

**STANDING COMMITTEE ON WATER RESOURCES  
(2021-22)**

**SEVENTEENTH LOK SABHA**

**MINISTRY OF JAL SHAKTI  
(DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT AND  
GANGA REJUVENATION)**

**"FLOOD MANAGEMENT IN THE COUNTRY INCLUDING INTERNATIONAL WATER  
TREATIES IN THE FIELD OF WATER RESOURCE MANAGEMENT WITH PARTICULAR  
REFERENCE TO TREATY/AGREEMENT ENTERED INTO WITH CHINA, PAKISTAN AND  
BHUTAN"**

**[Action Taken by the Government on the Observations / Recommendations contained in the  
Twelfth Report (Seventeenth Lok Sabha) of the Standing Committee on Water Resources]**

**SEVENTEENTH REPORT**



**LOK SABHA SECRETARIAT  
NEW DELHI**

July, 2022 /Ashadha,1944 (Saka)

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**(Action Taken by the Government on the Observations / Recommendations contained in  
the Twelfth Report (Seventeenth Lok Sabha) of the Standing Committee on Water  
Resources)**

*Presented to Lok Sabha on 22.07.2022*  
*Laid on the Table of Rajya Sabha on 22.07.2022*



**LOK SABHA SECRETARIAT**  
**NEW DELHI**

July, 2022 /Ashadha, 1944 (Saka)

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## STANDING COMMITTEE ON WATER RESOURCES (2021-22)

### COMPOSITION

**Dr. Sanjay Jaiswal** - **Chairperson**

#### LOK SABHA

2. Shri Vijay Baghel
3. Shri Bhagirath Choudhary
4. Shri Chandra Prakash Choudhary
5. Shri Guman Singh Damor
6. Dr. Heena Vijaykumar Gavit
7. Dr. K. Jayakumar
8. Shri Dhanush M. Kumar
9. Shri Sunil Kumar
10. Shri Mohammad Akbar Lone
11. Shri Kuruva Gorantla Madhav
12. Shri Nihalchand
13. Shri Hasmukhbhai Somabhai Patel
14. Shri Sanjay Kaka Patil
15. Shri P. Ravindhranath
16. Ms. Nusrat Jahan Ruhi
17. Smt. Agatha K. Sangma
18. Shri Pratap Chandra Sarangi
19. Shri Chandan Singh
20. Shri D.K. Suresh
21. Shri Shivkumar C. Udasi

#### RAJYA SABHA

22. Dr. Kirodi Lal Meena
23. Smt. Mausam Noor
24. Shri Arun Singh
25. **Vacant**
26. **Vacant**
27. **Vacant**
28. **Vacant**
29. **Vacant**
30. **Vacant**
31. **Vacant**

### SECRETARIAT

1. Shri M.K. Madhusudhan - Joint Secretary
2. Shri Khakhai Zou - Director
3. Shri R.C. Sharma - Additional Director
4. Shri Gaurav Jain - Assistant Committee Officer

## **INTRODUCTION**

I, the Chairperson, Standing Committee on Water Resources (2021-22) having been authorized by the Committee to submit the Report on their behalf, present the Seventeenth - Report on the Action Taken by the Government on the Observations/Recommendations contained in the Twelfth Report (Seventeenth Lok Sabha) of the Standing Committee on Water Resources on Flood Management in the Country including 'International Water Treaties in the field of Water Resource Management with Particular Reference to Treaty/Agreement Entered Into With China, Pakistan and Bhutan'.

2. The Twelfth Report of the Committee was presented to Lok Sabha and laid in Rajya Sabha on 5 August 2021. The replies of the Government to all the recommendations contained in the Report were received in this Secretariat on 04 January, 2022.

3. The replies of the Government were examined and the Report was considered and adopted by the Committee at their sitting held on 19.05.2022.

4. An analysis of the Action Taken by the Government on the Observations/Recommendations contained in the Twelfth Report (Seventeenth Lok Sabha) of the Committee is given in Annexure-II.

**New Delhi  
18 July, 2022  
27 Ashadha, 1944 (Saka)**

**Dr. SANJAY JAISWAL  
Chairperson  
Standing Committee on Water Resources**

## CHAPTER I REPORT

This Report of the Standing Committee on Water Resources (2021-22) deals with the action taken by the Government on the Observations/Recommendations contained in their Twelfth Report (Seventeenth Lok Sabha) on 'Flood Management in the Country including International Water Treaties in the field of Water Resource Management with particular Reference to Treaty/Agreement entered into with China, Pakistan and Bhutan'.

2. The Twelfth Report was presented to Lok Sabha on 05.08.2021 and was laid on the Table of Rajya Sabha on the same date. The Report contained 32 Observations/Recommendations.

3. Action Taken Notes in respect of all the Observations/Recommendations contained in the Report have been received from the Government. These have been examined and categorized as follows: -

(i) Observations/Recommendations which have been accepted by the Government (Chapter II):

Serial Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 23, 25,  
26, 27, 28, 29, 30, 31 and 32

(Total - 29)

(ii) Observations/Recommendations which the Committee do not desire to pursue in view of replies of the Government (Chapter-III):

Serial No. NIL

(Total – NIL)

(iii) Observations/Recommendations in respect of which replies of the Government have not been accepted by the Committee (Chapter-IV):

Serial Nos. 14, 22 and 24

(Total – 03)

(iv) Observations/Recommendations in respect of which final replies of the Government are still awaited (Chapter-V):

Serial No. NIL

(Total – NIL)

4. The Committee desire that replies to recommendations made in the Chapter-I of this Report may be furnished to the Committee expeditiously.

5. The Committee will now deal with action taken by the Government on some of their Observations/Recommendations that require reiteration or merit comments.

## A. Flood Plain Zoning

### **Recommendation No. 6 (Para Nos. 2.9, 2.10 & 2.11)**

6. The Committee noted that despite its benefits, floodplain zoning has not been earmarked/demarcated in India. In this regard, a model draft bill for flood plain zoning legislation was also circulated by the Union Government to all the States. However, only the States of Manipur, Rajasthan and Uttarakhand and erstwhile State of Jammu & Kashmir had enacted legislation, though delineation and demarcation of flood plains is yet to be undertaken. Further, Major flood prone States viz Uttar Pradesh, Bihar, West Bengal, Assam, Odisha etc have not taken initiative to enact any legislation with regard to Flood Plain Zoning.

7. The Committee believed that one of the prime reasons for extensive damage caused due to floods is ever increasingly human habitations and encroachment of the flood plains. The Committee expressed their displeasure over the fact that though Bihar is one of the most flood prone states in the country witnessing huge losses in terms of human lives, cattle and properties worth crore of rupees every year, the Model legislation on Flood Plain Zoning is yet to be enacted by the State. The Committee were of the view that while floods are natural, destruction caused by floods is by and large man-made due to unbridled human intervention in the nature's ecosystem in the name of development. Deforestation in the catchment area, constructions on the river banks and in the floodplains area, encroachment on wetlands, changing cropping pattern and short sighted quick-fix solutions to control floods play a major role in causing devastation due to the floods.

8. However, at the same time, the Committee were aware of the various challenges faced in implementing the Flood Plain Zoning policy especially evolving a suitable compensatory mechanism and finding alternative land site to rehabilitate those who have been displaced especially in densely populated States like Bihar, Uttar Pradesh etc. The Committee were therefore of the opinion that the Model Bill must be suitably modified taking into account the socio-political and economic realities of the regions in which it is to be implemented. Further, the Ministry of Jal Shakti should also consider providing financial assistance to those States that are willing to implement floodplain zoning.

9. The Department in its action taken note has replied as follows:

*“The Model Bill for Flood Plain Zoning provides for Flood Plain Zoning Authority to be constituted by State governments with a Governing Body under Chairmanship of Chief Minister of respective States which will delineate flood plain zones and other measures for keeping flood plains encroachment free. Further, it has provision for ‘No Development Zone’, ‘Controlled Development Zones’ and ‘Development Zones’ which are to be notified.*

*Further, National Mission for Clean Ganga (NMCG) has time to time advised all states in Ganga basin for demarcation, delineation and notification of river flood plains and removal of encroachment from river bed/floodplain of the river Ganga and its tributaries in adherence to the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016 notified vide Gazette Notification S.O.3187(E) dated 7<sup>th</sup> October, 2016.*



*It is to be mentioned that as per the guidelines of ongoing “Flood Management and Border Area Programme (FMBAP)” of Department of Water Resources, RD & GR, the State Governments which adopt Flood Plain Zoning Bill are given priority over the other States for release of central assistance”.*

**10. The Committee are dismayed to find that the action taken reply of the Department is silent as to whether or not the major flood prone States viz Uttar Pradesh, Bihar, West Bengal, Assam, Odisha etc. have taken any initiative/steps for enactment of the Model Bill for Flood Plain Zoning, as these States are witnessing huge losses in terms of human lives, cattle and properties, whenever the flood strikes. The Committee are of view that merely issuing directions to States will not yield desired outcomes, unless protracted and vigorous efforts are made by the Department to persuade and goad the States for enactment of the Model Bill. They, therefore, reiterate their recommendation that the Union Government should make renewed and concerted efforts for persuading the State Governments for enactment of the Model Bill on Flood Plain Zoning and where necessary, States may consider suitably modifying the Model bill and dovetail / customize it taking into account the socio-economic realities of the States.**

**B. Issue of River Erosion in Assam**

**Recommendation No. 14 (Para Nos. 2.20)**

11. The Committee noted with concern that river erosion in Assam is a big perennial problem causing significant economic loss besides displacement of population. The Committee were of the view that it is high time that Government should consider inclusion of river erosion in the admissible list of calamities for availing assistance under National Disaster Response Fund (NDRF)/ State Disaster Response Fund (SDRF). The Committee also recommended the Ministry to take requisite steps to protect the Majuli Island by strengthening / improving the peripheral embankment system of the Island.

12. The Department in its action taken note has replied as follows:

*“The 15th Finance Commission in its final report had considered the requests of State Governments for inclusion of various calamities, including river and coastal erosion in the list of notified disasters. The report concluded that the list of notified disasters eligible for funding from State Disaster Risk Management Fund (SDRMF) and National Disaster Risk Management Fund (NDRMF) fulfil the concerns of the States and thus did not find merit in further expanding its scope. However, the Commission has further stated that the calamities like river and coastal erosion can be tackled efficiently through mitigation efforts for which allocation under the mitigation funds have been made.*

*In State of Assam, in addition to flood management projects under FMBAP scheme of DoWR, RD & GR, some emergent flood management works are executed by Brahmaputra Board from the grant-in-aid under River Basin Management (RBM) Scheme of Ministry of Jal Shakti, D/o WR, RD & GR. Currently, Brahmaputra Board is executing a*

project for “Protection of Majuli Island from flood and erosion” at an estimated cost of Rs. 233.57 crore”.

