR preparation:

Arunachal Pradesh	-	Noa-Dehing, Jiadhal
Assam & Meghalaya	-	Kulsi, Kiling
Meghalaya	-	Simsang

- **Drainage Development Schemes (DDS):** Out of 41 numbers of identified drainage development schemes (DDS), DPRs for 11 DDS have been cleared by CWC. 9 (nine) DDS viz. (i) Harang (₹ 30.49 cr.), (ii) Barbhag (₹ 11.70cr.), (iii) Jengrai (₹ 1.49 cr.) (iv) Jakaichuk (₹ 2.96 cr.) (v) East of Barpeta (₹ 2.96 cr.), (vi) Joysagar (₹ 2.13 cr.), (vii) Kailashahar (₹ 4.18 cr.), (viii) Singla (₹ 3.54 cr.) and (ix) Amjur (₹ 14.15 cr.) were taken up for execution during X Plan. Executions of Harang and East of Bapeta DDS have been completed. Out of remaining 32 Nos. of drainage schemes, 2 (two) DDS viz. Rudrasagar and Demow have been technically cleared by the CWC and DPRs were handed over to State Governments. Board proposes to execute the Demow DDS as requested by State Government during XII plan. DPR of Kalamonijan is under scrutiny of CWC. Pola DDS is under scrutiny of CWC and comments/observation of CWC is being complied. Rests of DDS are under various stages of modification/preparation/investigation. Reports for 5 nos of DDS Viz Rongsai, Konwarpur, Sessa, Sukh-Sagar and Mora-Dikrong were prepared based on available information wherein it was concluded that sustainable schemes are not feasible. Accordingly, notes for deletion of these five schemes from the pending list of the

Board were prepared and sent to CWC and State Govts. Concerned for views/comments. The CWC viewed to re-assess the Konwarpur & Sessa DDS. Regarding Mora-Dikrong, Rongsai and Sukhsagar DDS detailed information are sought by CWC. The proposal was placed in the 53rd Board Meeting held on 02-06-2011 and as per decision of the Board the Rongsai & Sessa DDS's have been deleted from the list of schemes identified for preparation of DPR.

- **Construction activities:**

(A) Pagladiya Dam Project: This project meant for flood moderation to benefit an area of 40000 ha, irrigation to 54,160 ha and incidental power generation of 3 MW, is proposed across Pagladiya River at Thalkuchi in Baksa District which falls under Bodoland Territorial Autonomous Districts (BTAD) in Assam. The project envisages construction of 25 m high and 21 km long earth dam with a concrete spillway. The Government of India had sanctioned the project in January, 2001 at an estimated cost of ` 542.90 crore for construction by Brahmaputra Board.

- Works carried out since 2001
 - Pre-construction survey, investigations, studies, design, drawings etc.
 - Taking possession of land (956 ha) for Resettlement & Rehabilitation (R&R) purpose
 - Construction of project roads, offices, etc.
 - Preparation of technical specifications & tender document
 - Pre-qualification of contractors for main works

The start of effective implementation of the project is dependent on two activities to be carried out by the State Government of Assam viz. (i) Zirat Survey (property assessment) of the Project Affected Families (PAF) for finalizing the Resettlement and Rehabilitation (R&R) Plan and (ii) land allotment / acquisition for R&R and project construction. These two activities could not be carried out due to the resistance from a section of the PAF. Even after vigorous efforts at various levels upto Hon'ble Minister (WR) and others with Government of Assam, no headway has been achieved.

A meeting was held on 23rd Oct, 2009 in the conference room of the Chief Secretary, Govt. of Assam, wherein, the Board officials emphasized that it would be ideal if the dam could be constructed at Thalkuchi. However, as an alternate to this, possibility can be explored at the confluence of Pagla & Diya near Indo-Bhutan border. As the catchment areas fall within Bhutan, the matter would require to be taken up with Government of Bhutan through Ministry of External affairs, Govt. of India.

The possibility of an alternative dam site upstream of Thalkuchi was explored keeping into account the resultant submergence to be within the Indian Territory. After examining the available reports for alternative sites in the upstream of Thalkuchi which was investigated earlier and incorporated in the Detailed Project Report (DPR) of Pagladiya Dam Project, it was opined that no suitable site is available in the upstream of Thalkuchi. The matter has been intimated to the Ministry of Water Resources. The Commissioner (B&B) has requested (on 27.12.2010) the Chief Secretary to the Govt. of Assam to offer views

in the matter. Later on, the Secretary, WRD, Govt. of Assam was also requested from Brahmaputra Board to expedite the submission of views of Govt. of Assam on 10.02.2011 & 13.09.2011. But the same is still awaited.