**13. The Committee regret to state that they are not satisfied with the reply of the Department as no efforts have been made to tackle the problem of soil erosion, which is very grave due to recurring floods particularly in the State of Assam. The Committee were informed that the 15<sup>th</sup> Finance Commission did not find merit in expanding the scope of the list of notified disasters/calamities so as to include calamities like river and coastal erosion for funding from SDRMF and NDRMF, as these can be tackled efficiently through mitigation efforts for which allocation under the mitigation funds have been made. However, the Committee note that no information about quantum of allocation made and expenditure incurred on prevention of soil erosion works has been given. In view of the fact that the river bank erosion has caused major human and economic disasters as the loss of land due to erosion is permanent and has a long term impact on the economy of the region and its people, the Committee, therefore, reiterate their recommendation and call upon the Department to make endeavours to draw the attention of the Government and persuade it to include soil river erosion in the admissible list of disasters/calamities.**

**C. Need to Strengthen Brahmaputra Board**

**Recommendation No. 16 (Para Nos. 2.22)**

**14. The Committee noted that Brahmaputra Board was set up to address the twin problems of floods in north-eastern states and storage of flood water in Brahmaputra basin. The Committee, however, expressed its concern over the lack of manpower in Brahmaputra Board. The Committee noted that as against the sanctioned strength of 161 technical posts, almost 38% posts are lying vacant and in respect of non-technical Posts, out of 254, 66% posts are lying vacant. The huge shortage of manpower adversely affects the proper functioning of the Board. Keeping in view the paramount importance of Brahmaputra Board for management of floods and erosion in North-East region, the Committee recommended the Department to fill up all the vacant posts on priority basis so as to augment the manpower in the Board for enabling its smooth functioning.**

**15. The Department in its action taken note has replied as follows:**

*“Brahmaputra Board has been established under the Brahmaputra Board Act, 1980. The manpower of the Brahmaputra Board and its organogram has been restructured by the Department in the year 2019. After restructuring, Brahmaputra Board has a total of 415 (7 statutory and 408 non statutory) posts. Recruitment in respect to statutory posts is done by the Department. Whereas, for other non-statutory posts(407) Recruitment Rules are issued/ modified by the Department and the process of appointment is to be done by the Brahmaputra Board itself. So far as filling up of seven statutory posts of the Brahmaputra Board, it is stated that efforts have been made in this regard and vacancy circulars have been issued on multiple occasions. However, due to lack of eligible applicants, these*

*posts couldn't be filled up. The matter has also been taken up with DoPT to fill up these posts. Some of these posts such as Vice Chairman and Secretary have been functioning with additional charge arrangement. However, most of these posts are still vacant and recently vacancy circular in respect of 6 statutory posts of Brahmaputra Board have been issued by the Department. The matter regarding unfilled vacancies in the Brahmaputra Board has been regularly reviewed by Secretary, DoWR, RD & GR. As a result of these reviews, the "Transfer Policy" in respect of Central Water Engineering (Group-A) Service(CWES) has been suitably modified to pave the way for CWES Officers to apply for various statutory and non-statutory posts of the Brahmaputra Board".*

**16. From the reply furnished by the Department, the Committee note with concern that after restructuring, Brahmaputra Board has a total of 415 (7 statutory and 408 non-statutory) posts, however, most of these posts are still lying vacant. Further, some of the posts such as Vice Chairman and Secretary have been functioning with additional charge arrangement. Though, the Secretary, DoWR, RD & GR has regularly reviewed this issue and suitable modifications were carried out in "Transfer Policy" in order to enable Central Water Engineering Service (CWES) Officers (Group-A) to apply for various statutory and non-statutory posts in the Brahmaputra Board, the Committee are of view that it is a short-term and stop-gap arrangement and will not serve the purpose in the long run. Keeping in view the importance of Brahmaputra Board in addressing the problems of floods in north-eastern states and storage of flood water in Brahmaputra basin, the Committee once again recommend the Department to take immediate steps to fill the vacancies in the Brahmaputra Board in order to ensure its smooth functioning.**

**D. Funding under Flood Management Programmes**

**Recommendation No. 22 (Para Nos. 2.28 & 2.29)**

17. The Committee noted that during XI Plan, the Flood Management Programme (FMP) was implemented with an outlay of Rs. 8000 crore and the pattern of funding was 90 % (Centre):10 % (State) for Special Category States and 75 % (Centre): 25 % (State) for General/ Non-Special Category States. However, during XII Plan, though the Programme continued, the funding pattern was revised to 70% (Centre):30 (State) for the special category States viz. North Eastern States, Himachal Pradesh, Jammu & Kashmir and Uttarakhand and for General States it was revised to – 50% (Centre) : 50% (State). The Committee expressed their concern over slashing the Central share of funding under these Programmes during XII Plan. Given the precarious state of financing of States particularly poor States like Bihar who shares international border with Nepal and other major flood prone States are not in a position to provide adequate budgetary support for flood management works. The Secretary, DoWR, RD & GR during the oral evidence admitted that annual budget of the Ministry for flood management works is only Rs. 500 crore which is awfully low in comparison to the requirement of funds for flood control works/schemes. He further, stated that more than funding pattern, non-allocation of sufficient funds for the scheme is the major roadblock for undertaking flood management works.

18. Keeping in view the large scale destruction caused by the floods every year and also the delicate financial position of the States, the Committee urged the Department to vigorously pursue with the Ministry of Finance to provide adequate budgetary support for flood Management Programme. The Committee also recommended that the Department should impress upon the NITI Aayog to revise the existing fund sharing pattern between Union and States under the Flood management schemes with a view to increase Centre's share. Further, to augment the funding for flood management programme, the Committee urged the Department to explore the possibility of setting up a dedicated fund on the lines of Clean Ganga Fund for Namami Gange Programme whereby a trust may be set up for seeking contributions from corporate entities as well as individuals. Besides, to incentivize the corporates, the donation to dedicated FMP Fund may be exempted from Income Tax under relevant sections and contribution to FMP Fund may also qualify under Corporate Social Responsibility (CSR) provisions of the Company Act.

19. The Department in its action taken note has replied as follows:

*“The proposal for centrally sponsored scheme, FMBAP for the period 2021-26 with an outlay of Rs. 15,000 crore in line with the recommendations of NITI Aayog Committee was presented to Expenditure Finance Committee (EFC). However, as per recommendations of EFC, the overall outlay of the FMBAP for period 2021-26 has been restricted to Rs. 4,500 crore. The funding pattern recommended for projects to be taken up in FMBAP under FMP Component is 60 % (Centre): 40 % (State) for General Category States and 90 % (Centre): 10 % (State) for 8 North Eastern States, J&K, Himachal Pradesh and Uttarakhand.*

*Realizing the importance of mitigation measures in overall management of disasters, 15<sup>th</sup> Finance Commission has also recommended creation of mitigation funds at both the Union and State levels under – National Disaster Risk Management Fund (NDRMF) and State Disaster Risk Management Funds (SDRMF) – to aid the implementation of mitigation measures in States for the period 2021-26. FC has recommended that the disaster risk management funds shall comprise two components viz. response fund (NDRF/SDRF) and mitigation funds (NDMF/SDMF). Under these funds, 20 per cent shall be allocated for mitigation and the remaining 80 per cent for the response funds. The FC has recommended total allocation for NDMF for the duration of the award period as Rs. 13,693 crore and the total allocation recommended for SDMF to the States for the duration of the award period is Rs. 32,031 crore (Central share - Rs. 24,517 crore, State share – Rs. 7,514 crore). The FC has stated that mitigation fund created should be used for those local level and community-based interventions which reduce risks and promote environment-friendly settlements and livelihood practices”.*

**20. The Committee note with concern that the proposed outlay of Rs. 15,000/- crore for Flood Management and Border Areas Programme (FMBAP) for the period 2021-26, as per the recommendations of NITI Aayog has been drastically reduced to Rs. 4,500 crore by Expenditure Finance Committee (EFC). Although, the 15<sup>th</sup> Finance Commission has recommended revised funding pattern under Flood Management Programme Component, the Committee are of the view that it is still**

short of desired expectations in view of the precarious financial position of the States. Further, it is not clear from the Ministry's reply as to whether the funds have been earmarked or not as recommended by the Finance Commission for creation of mitigation funds at both the Union and State levels. The Committee, therefore, reiterate their recommendation that Department should take up the matter of providing adequate budgetary support to FMBAP with the Ministry of Finance. They would also like to be apprised of the amount sanctioned and incurred under the mitigation funds as recommended by the Finance Commission.

**E. Comprehensive Policy for Integrated Flood Management**

**Recommendation No. 23 (Para Nos. 2.30)**

21. The Committee had been informed that in order to formulate the strategy for flood management works in the entire country and river management activities and works in the border areas for period 2020-2023, a Committee had been constituted by NITI Aayog under the chairmanship of Vice Chairman, NITI Aayog. Officials from various Departments/Ministries of Government of India, experts from the field and Principal Secretaries from States of Jammu & Kashmir, Uttar Pradesh, Bihar, West Bengal, Punjab, Assam, Arunachal Pradesh, Tripura, Madhya Pradesh and Kerala have been included as the members of this Committee. As a part of this exercise, a Sub-Committee was constituted under the chairmanship of Secretary, DoWR, RD & GR, Ministry of Jal Shakti to assist the Committee in formulation of the proposal/strategy of flood management in respect of three broad areas, viz., structural measures, non structural measure and the scheme for financial assistance to states for taking up flood management works and river management activities/works in border areas. It was informed that the Sub-Committee has submitted its Report to the aforesaid Committee of NITI Aayog in July-2020. The Committee urged the Government to complete the exercise of formulation of the strategy for flood management works in the entire country and river management activities and works in the border areas, within a definite time period so that a comprehensive and well-defined policy for integrated Flood Management in the country is put in place.

22. The Department in its action taken note has replied as follows:

*"In order to formulate the strategy for flood management works in the entire country and river management activities and works in the border areas, a Committee was constituted by NITI Aayog under the chairmanship of Vice Chairman, NITI Aayog with officials from various Departments/ Ministries of Government of India, experts from the field and Principal Secretaries from States of Jammu & Kashmir, Uttar Pradesh, Bihar, West Bengal, Punjab, Assam, Arunachal Pradesh, Tripura, Madhya Pradesh and Kerala as members. The Final Report of the Committee constituted for Formulation of Strategy for Flood Management Works in Entire Country and River Management Activities and Works Related to Border Areas (2021- 26) was issued by NITI Aayog during January 2021.*

*The proposal of FMBAP for the period 2021-26 with an outlay of Rs. 15,000 crore in line with the recommendations of NITI Aayog Committee was considered by Expenditure*

*Finance Committee of Department of Expenditure, Ministry of Finance. However, the overall outlay of the FMBAP for period 2021-26 has been restricted to Rs. 4,500 crore”.*

**23. The Committee are dismayed to note from the reply that only Rs. 4,500 crore was approved for the overall outlay of Flood Management and Border Area Programme (FMBAP) for the period 2021-26 against the proposal of Rs. 15,000 crore. However, while expressing their satisfaction over the fact that the NITI Aayog in January 2021 had issued the Final Report of the Committee constituted for formulation of Strategy for Flood Management Works in Entire Country and River Management Activities and Works Related to Border Areas (2021– 26), the Committee would like to be apprised of the action taken/being taken by the Department on this Report.**

**F. INTEGRATED RESERVOIR OPERATION FOR FLOOD MANAGEMENT**

**Recommendation No. 24 (Para Nos. 2.31 & 2.32)**

24. The Committee took note of the following major instances where release of water from dams has caused flood like situation in other States: (i) Flood like situation in Patna in Bihar and its downstream areas in the year 2016 after releases from Bansagar Dam in Madhya Pradesh and Rihand dam in Uttar Pradesh (ii) Releases from Koyna Dam and other small dams in Maharashtra and Almatti Dam in Karnataka in the year 2019 inundated Telangana and Andhra Pradesh (iii) Releases from dams at Chambal basin in Madhya Pradesh and Rajasthan and dams at Betwa Basin dams in Madhya Pradesh and UP caused flood like situation in UP, Bihar and West Bengal and (iv) Releases from Bhakra Beas Management Board (BBMB) Projects in HP and Punjab creating flood like situation in Punjab. The Committee noted that most of the Indian rivers are inter-state flowing through more than one State. Many River Valley Projects have been developed on these rivers by the State Governments within their jurisdiction and they are being operated as a single entity in most of the cases. However, it is not possible for each State to operate the reservoir in an integrated manner with reservoir located in other States without having institutional mechanism for the same. Many a times, sudden release of water from dams in one State has created inundation in other State resulting in loss of lives in addition to large scale economic losses to population and infrastructure.

25. The Committee expressed concern over the fact that though dam owners were advised to follow Standard Operating Procedure (SoP) for release of water from their reservoirs and issue advance warnings for the downstream areas, the conflicting objectives and lack of coordination between various States posed a challenge in optimal operation of reservoirs. To obviate this problem, the Committee recommended that setting up of River Basin Authority for each river basin of the country may be expedited in order to ensure integrated operation of reservoirs. The Committee would like to be apprised of the steps taken by the Department in this regard.

26. The Department in its action taken note has replied as follows:

*“The draft River Basin Management Bill, 2018 has been circulated among all States, Union Territories and related Union Ministries by the Department of Water Resources,*

*River Development & Ganga Rejuvenation (MoJS) for comments/ suggestions. The draft River Basin Management Bill, 2018 is presently in public domain available on the website of Ministry of Jal Shakti”.*

**27. The Committee are not satisfied with the reply of the Department as it merely states that the draft River Basin Management Bill, 2018 has been circulated among all States/Union Territories and related Union Ministries for comments/ suggestions and is presently in public domain and does not mention about the concrete steps that have been taken by the Department to persuade the States to enact this important Bill. The Committee are of the view that given the importance of setting up River Basin Authority for each river basin of the country in order to ensure integrated operation of reservoirs, the Committee reiterate their recommendation and urge upon the Department to make concerted efforts to persuade States for enactment of the River Basin Management Bill.**

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**CHAPTER - II**  
**OBSERVATIONS / RECOMMENDATIONS WHICH HAVE BEEN ACCEPTED BY THE**  
**GOVERNMENT**

**RECOMMENDATION NO. 1 (Para 2.1, 2.2 & 2.3)**

**NEED FOR OVERARCHING APEX BODY FOR FLOOD CONTROL AND MANAGEMENT**

The Committee is of the view that each wing of the Government at national, state and sub-state levels views floods as a situation to be dealt with as and when it happens. Under the existing scheme of things, given the constitutional and administrative compartmentalization, flood management appears to be everyone's business and therefore it reduces to nobody's business. The Committee strongly desires to break this thinking pattern in the administrative structures and recommends that the Ministry of Jal Shakti take up the onus of flood management in the country as an overarching responsibility. The committee recommends that in view of the loss of life and property caused throughout the year in almost every part of the country, the Union Government must take up responsibility for coordinating the national efforts for flood control and mitigation with all stakeholders. The committee therefore, recommends setting up of a permanent institutional structure in the form of National Integrated Flood Management Group (NIFMG) under the chairmanship of Hon'ble Minister of Jal Shakti immediately. Concerned Ministers of the State Governments should be the members of this group and the group should meet at least once a year. This group should take up the overall responsibility of coordination as well as building synergies between all agencies responsible for management of floods and their consequences on life and property. The committee recommends that the first meeting of this group should be held within three months of the presentation of this report to the Parliament.

While taking an overarching responsibility in flood management, the NIFMG should also take up prevention and mitigation strategies of localized flooding events including the issues of hyper construction and water logging in urban areas as well as issues like localized landslides leading to flooding etc. NIFMG should also get strategy prepared for identification of localized areas that are prone to localized flooding which leads to loss of life and property especially in urban areas.

NIFMG should exercise supervision over all aspects of flood management in the country including those issues, which fall in the domain of State/local governments as well as which are of international linkages. Given the scale of loss of life and property caused by the floods, which show an increasing trend, NIFMG should present an annual report on this issue to Parliament.

**REPLY OF THE GOVERNMENT**

As per the existing arrangement, Department of Water Resources, River Development & Ganga Rejuvenation (DoWR, RD & GR), Ministry of Jal Shakti (MoJS) as the Central Nodal Department supplements the efforts of the States by way of technical guidance and promotional financial assistance for flood management in critical areas. The phenomenon of flood is basin sensitive and depends upon the physical & hydrological features of the basin and strategy to deal with floods varies from basin to basin. Accordingly, respective



State Governments plan, formulate and implement flood control and mitigation measures. As an effective non-structural measure, Central Water Commission under the Department provides flood forecasting and advance warning service in the country covering 25 States & 2 UTs including NCT of Delhi and 20 river basins. The activity of flood forecasting comprises Level Forecasting and Inflow Forecasting. The forecasts are issued once the water level in a river touches pre-defined warning level (usually one meter below the danger level but dependent on threat perception of the particular location). The level forecasts help the local administration and other agencies in deciding mitigating measures like evacuation of people and their moveable property to safer locations. The Inflow Forecasting is used by various reservoir/dam authorities in optimum operation of reservoirs for safe passage of flood downstream as well as to ensure adequate storage in the reservoirs for meeting the demand during the non-monsoon period. Before onset of monsoon preparatory meetings are held with all stakeholders for ensuring effective coordination and dissemination of flood forecasts for remedial actions.

It is pertinent to mention that Ministry of Home Affairs is mandated to look after the matters relating to loss of human life and property due to all natural and man-made calamities, other than drought or epidemics. Government of India has enacted the Disaster Management Act 2005, which provides a legal and institutional framework at national, state and district levels for the creation of specialized disaster management institutions. In pursuance of the Act, key national level decision making bodies for disaster management like National Institute of Disaster Management (NIDM), National Disaster Management Authority (NDMA), National Disaster Response Force (NDRF) and National Executive Committee (NEC) have been created. NEC is an overall coordinating and monitoring body for disaster management. It is chaired by the Union Home Secretary and comprises Secretary level officers from the Ministries and Departments having control of agriculture, atomic energy, defence, drinking water supply, environment and forests, finance (expenditure), health, power, rural development, science and technology, space, telecommunications, urban development and water resources. The Chief of Integrated Defence Staff of the Chiefs of Staff Committee, ex-officio, is also its member.

In order to provide relief in respect of notified disasters including floods, State Disaster Response Fund (SDRF) has been created and placed at the disposal of States. Central Government contributes 75% of allocation of SDRF for general category States/UTs and 90% for special category States/UTs (NE States, Sikkim, Uttarakhand, Himachal Pradesh, Jammu and Kashmir). The National Disaster Response Fund (NDRF) constituted under the Disaster Management Act, 2005, supplements SDRF of a State in case of a disaster of severe nature provided adequate funds are not available in SDRF.

National Disaster Response Force (NDRF) has been set up for the purpose of specialized response to natural and man-made disasters including floods and for routine law and order duties also under the unified command of DG NDRF.

The above central agencies work in close coordination with State Governments and exercise their mandated roles dealing with various aspects of flood management in the country including those issues which fall in the domain of State/local Governments as

well as which are of international linkages.

In view of the foregoing the role as envisaged for NIFMG is already being rendered through the existing national level organisations in a coordinated manner.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

## **RECOMMENDATION NO. 2 (Para No. 2.4)**

### **FLOOD SCENARIO IN THE COUNTRY**

India faces floods almost every year, in varying degrees of magnitude. The frequent occurrence of floods can be attributed to various factors like wide variation in rainfall both in time and space with frequent departure from normal pattern, inadequate carrying capacities of rivers, river bank erosion, silting of river beds, landslides, poor natural drainage, snow melts and glacial lake outbursts. The problem of floods gets further compounded due to interstate/International extent of various rivers. As per Rashtriya Barh Ayog (National Commission on Floods) the total area liable to flood in the country is 40 Million ha (Mha). The total damage to crops, houses and public utilities from the year 1953 to 2018 has been estimated to be about Rs. 400097 crore which is a colossal amount. The total human lives lost during this period have been assessed to be around 109374 and around 6109628 cattle have also been perished. The high losses and damages caused by floods every year is indicative of poor planning, failure of the flood control policy / measures, inadequate preparedness and ineffective disaster management. Since floods wreak havoc every year, bringing untold misery to people apart from causing economic sufferings, the need of the hour is that both the central and the state governments should work out a lasting solution that goes beyond piecemeal measures such as the building of embankments. An integrated River basin management plan is the need of the hour which requires collective involvement of all major flood prone Indian states and also the neighbouring countries where the trans-border rivers originate so as to find a lasting solution to the problem.

## **REPLY OF THE GOVERNMENT**

As far as issue of flood management in respect of trans-boundary rivers flowing from neighbouring countries is concerned, regular deliberations are being held through bilateral mechanisms. There are plans to utilize water of common rivers for mutual benefits with neighbouring including flood control. The 'Jal Shakti Abhiyan' of Government of India has also laid emphasis on the need for revival, rejuvenation and conservation of traditional water bodies and wetlands which besides conserving water also aid in flood control. The National Mission for Clean Ganga (NMCG) under the Department has been working closely with the experts, stakeholders and with line departments such as State Wetland Conservation Authorities and Wetland Division of MoEF&CC, etc. to take forward the cause of wetland conservation in Ganga Basin. In this regard, NMCG and the Wildlife Institute of India (WII) have brought out a publication titled - 'Framework for Ecological Monitoring of Ramsar sites and other Wetlands in India'.

As per National Perspective Plan (NPP) of Ministry, for development through inter basin transfer from water surplus basins to water-deficit basins, the National Water Development Agency (NWDA) has identified 30 links (16 under Peninsular Component & 14 under Himalayan Component). There would be considerable benefits on account of implementation of interlinking of rivers in terms of irrigation, power generation, apart from benefits of flood control, drought mitigation, navigation, water supply, fisheries, salinity and pollution control etc.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 3 (Para No.2.5)**

#### **FLOOD CONTROL PLANNING**

Floods are a recurrent phenomenon in several parts of the country causing loss of lives, damage to public property and infrastructure and bring immense misery to the common people. It also impacts economic activities to a great extent. Owing to climate change on account of global warming, the rainfall pattern has been altered over the years with lesser number of rainy days but heavier rainfall which has also aggravated this challenge. The Committee feel that it is high time that our planners need to rework their flood control strategies. From the very beginning, floods have been an integral part of regeneration cycle of nature that brings silt, vegetation, sediment, and fish into the water systems of a region. With the passage of time, engineering solutions like embankments, barrages etc. to control them have been evolved. However, these solutions have obstructed the free flow of rivers. As a result, the silt, which would spread over huge field to form the flood plains becomes restricted to a much smaller area resulting in the river bed being elevated. Over the period, local population have also encroached the floodplains restricting the drainage system and wrecking water bodies as well. The Committee are of the view that it is a high time to adopt a holistic approach to tackle problem of floods which should involve a multi-pronged strategy such as regenerating and conserving the natural vegetation and soil covers in catchment areas to arrest soil erosion, encouraging those agricultural methods which make best use of floods, invigorate dry springs; recharging of the ground water table and ensure better percolation of rainwater.

#### **REPLY OF THE GOVERNMENT**

Holistic approach to tackle problem of floods also involves proper and scientific management of watershed. With effective watershed management, silt carried and deposited in the lower reaches of rivers can be reduced, thereby, leading to better carrying capacity of the channel and thus, serves as an effective flood control measure. The watershed management measures include developing and conserving the vegetative and soil covers (Catchment Area Treatment) and structural works like check-dams, detention basins, diversion channels, etc.

For effective watershed management, Department of Land Resources, Ministry of Rural Development is implementing a scheme for watershed development as a component of Pradhan Mantri Krishi Sinchai Yojana (WDC-PMKSY).

Further, National Mission for Clean Ganga (NMCG) under the Namami Gange programme is also implementing forestry interventions for river Ganga in five Ganga river bank States of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand & West Bengal through own funding. Till date plantation in 29,326 hectare has been achieved. The plantation is being carried out by the respective State Forest Departments of the five Ganga bank States.