In the meanwhile, on 10.06.2011, a meeting was held in the Secretariat of Bodo Land Territorial Council (BTC), Kokrajhar. In the meeting Brahmaputra Board officials discussed the aforesaid issues in details and stressed the need to conduct the Zirat survey for ascertaining the actual picture of PAF to prepare a detailed plan of R&R. The Board authority, also provided a copy of the "National Rehabilitation and Resettlement Policy, 2007" to the Secretary, BTC, Kokrajhar in August/2011 and requested to initiate the Zirat survey of the proposed area under submergence at an early date. Response from BTC is awaited.

This stalemate situation was discussed in the 53rd Meeting of Brahmaputra Board held on 02-06-2011 wherein it was decided to temporarily close the offices under the project. Accordingly, the manpower deployed in the project sites has been transferred to other offices of Brahmaputra Board. The temporary closure of the offices under Pagladiya Dam Project has already been completed. In the 6th High Powered Review Board Meeting held on 18-01-2012, the Secretary, Govt. of Assam referred to the statement made by the Hon'ble Chief Minister, Assam about one more effort he would like to make with BTC to break the deadlock on Pagladiya Project. In the 54th Meeting of the Brahmaputra Board held on 11-02-2012 at Aizawl, Mizoram, the Members were apprised about the huge financial liability involved due to which there was no alternative but to temporarily close down the offices.

(B) Construction of Drainage Development Schemes:

- (i) **Harang Drainage Development Scheme:** The Harang Drainage Development Scheme with an estimated cost of ` 30.49 crore was executed by Brahmaputra Board in the Cachar District of Assam. The scheme benefits 11850 ha. chronically drainage congested area in Barak Valley, Assam for agriculture. The scheme was physically completed in March'2011 with total expenditure of ` 30.44 crore up to March'2012.
- (ii) **East of Barpeta Drainage Development Scheme:** The East of Barpeta drainage development scheme with an estimated cost of ` 2.9562 crore was taken up for execution in March 2009 and completed in June' 2011. Expenditure against this scheme is ` 2.71 crore up to March'2012.
- (iii) **Borbhag Drainage Development Scheme:** The scheme was taken up with an original estimated cost of ` 7.2307 crore and during execution the estimate was revised to ` 11.7042 crore due to change of sluice design. Raising and strengthening of embankment, re-sectioning of channel and construction of sluice are the main component of the scheme. Up to March' 2012, 30.96% physical progress has been achieved against the expenditure of ` 3.81 crore. The only remaining work is construction of sluice, tender for which is under process. The cost of DPR is updated to ` 13.90 crore and submitted to Central Water Commissioner for according Techno Economic clearance.

- (iv) **Amjur Drainage Development Scheme - (₹ 14.15 crore):** The scheme was techno-economically cleared for an amount of ₹ 14.15 cr. in January, 2006. The work order for raising and strengthening of existing embankment has been awarded and 32.50% of total works have been completed up to March' 2012. Expenditure against this scheme is ₹ 10.98 crore. Detailed design of sluice regulator is under process at CWC, New Delhi.
- (v) **Other Drainage Development Schemes:** 3 (three) nos. of DDS viz. (1) Jengrai (2) Jakaichuk (3) Singla were taken up for execution during the year 2006-07. The progress of works of the Jakaichuk DDS are held up due to local problem and due to change of design the works of Jengrai DDS is delayed. Progress of these DDS up to March' 2012 are as follows:

Name of Scheme	Physical Progress	Financial Progress (₹ in crore)
(1) Jengrai	27%	1.04
(2) Jakaichuk	45%	1.35
(3) Singla	3.5%	0.20

(B) Anti-erosion and Flood Control Schemes.

- (vi) **(Avulsion of Brahmaputra at Dholla Hatighuli - Phase-I** amounting to ₹ 10.47 crore, Phase -II amounting to ₹ 4.16 crore and Phase -III works for ₹ 8.47 crore have been completed. Phase -IV works at Dholla Hatighuli area for ₹ 54.43 crore are under execution and 48.09% of the total works have been completed up to March' 2012 against the expenditure of ₹ 26.20 Crore.
- (vii) **Protection of Majuli Island in Assam:** On receipt of request from Govt. of Assam, the Detailed Project Report on Protection of Majuli Island from Flood and Erosion was prepared by Brahmaputra Board on the basis of recommendations of the Master Plan and submitted to the CWC during August, 2000. The Central Water Commission techno-economically cleared the scheme in August, 2003 for ₹ 86.56 crore comprising three phases such as Phase-I, II & III.

In order to reduce erosion problem of the Majuli Island, protection works were undertaken in 2003-04 as immediate measures at an estimated cost of ₹ 6.2 crore. This works were followed by protection works under Phase -I for ₹ 41.28 crore, as a part of DPR cleared by CWC for ₹ 86.56 crore for the works contemplated in three phases. Estimate for Phase -I works had been revised to ₹ 56.07 crore. The works of Phase -I have been completed in April 2011. The total expenditure for Ph-I works is ₹ 53.40 crore.