In line with decisions taken at various levels, and as per the decision of the first National Ganga Council (NGC) meeting held on 14th December 2019 under the Chairmanship of Hon'ble Prime Minister, effective use of CAMPA (Compensatory Afforestation Fund Management and Planning Authority) funds is to be made for afforestation along Ganga. MoEF& CC through its communication dated 11<sup>th</sup> October, 2021 has also advised the State authorities managing CAMPA funds to undertake active plantation in the catchment areas of flood prone rivers as per the provisions of Compensatory Afforestation Fund Rules (CAF), 2018.

In order to promote artificial recharge of ground water, Central Ground Water Board (CGWB) has prepared a Master Plan for Artificial Recharge to Groundwater- 2020 in consultation with States/UTs which is a macro level plan indicating various structures for the different terrain conditions of the country. The Master Plan envisages construction of about 1.42 crore rain water harvesting and artificial recharge structures in the country to harness 185 Billion Cubic Metre (BCM) of monsoon rainfall.

CGWB has also taken up Aquifer Mapping and Management Programme under the scheme of Ground Water Management and Regulation. The Aquifer Mapping is aimed to delineate aquifer disposition and their characterization for preparation of aquifer/ area specific ground water management plans with community participation. The management plans are shared with the respective State governments for taking appropriate measures / implementation.

With above efforts, an overall holistic approach is being adopted to tackle problem of floods which involves a multi-pronged strategy including regenerating and conserving the natural vegetation and soil covers in catchment areas.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

#### **Recommendation No. 4 (Para Nos. 2.6 & 2.7)**

##### **Constitutional Provisions with regard to the Subject 'Flood Management'**

The Committee observed that the subject of Flood control as such is not mentioned in any of the three legislative lists under Schedule VII of the Constitution. However, since "drainage and embankments" is shown at entry 17 of List II (State List), it is presumed that flood control falls under the jurisdiction of the respective State Governments, barring "regulation and development of inter-

state rivers and river valleys,” which is mentioned in entry 56 of List I (Union List). The Department of Water Resources had informed the Committee that as per constitutional provisions, the subject of flood management including erosion control falls within the purview of the States. The flood management and anti-erosion schemes are planned, investigated and implemented by the State Governments with their own resources as per priority within the State. The Union Government only renders assistance to States which is technical, advisory, catalytic and promotional in nature. The Committee were of the view that since most of the rivers are inter-state flowing across states very often the flood control measures taken by one State may have Inter-State ramifications. The Inter-State nature of the rivers makes it difficult to implement long term solutions for flood mitigation as the solutions sometimes lie in a different State and benefits to other State. Further, the Committee also noted that there is no specific National Policy on Flood Control and Management though the National Water Policy talks about management of flood & drought.

The Committee, therefore, were of the considered opinion that, ‘Flood Control’ needs to be viewed holistically and as a part of the overall development of river basin water resources. ‘Water’ as a subject is much broader than rivers, irrigation, floods and drought and all the elements of the water cycle, i.e., evapo-transpiration, precipitation, runoff, river, lakes, soil moisture, and ground water, sea, etc., are interdependent and constitute a hydrological unit. With an ever increasing population and rising water needs of a fast-developing nation coupled with adverse effects of climate change, the availability and supply of utilizable water in future would be under great pressure with the likelihood of worsening water disputes among different States and different water user categories. Access to clean drinking water and other domestic needs in many areas still remain an issue. Furthermore, the issues concerning water governance have not been properly addressed. Mismanagement of water resources has contributed to a critical situation in many parts of the country. It is obvious that concerted action requires not only at regional but also at national and international level and in this respect, the Union Government has to play a leading role. The Committee, therefore, recommended that the Government should make concerted efforts for arriving at a national consensus to place “Flood control and Management” under concurrent list and at the same time also formulate an overarching national legal structure for efficient, equitable and conservation of water resources. The Committee were aware of the practical difficulties in bringing ‘Water’ under the concurrent list, but these had to be resolved for the overall national interest of integrated development of water resources”.

### **REPLY OF THE GOVERNMENT**

Flood Control and Management” is a constituent of overall development of water resources of river basin since a part of water available in the flood season is generally conserved for meeting the demands for rest of the year. The issue of including “water” in the concurrent list has been under discussion at various forums. The proposal to bring ‘water’ in the Union / Concurrent list has earlier been examined by the two Commissions on Centre-State Relations chaired by Justice R.S. Sarkaria and Justice M.M. Punchhi, respectively. The said proposal did not find favour with either of the two Commissions.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

## **RECOMMENDATION NO. 5 (Para No. 2.8)**

The Committee recommend that pending the resolution of jurisdictional issues relating to flood control and management, there is a need for greater use of provisions made in entry 56 of Union List pertaining to regulation and development of inter-State rivers by the Central Government. These efforts have to be supplemented by expeditious passing of the Dam Safety Bill and the River Basin Management Bill by the parliament and also make best use of the existing Disaster Management Act, 2005 which empowers Union Government to issue necessary directions to the State Government/Authorities to take appropriate measures for prevention of any impending disaster. The Committee therefore recommend that the Ministry of Jal Shakti must make concerted efforts for expeditious passage of the Dam Safety Bill and the River Basin Management Bill for optimum utilization and efficient management of water resources and also mitigation of floods.

## **REPLY OF THE GOVERNMENT**

The Dam Safety Act, 2021 has been gazette notified on 14.12.2021. Earlier, the Dam Safety Bill, 2019 was passed by the Lok Sabha on 2.8.2019. The Bill got subsequently passed by the Rajya Sabha with some amendments on 02.12.2021 and further ratified by the Lok Sabha on 08.12.2021.

The Dam Safety Act provides for the surveillance, inspection, operation, and maintenance of all specified dams across the country. These are dams with height more than 15 metres, or height between 10 metres to 15 metres with certain design and structural conditions. It provides for creation of two national bodies viz. National Committee on Dam Safety, whose functions include evolving policies and recommending regulations regarding dam safety standards; and the National Dam Safety Authority, whose functions include implementing policies of the National Committee, providing technical assistance to State Dam Safety Organisations (SDSOs), and resolving matters between SDSOs of states or between a SDSO and any dam owner in that state. It also constitutes two State bodies viz. State Committee on Dam Safety, and State Dam Safety Organisation.

The draft River Basin Management Bill has been circulated to the State Governments and other stake holders for their comments and suggestions and has also been placed in public domain for eliciting comments/ suggestions from the general public at large. The draft Bill is currently under consultation stage.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

## **RECOMMENDATION NO. 6 (Para No. 2.9, 2.10 & 2.11)**

### **FLOODPLAIN ZONING**

The Committee note that despite its benefits, floodplain zoning has not been earmarked/ demarcated in India. In this regard, a model draft bill for flood plain zoning legislation was also circulated by the Union Government to all the States. However, only the States of Manipur,

Rajasthan and Uttarakhand and erstwhile State of Jammu & Kashmir had enacted legislation, though delineation and demarcation of flood plains is yet to be undertaken. Further, Major flood prone States viz Uttar Pradesh, Bihar, West Bengal, Assam, Odisha etc have not taken initiative to enact any legislation with regard to Flood Plain Zoning.

The Committee believe that one of the prime reasons for extensive damage caused due to floods is ever increasingly human habitations and encroachment of the flood plains. The Committee express their displeasure over the fact that though Bihar is one of the most flood prone states in the country witnessing huge losses in terms of human lives, cattle and properties worth crore of rupees every year, the Model legislation on Flood Plain Zoning is yet to be enacted by the State. The Committee are of the view that while floods are natural, destruction caused by floods is by and large man-made due to unbridled human intervention in the nature's ecosystem in the name of development. Deforestation in the catchment area, constructions on the river banks and in the floodplains area, encroachment on wetlands, changing cropping pattern and short sighted quick-fix solutions to control floods play a major role in causing devastation due to the floods.

However, at the same time, the Committee are aware of the various challenges faced in implementing the Flood Plain Zoning policy especially evolving a suitable compensatory mechanism and finding alternative land site to rehabilitate those who have been displaced especially in densely populated States like Bihar, Uttar Pradesh etc. The Committee are therefore of the opinion that the Model Bill must be suitably modified taking into account the socio-political and economic realities of the regions in which it is to be implemented. Further, the Ministry of Jal Shakti should also consider providing financial assistance to those States that are willing to implement floodplain zoning.

### **REPLY OF THE GOVERNMENT**

The Model Bill for Flood Plain Zoning provides for Flood Plain Zoning Authority to be constituted by State governments with a Governing Body under Chairmanship of Chief Minister of respective States which will delineate flood plain zones and other measures for keeping flood plains encroachment free. Further, it has provision for 'No Development Zone', 'Controlled Development Zones' and 'Development Zones' which are to be notified.

Further, National Mission for Clean Ganga (NMCG) has time to time advised all states in Ganga basin for demarcation, delineation and notification of river flood plains and removal of encroachment from river bed/floodplain of the river Ganga and its tributaries in adherence to the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016 notified vide Gazette Notification S.O.3187(E) dated 7<sup>th</sup> October, 2016.

It is to be mentioned that as per the guidelines of ongoing "Flood Management and Border Area Programme (FMBAP)" of Department of Water Resources, RD & GR, the State Governments which adopt Flood Plain Zoning Bill are given priority over the other States for release of central assistance.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **Comment of the Committee**

**(Please see Para No. 10 of Chapter – I of the Report)**

## **RECOMMENDATION NO. 7 (Para No. 2.12)**

### **FLOODPLAINZONING**

#### **RIVER REGULATION ZONES FOR ALL BASINS**

The Committee are pleased to note that a Special Committee constituted in August, 2017 under the chairmanship of the Chairman, Central Water Commission to identify and demarcate the flood plains of river Ganga for the purpose of regulating activities in flood plains of river Ganga in segment B of Phase- I (Haridwar to Unnao), in its Report submitted in September, 2019 had identified the flood plains in aforesaid stretch of river Ganga and categorized the flood plains in two zones viz. No Development Zone and Restricted/ Regulatory Zone. Prohibited and regulatory activities for both these zones have also been specified in the report and in pursuance thereof Government of Uttar Pradesh has initiated the work of identification of flood plain zones as per recommendations of the Committee. While appreciating the steps taken by the Government, the Committee recommend that similar studies should be commissioned for other river basins of the country especially Brahmaputra basin keeping in view, its high proneness to flooding so as to identify and demarcate the flood plains in the Bramaputra river basin. The Committee would like to be apprised of the action taken by the Government within three months of presentation of this Report to parliament.

#### **REPLY OF THE GOVERNMENT**

The State Governments are sensitised for carrying similar such studies for other river basins of the country including Brahmaputra basin. Circulation of Model Flood Plain Zoning bill for its enactment by States is one such measure taken by the Union Government for identifying and demarcating flood plains in river basins.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

## **RECOMMENDATION NO. 8 (Para No. 2.13)**

### **FLOOD CUSHION**

The Committee note that the Working Group on Flood Management and Region Specific Issues, set up under XII Plan had recommended that as a policy minimum flood cushion of 10% of the live storage capacity should be provided in all new dams and if affordable, with respect to other purposes, providing even a flood cushion upto 20% could be considered. The Department of Water Resources has informed the Committee that in order to promote the concept of safe and efficient dam operations including flood moderation, suitable provisions have been kept in the Dam Safety Bill, 2019, which provides for surveillance, inspection, operation and maintenance of the specified dam. The Bill also has exclusive provision regarding coordinated reservoir operations of cascading dams. The Committee urge upon the Government that pending passing of the Dam Safety Bill by the Parliament, necessary instructions/directives be issued to all the State Govts/ dam authorities to provide sufficient flood cushion in all the newly constructed water-storage projects/dams and those



which are under construction, so as to absorb any impending flood waters for enabling better flood management. Flood control in highly flood-prone areas should be given top priority even if it requires foregoing some of the irrigation or power generation benefits.

### **REPLY OF THE GOVERNMENT**

The reservoir system is either single or multi-reservoirs system. Multi-reservoirs system are cluster connected either in series/parallel units or in combination. Further, reservoirs can be classified according to their function as the reservoirs may be for single purpose or multi-purpose reservoirs. Multi-purpose reservoirs serve a combination of functions, including irrigation, hydropower, flood management, fisheries, recreation and tourism. The operation of multi-purpose reservoirs also involves various interactions between these different functions that can lead to conflicting interests. Even in the reservoirs having no dedicated flood cushion, incidental benefits of flood moderation can be derived by providing dynamic flood cushion. To meet the objective set forth in planning a reservoir or a group of reservoirs and to achieve maximum benefits out of the storage created, it is imperative to have updated rule curves (operation manual) for operation of reservoirs. The CWC has prepared Guidelines for Preparing Operation and Maintenance Manuals, 2018 for dams which contain various aspects of project operation including normal operation and emergency operation. These serve as guidance for dam owners on various protocols and responsibilities for managing water releases during a year including flood seasons. Details for preparation of operational rule curve (both for reservoir filling and release) are also part of the guidelines.

In order to promote provision of flood cushion in the new hydropower projects, the Ministry of Power has decided to provide budgetary support to the cost apportioned towards flood moderation component in new projects. The basic objective of budgetary support for flood moderation component is to reduce tariff of hydropower projects. Ministry of Power has issued detailed guidelines in this regard vide their OM dated 28<sup>th</sup> September, 2021. The amount required for flood moderation/ storage costs shall be released through Ministry of Power budgetary provisions after appraisal of each project, on a case-to-case basis.

The Crisis Management Plan (CMP) of Department of Water Resources, River Development & Ganga Rejuvenation (DoWR, RD&GR) includes the provision on Integrated Reservoir Operation (IRO) for flood management. The plan for implementation of IRO for flood management included in CMP involves entry of data by reservoir owners in the State in Water Management Information System (WIMS). The data from reservoirs along with hydro-meteorological data available with CWC as well as those received from IMD including rainfall forecast is used for running mathematical models for formulating inflow forecast at least 72 hours in advance for the various reservoirs identified in various basins in the plan. Based on the inflow forecast provided and the availability of flood cushion in the reservoir, release advisories are issued. The Flood Crisis Management Teams (FCMT) headed by the Chief Engineer of the respective Basin Organisation of CWC with members from all co-basin States have been constituted. The FCMT meets frequently during flood crisis and advises the project authorities within the system of

reservoirs regarding the quantum of release so that flood inundation in the downstream areas are minimized.

Under clause (I) of sub-section (2) of Section 10 of the Disaster Management Act, 2005, directions have been issued to the State Governments and the State authorities mandating them to give an intimation to the adjacent States immediately after a decision is taken by the authorities of the State to release water from the reservoirs/dams. Further, the Secretary, DoWR, RD & GR had also issued advisory on above directions to Chief Secretaries of all States/UTs/Administrators of Union Territories of India in May, 2021.

The Dam Safety Act, 2021 has been gazette notified on 14.12.2021.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 9 (Para No. 2.14)**

#### **INTERLINKING OF RIVERS**

The Committee note that a National Perspective Plan (NPP) was prepared by the then Ministry of Irrigation (now Ministry of Jal Shakti) in 1980 for transferring water from water surplus basins to water-deficit basins. Under the NPP, the National Water Development Agency (NWDA) has identified 30 links (16 under Peninsular Component and 14 under Himalayan Component) for preparation of Feasibility Reports (FRs). The Pre-feasibility reports of all the 30 links have been completed and circulated to concerned States. The Department informed the Committee that there would be huge benefits on account of implementation of interlinking of rivers as per National Perspective Plan in terms of irrigation, power generation, apart from the incidental benefits of flood control, drought mitigation, navigation, water supply, fisheries, salinity and pollution control etc. The Committee are unhappy to note that although National Perspective Plan (NPP) was formulated way back in 1980, no Project for Inter Linking of Rivers (ILR) has reached the execution stage so far. The Committee understand that evolving consensus among the States is the biggest obstacle in the implementation of this ambitious Programme. However, considering the huge losses caused by floods every year and huge benefits accruing out of the interlinking of rivers, the Committee urge the Department to make concerted efforts to convince the States and arrive at a national consensus so that the project of ILR becomes a reality.

#### **REPLY OF THE GOVERNMENT**

Under the National Perspective Plan for water resources development through inter basin transfer of water, for transferring water from water surplus basins to water-deficit basins, prepared by the then Ministry of Irrigation, now Ministry of Jal Shakti, National Water Development Agency (NWDA) under the Ministry has identified 30 links (16 under Peninsular Component & 14 under Himalayan Component) for preparation of Feasibility Reports.

The objective of this programme is to ensure greater equity in the distribution of water by enhancing the availability of water in drought prone and rain-fed area for irrigation, hydropower generation besides flood control, drought mitigation navigation, and fisheries, etc.

The implementation of river link projects involves various steps including negotiation and consensus among concerned States, preparation of DPRs of the projects, clearances from Ministry of Environment and Forests and Climate Change, Ministry of Tribal Affairs, techno-economic clearance by Advisory Committee on Irrigation, Flood Control & Multipurpose Projects of Ministry of Jal Shakti and investment clearance.

Union Government is pursuing the inter-linking of rivers (ILR) program in a consultative manner. A “Special Committee on Interlinking of Rivers” has been constituted in September, 2014 for the implementation of ILR programme. Further, a Task Force for Interlinking of Rivers has been constituted by MoWR, RD & GR (now Ministry of Jal Shakti) for building consensus among the concerned States and also setting out road maps for implementation of the projects.

Union Government has approved the funding and implementation of Ken-Betwa inter-linking of rivers project with a total cost of Rs 44,605 crore. The project has a completion period of eight years. Under the Ken-Betwa link project, water will be transferred from Ken to Betwa river through the construction of Daudhan Dam and a canal linking the two rivers. The project will provide an annual irrigation of 10.62 lakh ha, drinking water supply to a population of about 62 lakhs and also generate 103 MW of hydropower and 27 MW solar power “The project will be of immense benefit to the water-starved Bundelkhand region, spread across the states of Madhya Pradesh and Uttar Pradesh. A tripartite Memorandum of Agreement (MoA) for the implementation of the project jointly has already been signed by the Hon’ble Union Minister for Jal Shakti and Hon’ble Chief Ministers of Madhya Pradesh and Uttar Pradesh on 22<sup>nd</sup> March, 2021 in the august presence of Hon’ble Prime Minister.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 10 (Para No. 2.15 & 2.16)**

#### **FLOODS IN ASSAM**

The Committee express their deep anguish over the damage of property worth crore of rupees and loss of lives every year by the devastating floods in Assam and North Eastern region every year. It renders a large population homeless, besides destruction to standing crops in several hectares of agricultural land causing a huge setback to the economy of the State of Assam. The Committee observe that the main factors which create serious flood and erosion problems in Assam and its neighbouring states, are heavy rainfall, physiographic condition, high silt load, encroachment of riverine areas, steep slope, inadequate drainage, deforestation, watershed degradation, obstruction at tributaries’ confluence with River Brahmaputra and loss of wetlands. The Committee note that the fury of floods in Assam and North-Eastern region in the long term can be tackled by building storage

reservoirs on rivers and their tributaries with adequate provisioning for flood cushion, integrated reservoir operation, interlinking of rivers etc. However, these measures have many constraints such as topographic, geological, geographical, environmental, submergence, interstate & international issues.

Taking cognizance of the aforesaid facts, the Committee believe that preparing and operating these long-term initiatives in a stand-alone manner may be difficult for individual States. Therefore, for integrated use of water resources, there is a need to move from the conventional, fragmented and localized approach to a comprehensive river basin approach. In order to provide coordinated river basin development including comprehensive flood control, it is necessary to set up River Basin Organizations (RBOs), which would effectively provide immediate, short-term and long-term solutions in addition to the overall development of river basin. The Committee, therefore, recommend that Ministry take concrete measures on priority basis to enact the River Basin Management Authority for holistic management of water resources of each river basin.

### **REPLY OF THE GOVERNMENT**

DoWR, RD & GR is making necessary efforts for setting up of River Basin Authorities (RBAs) as proposed in River Basin Management Bill. The River Basin Authorities shall have the mandate to implement flood control measures encompassing immediate, short-term and long-term solutions in an effective manner apart from overall water resources development of the basin.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 11 (Para No. 2.17)**

The Committee note from the submission made by the Government of Assam that 39.58% of total land area of the State is flood prone, and that most of the flood and bank protection structures are very old and have become weak. Further, due to persistent silt accumulation, Highest Flood Level (HFL) of rivers in the floodplain are rising because of the extremely shallow river bed of the river and the heavy sediment brought in the monsoon by the river, the measures taken by the Government to mitigate the effects of floods have so far not yielded desired results. In order to provide relief to the State of Assam, Government may consider implementation of long term measures / solutions such as increasing the water holding capacity of Brahmaputra and its tributaries by dredging after consulting all the stakeholders and developing the water highway in Brahmaputra river which may in turn boost the economy of the State. Further, with a view to equip Assam in tackling the floods effectively and help in mitigating the impact of flood in the long run, the Committee urge the Government of India to take measures such as develop a flood forecasting model for monitoring release and real-time flow of waters in the river, set up modern weather stations in upstream catchment of all Dams in North Eastern region, install sirens on river banks from Dam site so as to alert downstream population in the event of floods, judicious release of water from the Dams to ensure natural low water level of the river, periodic desiltation and flushing of reservoirs and afforestation and rejuvenation of wetlands.

## REPLY OF THE GOVERNMENT

The method of improving the channel by improving the hydraulic conditions of the river channels by desilting, dredging, lining etc., to enable the river to carry its discharges at lower levels or within its banks is considered as one of the structural measure for flood control. However, the same has been adopted on a very limited extent because of its high cost and other associated problems. Dredging operations of the Brahmaputra, which were undertaken in the early seventies on an experimental basis, were discontinued because of their prohibitive cost and limited benefits. The issue of dredging/de-silting of rivers has been studied by various experts/ Committees and it has been opined that de-silting/dredging of rivers in general is not feasible technically, due to several reasons like non-sustainability, cost effectiveness, non-availability of vast land required for the disposal of dredged material, etc. Dredging in selected locations may perhaps be considered as a component of a package of measures for channel improvement to check the river bank erosion subject to techno-economic justification. It may be economically justifiable as a method for channel improvement where navigation is involved. Dredging is sometimes advocated for clearing river mouth or narrow constrictions.

As far as flood forecasting model for monitoring release and real-time flow of waters in the river, and setting up modern weather stations in upstream catchment of all dams in North Eastern region are concerned, Central Water Commission (CWC) has developed basin-wise deterministic flood forecasting model based on rainfall runoff mathematical modelling for flood forecast advisory at identified flood forecasting and inflow forecasting stations along rivers of India. CWC has developed 2 flood forecast models namely (i) Brahmaputra & (ii) Barak including rivers of Tripura for North Eastern region to issue 5-day advisory flood forecast through a web-portal (<http://120.57.99.138/index.php>) by utilizing global satellite observed rainfall products and IMD rainfall forecasted data. These models are duly customized for observed rainfall data (telemetry as well as manual) and releases from dams. Data received from China and Bhutan are also being used by regional CWC office for issuing 24 hour Flood Forecast by running in offline mode.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### RECOMMENDATION NO. 12 (Para No. 2.18)

The Committee express their concern over the problem of flooding on account of hydropower projects located in Arunachal Pradesh as any extra water released from these dams uphill lead to enormous inundation of Brahmaputra valley. Since these projects are only meant for power generation, they don't have infrastructure for water storage or flood management. Further due to apparent lack of coordination among viz. Ministry of Power and Ministry of Jal Shakti, power projects in Arunachal Pradesh has been constructed without any plan to combat flooding in the neighbouring flood-prone state of Assam. The Committee urge upon the Ministry of Jal Shakti to take up this matter with Ministry of Power and Government of Arunachal Pradesh so as to find a mutual and amicable solution to this problem.