The revised DPR for Phase - II & III works have been technically cleared by CWC for ₹ 115.99 crore and 39.07% of total works have been completed up to March' 2012 against the expenditure of ₹ 39.04 crore.

- (viii) **Anti-erosion measures to protect Kushiabil & Durgajan Village at Dimapur of river Dhansiri (S) - (₹ 2.64 crore):**
All the works completed during 2007-08.

(ix) **Anti-erosion works of Nagrijuli, Rangia town and Mukalmua/ Borbhag area from flood and erosion of Puthimari river, Assam:** (₹ 4.89 crore): The works contemplated in approved provision of the scheme was completed in February 2009.

(x) **Construction of Raised Platform:** So far Brahmaputra Board has completed construction of 10 Nos. of Raised Platform and constructions of another one Raised Platform is in progress & progress up to February' 2012 is 55%.

5. **North Eastern Hydraulic and Allied Research Institute (NEHARI):-** This institute was established under Brahmaputra Board at Rudreswar (North Guwahati) as per the Assam Accord, and operationalised during 1996. The main functions of NEHARI are material testing, carrying out model studies etc. Facilities such as Hydraulic Laboratory with model trays and flumes and Laboratories for testing soil, concrete, other construction materials and foundation rock exist in the institute. There is a working arrangement for coordination with the Central Water & Power Research Station (CWPRS), Pune and Central Material Research Station (CSMRS), New Delhi. Three model studies and several testing of soil, rock and concrete samples have already been carried out in NEHARI for various organisations/ project authorities in the N. E. Region like North East Electric Power Corporation, Central Water Commission, North Eastern Council, National Hydro Power Corporation and State Governments of Assam, Manipur, Meghalaya and Mizoram. In addition to above, the model studies of Majuli for long term solution for flood problem of Majuli Island and Jiabharali river at Chowkighat for Construction Bridge at the National Highway have also been completed. Laying for model studies of Majuli Island is in progress.

6. **Flood Management Programme under State Sector for taking up Flood Control and River Management Works during XI Plan:** In November, 2007, the Government of India has approved the Cabinet Note for the implementation of "Flood Management Programme" a state sector scheme under Central Plan to provide central assistance to the State Governments amounting to ₹ 8000 crore during XI Plan period (2007-12) for taking up river management, flood control, anti-erosion, drainage development, flood proofing work and restoration of damaged flood management works etc. Proposals under this programme for the N.E States are vetted/recommended and monitored by the Board. A table showing the status of Flood Management Programme under State Sector up to January' 2012 are as follows:-

Fund released to N.E. States under Critical Flood Control & Anti Erosion scheme / Flood Management Programme.

(₹ in Crore)

Sl. No.	Name of states	X Plan	XI Plan (up-to January,2012)	XII Plan (up-to March,2012)

1	Assam	78.8182	617.20	733.0201
2	Arunachal Pradesh	16.3750	75.58	75.58
3	West Bengal	9.0100	13.39	13.39
4	Sikkim	8.5950	64.40	83.2755
5	Nagaland	3.8970	11.21	28.94
6	Manipur	7.9110	52.65	65.0395
7	Tripura	12.7640	16.22	20.9167
8	Meghalaya	2.6350	3.81	3.81
9	Mizoram	6.1980	2.06	3.4055
	Total	146.2032	856.52	1027.3773

7. **Long term strategy for Flood Management and Erosion Control in Brahmaputra River:** - Long term strategy for the flood control of Brahmaputra River Basin has been brought out in the Master Plan of main stem of Brahmaputra, prepared by Brahmaputra Board and approved by Government of India. These long term strategies are given below: -

- i) multipurpose storage dam projects;
- ii) watershed management;
- iii) river training works ;

Brahmaputra Board has already prepared a Concept Note on Bank Stabilization of river Brahmaputra and forwarded the above to CWC; CWPRS; WRD, Govt. of Assam; WRDTC, IIT Roorkee; Civil Engineering Department of IIT- Guwahati; Assam Engineering College, Guwahati; Jorhat Engineering College and NIT Silchar. The report has been modified as per the suggestions/ observation of the experts/organizations. Brahmaputra Board had approached the IIT, Guwahati for Mathematical Model Study of River Brahmaputra. In response, the IIT, Guwahati submitted a proposal for "Mathematical Model Study of River Brahmaputra with emphasis on Climate Change" which has already been recommended for implementation by Central Water Commission at an estimated cost of `2.80 crore. To accord Administrative Approval of the Proposal and to finalise the 'Terms of Reference' of the Draft MoU submitted by IIT Guwahati, 48th Meeting of Standing Committee of Brahmaputra Board was held on 07-03-2012.