## **REPLY OF THE GOVERNMENT**

Operation of hydro-power projects is carried out by project authorities/ State Governments as per standard operating procedure/ operation & maintenance manual. Utilising the provisions of Disaster Management Act, 2005, DoWR, RD & GR (MoJS) vide its order No. Z-20011/2/2020-FM dated 09<sup>th</sup> August 2020 has already issued directions mandating project authorities/ State Govt. for advance information regarding releases from dams/reservoirs to downstream areas/lower riparian states.

The three existing Run-of-the River (RoR) type hydro-electric projects (HEPs) in State of Arunachal Pradesh utilize small live storage for power generation on diurnal basis. During high inflow time, excess water is allowed to flow through the spillway, as the same can't be stored in small reservoirs. Even otherwise, this excess water during rains used to flow down to downstream locations. The flow regime in the river is not much affected by operation of these RoR type of projects and in fact has insignificant impact in downstream flooding. These projects are operated by the developers in close co-ordination with administrative authority of downstream areas. Further, during techno economic appraisal of Hydro Power Project, the aspects related to storage/poundage/RoR are looked into by Central Electricity Authority (CEA) and Central Water Commission (CWC).

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 13 (Para No. 2.19)**

The Committee have learnt from the Department of Water Resources, River Development and Ganga Rejuvenation that a large storage dam was planned to be built over Upper Siang which would help in mitigating the flood situation in Assam occurring every year. However, at the same time, concerns are being expressed that would submerge Yingkiang town which is the headquarters of Upper Siang district and also pose the issue of rehabilitation of the inhabitants of the town. The Committee are of the view that before undertaking any ambitious project such as construction of large storage dam, howsoever it may be useful, a proper study to assess the impact on the environmental and ecology as well as flow of the river need to be conducted. Further, the issues of displacement of local population, their sensibilities and relief rehabilitation have to be suitably addressed in a transparent and justified manner. The Committee therefore urge the Ministry to take confidence of all stakeholders and address their concerns before embarking on such a big project.

## **REPLY OF THE GOVERNMENT**

Before undertaking any project on Upper Siang, a proper study would be done to assess the impact of project on the environmental and ecology as well as flow of the river as per the EIA norms notified by MoEF&CC. To address the issue of displacement of local population, their sensibilities and relief & rehabilitation, a liberal draft Rehabilitation and Resettlement (R&R) policy for Siang Storage Project in line with R&R Policy-2008 of Arunachal Pradesh Government was developed by the Ministry of Water Resources,

River Development and Ganga Rejuvenation, in consultation with officials of State Government of Arunachal Pradesh and other organizations in the year 2016. Draft policy is oriented to ensure sustainable R&R of Project Affected Families (PAFs), imbibing the spirit and essence of R&R Policy of Government of Arunachal Pradesh, 2008 (amended). The State Government of Arunachal Pradesh was also requested by DoWR, RD & GR to provide the indicative estimate of R&R package. As the Detailed Project Report (DPR) of this project is still to be prepared, all such issues would appropriately be addressed in a transparent and justified manner.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 15 (Para No. 2.21)**

#### **NORTH EAST WATER MANAGEMENT AUTHORITY (NEWMA) BILL**

The Committee welcome the initiative of the Government for bringing forward a legislation for setting up an apex body i.e. North East Water Management Authority (NEWMA) for facilitating integrated management of water resources for whole of North East Region including Sikkim and Brahmaputra Basin area of West Bengal, is under consideration of the Union Government. The Committee express the hope that the proposed apex body will ensure integrated development of all water bodies and river-based projects in the region and take care of conservation of the natural resources. The Committee recommend that the Department should take steps for expeditious finalization of the Bill and its enactment by the Parliament within a time- bound period.

### **REPLY OF THE GOVERNMENT**

For creation of the new entity, titled “North East Water Management Authority (NEWMA)” the Department has initiated necessary action. The draft Note for the Committee on Establishment Expenditure (CEE) has been prepared and suitably revised as per advice of Department of Expenditure (DoE). After the recommendation of CEE, necessary action for seeking approval of the Union Cabinet and introduction of the draft NEWMA Bill in the Parliament will be taken up.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 16 (Para No. 2.22)**

#### **NEED TO STRENGTHEN BRAHMAPUTRA BOARD**

The Committee note that Brahmaputra Board was set up to address the twin problems of floods in north-eastern states and storage of flood water in Brahmaputra basin. The Committee, however, express its concern over the lack of manpower in Brahmaputra Board. The Committee note that as against the sanctioned strength of 161 technical posts, almost 38% posts are lying vacant and in respect of non-technical Posts, out of 254, 66% posts are lying vacant. The huge shortage of

manpower adversely affects the proper functioning of the Board. Keeping in view the paramount importance of Brahmaputra Board for management of floods and erosion in North-East region, the Committee recommend the Department to fill up all the vacant posts on priority basis so as to augment the manpower in the Board for enabling its smooth functioning.

### **REPLY OF THE GOVERNMENT**

Brahmaputra Board has been established under the Brahmaputra Board Act, 1980. The manpower of the Brahmaputra Board and its organogram has been restructured by the Department in the year 2019. After restructuring, Brahmaputra Board has a total of 415 (7 statutory and 408 non statutory) posts. Recruitment in respect to statutory posts is done by the Department. Whereas, for other non-statutory posts(407) Recruitment Rules are issued/ modified by the Department and the process of appointment is to be done by the Brahmaputra Board itself. So far as filling up of seven statutory posts of the Brahmaputra Board, it is stated that efforts have been made in this regard and vacancy circulars have been issued on multiple occasions. However, due to lack of eligible applicants, these posts couldn't be filled up. The matter has also been taken up with DoPT to fill up these posts. Some of these posts such as Vice Chairman and Secretary have been functioning with additional charge arrangement. However, most of these posts are still vacant and recently vacancy circular in respect of 6 statutory posts of Brahmaputra Board have been issued by the Department. The matter regarding unfilled vacancies in the Brahmaputra Board has been regularly reviewed by Secretary, DoWR, RD & GR. As a result of these reviews, the "Transfer Policy" in respect of Central Water Engineering (Group-A) Service(CWES) has been suitably modified to pave the way for CWES Officers to apply for various statutory and non-statutory posts of the Brahmaputra Board.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **Comment of the Committee (Please see Para No. 16 of Chapter – I of the Report)**

### **RECOMMENDATION NO. 17 (Para No. 2.23)**

#### **FLOODS IN KERALA**

The Committee note that the typical topography of Kerala along with high intensity rainfall during the monsoon months are the key reasons for the severe flood crisis in the State. The rapid urbanization and high population density have led to drastic changes inland-use pattern, and low lands reclamation that used to provide cushioning effect to the flood waters and the obstructions caused to the natural drainages etc have worsened the impact caused by floods. The Committee note that the most of the dams in Kerala were constructed between the years 1960 and 1980 and were primarily meant for meeting the needs of irrigation, industrial, power generation and drinking water. The capacity of reservoirs in Kerala is stated to be very limited and these can store only 7 per cent of available water. The State could not commission any new reservoir/dam projects since 1980s due to the stringent Environment and Forest Laws and the resistance from the



Environmental Groups. The Attappady Irrigation Project despite getting approval from the Supreme Court has not yet got clearance from the Ministry of Environment, Forest and Climate Change. The Committee recommend that keeping in view the recurring floods in the State of Kerala, the Ministry of Jal Shakti should take up this issue with the Ministry of Environment, Forest and Climate Change and impress upon them to grant clearances without delay so that the Attappady Irrigation Project could be commissioned at the earliest. Besides, the State Government of Kerala should actively engage with the environmentalist groups so as to understand their apprehensions and take into consideration their views and suggestions so that the contentious issue of construction of new dams may be amicably resolved to the satisfaction of all stake holders.

### **REPLY OF THE GOVERNMENT**

The Attapady Irrigation Project (AIP) envisages the construction of concrete gravity dam across Siruvani river, a tributary of Bhavaniriver at ChitturinAgali Village of Mannarkkad Taluk in Palakkad district of Kerala State to irrigate a Gross Command Area of 8,738 hectares. The investigation of the project started in 1970 and preliminary works such as survey and investigation, geological survey etc. have been completed. 227.73 ha of land has been acquired and remaining 74.267 ha of forest land remains to be acquired.

For carrying out Environment Impact Assessment study (EIA), the approval of ToR (Terms of Reference) is awaited from MoEF&CC and State Government of Kerala is pursuing the matter with State Government of Tamil Nadu.

The revised DPR of Attappady Medium Irrigation Project is under various stages of appraisal in CWC, particularly, its examination from inter-State angle involving States of Tamil Nadu, Karnataka & UT of Puducherry.

Besides, as part of utilization of Kerala's share in water of Cauvery Basin, 7 medium irrigation dams are proposed to be constructed in Kabani sub basin in Wayanad which are primarily meant for meeting irrigation, drinking water needs and flood management. Regarding the public protests on the project, the field offices concerned are actively engaging with environmental groups and the public through meetings with the public, people's representatives, district authorities etc. to remove their apprehensions and take into consideration their views and suggestions so that the contentious issue of construction of new dams is resolved to the satisfaction of all stakeholders.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 18 (Para No. 2.24)**

The Committee have been informed that Kerala is unable to avail the benefits of "Flood Management and Border Areas Programme (FMBAP)", a Centrally Sponsored Scheme owing to non-issuance of mandatory clearances by the State Coastal Zone Management Authority on the ground that the clearance could not be issued unless EIA (Environmental Impact Assessment) for one whole year is carried out. The Committee urge the Department to take up the matter with concerned authorities to look into this matter on priority with positive note.

## **REPLY OF THE GOVERNMENT**

Flood management schemes are formulated and implemented by concerned State Governments as per their priority. The Union Government supplements the efforts of the States by providing technical guidance and also promotional financial assistance for management of floods in critical areas. Preparation of DPR for any flood management project to be included under any central sponsored scheme of Ministry for funding is the responsibility of State Government. Techno-economical clearance and Investment clearance of the projects is accorded by Advisory Committee and Investment Clearance Committee of the Department, respectively, after all the statutory conditions are fulfilled and clearances are obtained. The necessary action for taking up EIA Studies in respect of new projects may have to be taken timely so as to fulfill the condition imposed by State Coastal Zone Management Authority. Any deviation from the laid down procedure may attract adverse reaction from the environmental groups and other stake holders.

State Government of Kerala has submitted a list of 10 new projects in Kuttanad region for inclusion under Flood management and Border Areas Programme (FMBAP) of Ministry of Jal Shakti during the period 2021-26 in the Kuttanad region. The State Government has informed that the Detailed Project Reports (DPRs) of these projects are still under preparation stage. The work of preparation/formulation of techno-economically viable project proposals in the form of DPR lies entirely in the domain of State Government. No action can be initiated by the Union Government unless the DPRs are prepared and submitted by the State Government.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 19 (Para No. 2.25)**

The Committee are pleased to note the close monitoring and communication mechanism formed between Kerala and Tamil Nadu helped in preventing floods in the Chalakudy basin during the monsoon season. However, the Committee are perturbed to observe that the rule curves of Mullaperiyar Dam (MPD) and three dams in the Parambikulam - Aliyar Project (PAP) system are yet to be finalized between the State Governments of Kerala and Tamil Nadu. The Committee feel that this issue needs to be sorted out as early as possible for ensuring the safe operation of these reservoirs. The Committee urge upon the Department of Water Resources, River Development & Ganga Rejuvenation to mediate in the matter and play the role of an honest broker in resolving this contentious issue between the two State Governments by pro-actively engaging all stakeholders. The Committee would like to be apprised of the steps taken by the Government in this regard.

## **REPLY OF THE GOVERNMENT**

In compliance to the Hon'ble Supreme Court Judgment dated 07.05.2014, a three member Supervisory Committee under Chairmanship of Chief Engineer, Dam Safety Organisation (DSO), Central Water Commission (CWC) and one Member each from states of Kerala and Tamil Nadu has been constituted to supervise the restoration of FRL in the

Mullaperiyar Dam to the elevation of 142 feet, monitoring the safety of dam and issuing necessary directions to both the States as per the prevalent situation.

The Rule Curve of Mullaperiyar Dam, submitted by WRD, Govt of Tamil Nadu has already been examined and approved by CWC with some corrections. However, Govt. of Kerala had submitted some observations on the report and also proposed the Rule Curve developed by them. CWC further examined the report submitted by Govt of Kerala and concluded that the Rule Curve prepared by Government of Kerala is not tenable. Therefore, CWC opined that the Rule Curve as submitted by Tamil Nadu and approved by CWC shall be adopted by both the States.

Further, in the 14<sup>th</sup> Supervisory Committee meeting held on 19<sup>th</sup> February 2021, the Chairman of the Committee requested officers of Govt. of Tamil Nadu to update Operation and Maintenance (O&M) Manual, accordingly.

The issue of dam safety aspects of Parambikulam-Aliyar Project was deliberated in the 39<sup>th</sup> meeting of National Committee of Dam Safety (NCDS). On the request of Govt. of Kerala, representative of Government of Tamil Nadu was requested to revive the Sub-Committee to look into dam safety aspect of the Parambikulam-Aliyar Project. Subsequently, Govt. of Tamil Nadu has informed that there is no need to revive the Sub-Committee for PAP and there is also no need to bring this issue in future in any forum by all concerned and it should not be entertained by the CWC and GOI.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 20 (Para No. 2.26)**

#### **NEED TO EXPAND THE SCOPE OF FLOOD FORECASTING STATIONS**

The Committee note that Central Water Commission (CWC) is the nodal agency for carrying out the work relating to flood forecasting and warning in India. Presently, there are 326 Flood forecast stations of which 128 are Inflow Forecast Stations 198 are Level Forecast Stations. The Committee find that presently only 128 reservoirs in the country are covered by Inflow Forecast Stations. Since the significance and importance of the inflow forecasting for efficient real time reservoir operation is a proven fact, there is an urgent need to strengthen impact-based warning at micro level. The Committee therefore, recommend the Department to take necessary steps to enhance the number of inflow forecast network and also strengthen impact-based warning at micro level.

#### **REPLY OF THE GOVERNMENT**

At present, flood forecasting network of CWC has been expanded to 331 Flood Forecast Stations (199 Level Forecast for Villages/Town on the bank of the rivers and 132 Inflow Forecast Stations for Dams and Barrages) covering 25 States & 2 UTs including NCT of Delhi and 20 river basins. Most of the flood prone areas have been covered under Level Forecast stations. However, in view of large numbers of dams in the country there is a

scope for expansion of inflow forecast network. Hence all efforts are being made to expand the number of inflow forecasting stations throughout the country.

Secretary, DoWR, RD & GR in his communication to the Chief Secretaries has emphasized the importance of inflow forecasting in effective regulation of reservoirs to aid in flood moderation and accordingly, and has requested for identification of new reservoirs as per the requirement where inflow forecasting service of CWC can be extended.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 21 (Para No. 2.27)**

The Committee are dismayed to learn that Inflow Forecasting Stations have not been set up by the CWC in the States of Arunachal Pradesh, Assam, Himachal Pradesh and Jammu & Kashmir on the ground that no request from the State Government/Project Authorities has been received in CWC for setting up the same. In this connection, the Committee would like to remind the Department that in the year 2018 when severe floods occurred in Kerala, CWC was not having any flood forecasting station in the State as no request was made by the Government of Kerala to start flood forecasting activity at that point of time. The Committee are therefore of the opinion that the system of setting up flood forecasting station only on the request from the concerned State Governments needs to be reviewed in the backdrop of increasing incidents of extreme climatic conditions, heavy and unseasonal rainfall and cloudbursts etc. The Committee therefore recommend that instead of waiting for requests from States, the Department should set up flood forecasting stations at the designated places. Further, it should identify the risk of deluge to the concerned region and share the information with the States concerned so as to obviate the risk of unpreparedness on account of lack of flood forecasting.

### **REPLY OF THE GOVERNMENT**

Central Water Commission (CWC) has identified a list of dams/barrages to be taken up for inflow forecasting during the period 2021-26 which would be implemented through central Sector Scheme of Ministry of Jal Shakti named "Development of Water Resource Information System (DWRIS)". CWC is in process of expanding the flood forecasting network from existing 331 stations to 375 stations in consultations with concerned State Governments.

Secretary, DoWR, RD & GR in his communication to the Chief Secretaries has also requested for identification of new forecast stations as per the requirement where the services of CWC can be extended. It is to be mentioned, that the expansion of forecasting stations is to be in consultation and coordination with the respective State Governments since the onus of taking preventive/mitigation measures in accordance with advance warning/forecast issued by the CWC lies with the State Government.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 23 (Para No. 2.30)**

The Committee have been informed that in order to formulate the strategy for flood management works in the entire country and river management activities and works in the border areas for period 2020-2023, a Committee has been constituted by NITI Aayog under the chairmanship of Vice Chairman, NITI Aayog. Officials from various Departments/Ministries of Government of India, experts from the field and Principal Secretaries from States of Jammu & Kashmir, Uttar Pradesh, Bihar, West Bengal, Punjab, Assam, Arunachal Pradesh, Tripura, Madhya Pradesh and Kerala have been included as the members of this Committee. As a part of this exercise, a Sub-Committee was constituted under the chairmanship of Secretary, DoWR, RD & GR, Ministry of Jal Shakti to assist the Committee in formulation of the proposal/strategy of flood management in respect of three broad areas, viz., structural measures, non structural measure and the scheme for financial assistance to states for taking up flood management works and river management activities/works in border areas. It has been informed that the Sub-Committee has submitted its Report to the aforesaid Committee of NITI Aayog in July-2020. The Committee urge the Government to complete the exercise of formulation of the strategy for flood management works in the entire country and river management activities and works in the border areas, within a definite time period so that a comprehensive and well-defined policy for integrated Flood Management in the country is put in place.

### **REPLY OF THE GOVERNMENT**

In order to formulate the strategy for flood management works in the entire country and river management activities and works in the border areas, a Committee was constituted by NITI Aayog under the chairmanship of Vice Chairman, NITI Aayog with officials from various Departments/ Ministries of Government of India, experts from the field and Principal Secretaries from States of Jammu & Kashmir, Uttar Pradesh, Bihar, West Bengal, Punjab, Assam, Arunachal Pradesh, Tripura, Madhya Pradesh and Kerala as members. The Final Report of the Committee constituted for Formulation of Strategy for Flood Management Works in Entire Country and River Management Activities and Works Related to Border Areas (2021– 26) was issued by NITI Aayog during January 2021.

The proposal of FMBAP for the period 2021-26 with an outlay of Rs. 15,000 crore in line with the recommendations of NITI Aayog Committee was considered by Expenditure Finance Committee of Department of Expenditure, Ministry of Finance. However, the overall outlay of the FMBAP for period 2021-26 has been restricted to Rs. 4,500 crore.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

**Comment of the Committee**  
**(Please see Para No. 23 of Chapter – I of the Report)**

## **RECOMMENDATION NO. 25 (Para No. 2.33)**

### **CRISIS MANAGEMENT PLAN**

The Committee note with concern that although the Flood Crisis Management Teams (FCMTs) which are formed for various river basins issue advisories based on the inflow forecast and the availability of flood cushion in the reservoir, the project authorities are not bound to follow the advisories of FCMT as the decision for release of water from the project falls under the purview of State Governments. The Department have sought the intervention of the Committee in the matter for finding a remedy to the problem through an executive order issued under Disaster Management (DM) Act 2005 or through a legislation such as proposed Dam Safety Bill which has since been passed by Lok Sabha and is to be passed by the Rajya Sabha. The Committee recommend the Government to take expeditious steps for enactment of the legislation for Dam safety and pending enactment of this legislation, an executive order in this regard may be issued under DM Act, 2005 as early as possible.

### **REPLY OF THE GOVERNMENT**

The Dam Safety Act, 2021 has been gazette notified on 14.12.2021. Earlier, the Dam Safety Act, 2019 was passed by the Lok Sabha on 02.8.2019. The Act got subsequently passed by the Rajya Sabha with some amendments on 02.12.2021 and further ratified by the Lok Sabha on 08.12.2021. The Dam Safety Bill 2021, inter alia, provides for surveillance, inspection, operation and maintenance of the specified dams for prevention of dam failure related disasters and to provide for institutional mechanism to ensure their safe functioning and for matters connected therewith or incidental thereto.

Operations of reservoirs are being done by the project authorities/ State Govt. as per standard operating procedure/operation & maintenance manual. Utilising the provisions of Disaster Management Act, 2005, DoWR, RD & GR (MoJS) vide its order No. Z-20011/2/2020-FM dated 09<sup>th</sup> August, 2020 has already issued directions mandating project authorities/State Govt. for advance information regarding releases from dams/reservoirs to downstream areas/lower riparian States.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

## **RECOMMENDATION NO. 26 (Para No. 2.34)**

### **GUIDELINES FOR REGULATION OF WATER RESERVOIRS IN THE COUNTRY**

The Committee have been informed that CWC publishes guidelines for preparing Operation and Maintenance Manual for dams which contain various aspects of project operation including normal operation and also operation during emergency. Details for preparation of operational rule curve (both for reservoir filling and release) are also part of the guidelines. However, it is the dam owners (States Govts./UTs./Public Sector Undertakings (PSUs) etc.) who are responsible for Operation & Maintenance (O&M) and regulation of water in reservoirs and the role of Central Water Commission is just advisory with little room for proactive intervention in reservoir operation and regulation. The

Department in its submission has stated that the Dam Safety Bill, 2019 has exclusive provision regarding coordinated reservoir operations of cascading dams which will address the problem of regulation of waters in reservoirs. The Committee recommend that till such time the Dam Safety Bill is passed by the Parliament, the Department should take proactive steps in consultation with all State Governments / Project authorities so as to prevent faulty reservoir operations and encourage seamless exchange of information amongst State Governments for safe release of water from reservoir.

### **REPLY OF THE GOVERNMENT**

The storage projects are planned either for purely power generation or for multi-purpose benefits with irrigation, navigation, flood control or drinking water etc. as primary use and with power generation as incidental. In case of purely power generation projects, the releases are made primarily in the interest of power generation, i.e., for optimization of power generation from the project. However, in case of multi-purpose projects, the committed releases from the reservoir are made primarily in the interest of irrigation or any other use and power generation is incidental, which simply corresponds to the committed releases. All storage projects afford controlled mitigation benefits depending upon prevailing reservoir level and the extent of live storage available in the reservoir. The rule curves are being implemented by respective project developers.

Operation of reservoirs is being done by the project authorities/ State Govt. as per standard operating procedure/operation & maintenance manual. Utilising the provisions of Disaster Management Act, 2005, DoWR, RD & GR (MoJS) vide its order No. Z-20011/2/2020-FM dated 09th August 2020 has already issued directions mandating project authorities/State Govt. for advance information sufficiently in advance regarding releases from Dams/Reservoirs to downstream areas/lower riparian States. Flood Crisis Management Team (FCMT) headed by the Regional Basin Chief Engineer of CWC with representatives from State Govt./Project Authorities are also involved in advising for Integrated Reservoir Operation of the Basin through frequent meeting with all stakeholders.

Secretary, DoWR, RD & GR in his communication (May, 2021) to the Chief Secretaries has emphasised the importance of effective regulation of reservoirs to aid in flood moderation and accordingly requested for participation of State's representatives in the meetings of FCMTs and implementation of its advisories.

Further it is to mention that Dam Safety Act, 2021 has been gazette notified on 14.12.2021. Earlier, the Dam Safety Act, 2019 was passed by the Lok Sabha on 2.8.2019. The Act got subsequently passed by the Rajya Sabha with some amendments on 2.12.2021 and further ratified by the Lok Sabha on 8.12.2021. The Dam Safety Bill 2021, inter alia, provides for surveillance, inspection, operation and maintenance of the specified dams for prevention of dam failure related disasters and to provide for institutional mechanism to ensure their safe functioning and for matters connected therewith or incidental thereto.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

## **RECOMMENDATION NO. 27 (Para No. 2.35)**

### **MEASURES TO COMBAT GLACIAL LAKE OUTBURST FLOOD (GLOF)**

Flood forecasting by CWC assist the authorities concerned to a large extent in framing a relief and mitigation response to riverine floods by providing advanced information. However, disasters such as flash floods, GLOF, and landslides, which are expected to become more common in the future due to climate change, constitute a threat in terms of assessing and forecasting their perilous impact in a prompt way. The Committee note with concern that, of late, Climate change has had a great impact on glacier movement in the Indian Himalayan region. In general, glaciers have been rapidly melting and retreating resulting in formation of a number of moraine dammed glacial lakes, posing numerous threats particularly to the population and infrastructure located nearby due to their outbursts. Recognizing and spotting of dangerous glacial lakes is very important so that all the stakeholders i.e. planners, scientists, academics, and the general public may evolve, adopt and carry out suitable mitigation steps such as monitoring, early warning, evacuation and relief and rehabilitation. The Committee therefore recommend that the Ministry make concerted efforts to set up and widen the network of high altitude meteorological and discharge stations equipped with modern technology including Synthetic Aperture Radar imagery to automatically detect changes in water bodies, including new lake formations, covering glaciers, glacial lakes and watersheds in the Indian Himalayan region. Besides, it should also work in close collaboration with other agencies involved in glacial management and analyzing the mountain hazardous by sharing data with them.

### **REPLY OF THE GOVERNMENT**

All efforts are being made to widen hydro-meteorological network including Real Time Data Acquisition System (RTDAS) throughout the country. CWC identifies the stations and continuously advises the State Governments for confirmation so as to expand the network in each plan period.

CWC has 46 existing metrological observations stations in the Himalayan region (1,000m above MSL) out of which 35 stations are telemetry based stations. Apart from the above, additional 16 telemetry based metrological observations stations have also been proposed (1,000m above MSL) in the Himalayan region, which are under various stages of implementation.

As informed by Defence Geo-informatics Research Establishment (DGRE), they have established three Mountain Metrological Centres (MMC) located at Sasoma in Ladakh, Srinagar in J&K and Auli in Uttarakhand for avalanche study. DGRE is using state-of-art sensors and technologies available world over for mitigating the avalanche hazards. The data received from observatory and weather stations at MMC is used in avalanche and weather forecasting for armed forces.

DGRE is working on latest model for forecasting and snowpack model jointly developed with Swiss Federal Institute for Snow and Avalanche Research (SFISAR). DGRE is now working out to enhance number of Automatic Weather Stations for avalanche and landslide in a phased manner to increase the coverage area in Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, Jammu & Kashmir and Ladakh. A network of



Automatic Weather Stations and manual observations is also coming up in the State of Sikkim, primarily to generate avalanche forecast for the armed forces.

As informed by Department of Science & Technology (DST), Wadia Institute of Himalayan Geology (WIHG) has five meteorological and discharge stations in the high altitude regions (~3800 m asl). Most of these stations are of conventional type.

There are different agencies to monitor, predict and undertake research on different hazards like GLOF, Landslide Lake Outburst Flood (LLOF), Cloudburst flood etc. For example

- GSI carries out Glacier Mass Balance Studies, Glacier Regimen Studies, Glaciers & Climate Variability Studies for selected glaciers besides societal & related studies in Himalayan belt.
- Scientific research is coordinated and supported by several ministries and departments like the Department of Science and Technology (DST); Ministry of Environment, Forests and Climate Change (MoEF & CC); Ministry of Earth Sciences (MoES); Defence Research and Development Organisation (DRDO), etc.
- Department of Space (DoS) has the mandate to monitor glaciers using remote sensing techniques. A large number of researchers belonging to various research and academic institutions in the country carry out research in glaciology and other cryospheric research areas.
- Monitoring of 477 GLs/WBs having size more than 50 ha is being carried out by Central Water Commission (CWC) during monsoon season (June to October) every year out of which 95 GLs/WBs are in India. The CWC is using Advanced Wide Field Sensor (AWiFS) Satellite imageries procured/ downloaded from NRSC for this purpose.

Studies on glacial research, glacial monitoring and mountain hazards require multidisciplinary experts and well integrated programme. There are 9,575 glaciers in the Indian Himalayan Region. Monitoring of such a large number of glaciers requires a coordinated effort with huge manpower and logistics. Hence, a nodal agency is very much essential for inter-agency coordination to streamline the efforts of different agencies for Glacier Management in the country. Following suggestions have been received in this regard:

1. Department of Science & Technology (DST) has suggested that Wadia Institute of Himalayan Geology (WIHG), an autonomous institute of DST may be considered to act as a nodal agency.
2. MoEF & CC has suggested that the responsibility for the co-ordination of all activities on the Himalayan glaciers should rest with National Security Council Secretariat, Govt. of India.

As per recommendations of the Committee, this Department will work in coordination with the different agencies involved in glacial management and analyzing the mountain hazardous by sharing data with them.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

## **RECOMMENDATION NO. 28 (Para No. 2.36)**

### **LOSSES DUE TO EROSION DURING FLOODS**

The Committee note with concern that the Department has not furnished specific information pertaining to losses caused due to soil erosion during floods and sand /debris deposition in agricultural farmlands in terms of acreage, and number of farmers affected. Further, the Committee have learnt from the reply of the Department that there does not exist any scheme to make those farmlands cultivable which were damaged and became uncultivable due to erosion during floods and deposition of sand/debris. The Committee are appalled at the conditions of the hapless farmers whose standing crops are destroyed and their agricultural lands submerged due to the floods and lack of financial assistance from the Government to make their agricultural lands cultivable. The Committee urge the Department of Water Resources, River Development & Ganga Rejuvenation to compile data regarding the losses caused by erosion during floods and deposition of sand/debris in the agriculture lands in terms of acreage number of farmers affected and financial losses and also formulate a scheme to extend all kinds of assistance including financial to these farmers for making their uncultivable land cultivable in coordination with the Ministry of Agriculture and Farmers' Welfare.

### **REPLY OF THE GOVERNMENT**

Primary responsibility for disaster management rests with the State Governments. The State Governments undertake assessment of damages and provide financial relief in the wake of 12 notified natural disasters from the State Disaster Response Fund (SDRF) already placed at their disposal. Additional financial assistance is extended from the National Disaster Response Fund (NDRF) as per the laid down procedure, which includes an assessment based on the visit of an Inter-Ministerial Central Team (IMCT). IMCT for assessing damages due to floods invariably include representatives from Ministry of Jal Shakti & Ministry of Agriculture & Farmers Welfare. As per items and norms governing SDRF and NDRF, an amount of Rs. 12,200/- per hectare is provided to farmers for loss of agricultural land during any notified natural calamity.

Central Water Commission maintains State-wise data of flood damages based upon the information received from States. The data inter-alia includes area affected due to floods and damages to crops in terms of area & value of crops.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

## **RECOMMENDATION NO. 29 (Para No. 2.37)**

### **INDUS WATER TREATY BETWEEN INDIA AND PAKISTAN**

The Committee note that the Indus Water Treaty was signed between India and Pakistan for sharing of waters of Indus basin in 1960 after eight years of negotiations under the aegis of the World Bank. Total quantity of waters of the Eastern Rivers viz. Sutlej, Beas, and Ravi is allocated to India for unrestricted use while the waters of Western rivers i.e. Indus, Jhelum, and Chenab is allocated largely to Pakistan. However, India is permitted to use the water of the western rivers for domestic

use, non-consumptive use, agricultural and generation of hydro-electric power. The Committee are pleased to learn that important projects like Ranjit Sagar Dam, Pong Dam and BhakhraNangal Dam have been built on these rivers which help India to make major use of waters of the rivers flowing to Pakistan as per the Indus Water Treaty. However, the Committee are concerned that the canals in Punjab and Rajasthan have become very old and are also not properly maintained resulting in lowering their water carrying capacity. Further, the canals like Rajasthan feeder and Sarhind feeder are working below their capacity (only 1/3 of their full capacity)resulting in release of water from Harike Barrage to Pakistan. The Committee, therefore, urge upon the Government that projects like Ujh and Shahpur Kandi may be completed expeditiously so as to exploit full potential of the western rivers for irrigation and other purposes. Further, the Committee recommend that the canal system in Rajasthan and Punjab may be repaired strengthened and properly maintained in order to increase their water carrying capacity.

### **REPLY OF THE GOVERNMENT**

The Indus Water Treaty (IWT) provides India unrestricted use of all waters of Eastern Rivers i.e. Satluj, Beas and Ravi, except as otherwise expressly provided in the Treaty. It also permits India to use the waters of Western rivers for non consumptive purposes including generation of hydroelectric power.

Department is taking necessary steps for expeditious completion of Ujh and Shahpur Kandi Dam projects. Government of India is providing central assistance to the Shahpur Kandi Dam project as a National Project. The dam of Shahpur Kandi is likely to be completed by end of 2022 and power house by March 2024. However, the project can start giving irrigation benefits to J&K immediately after dam is filled.

Ujh Multipurpose Project J&K has been envisaged as a storage project to utilize the water resources of river Ujh, a tributary of river Ravi. The DPR of the project was initially accepted by the Advisory Committee of Department of Water Resources, River Development and Ganga Rejuvenation in May 2020 for an estimated cost of Rs. 9,167 crore. As the Benefit Cost Ratio was less than 1.0, Ministry of Finance (MoF) has advised to examine the feasibility of re-designing the Ujh Project, to enhance its socio-economic benefits leading to Benefit Cost Ratio of at least 1.0. The project parameters are accordingly being reviewed to explore the possibility of improving Benefit Cost (BC) ratio equal to or greater than 1 by the Central Water Commission.

In order to assist the respective States in renovation of canals, this Ministry is providing central assistance to the two main canal systems of Punjab and Rajasthan, viz. Relining of Sirhind Feeder from RD 119700 to RD 447927 and Relining of Rajasthan Feeder from RD 179000-496000 which will help in improving their water carrying capacity.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

## **RECOMMENDATION NO. 30 (Para No. 2.38)**

### **INDUS WATER TREATY BETWEEN INDIA AND PAKISTAN**

The Committee are constrained to note that though India as per the Indus Water Treaty has the right to create water capacity storage upto 3.6 Million Acre-Feet (MAF) on Western rivers, however, no storage capacity has been created so far by India. Further, out of estimated power potential of about 20000 MW (Mega Watt), which could be harnessed from Western rivers power projects, only capacity of 3482 MW have been constructed so far on Western rivers. Besides, the Treaty provides India, the right to develop Irrigated Cropped Area (ICA) of 13,43,477 acres (9,12,477 acres without creating any storage and 4,31,000 acres after creation of conservation storage and release of a specified quantum of water into the river annually) through waters of Western rivers. However, as per the latest data for the crop year 2019-20, the ICA developed by India on Western rivers is 7,59,859 acres. Keeping in view the afore stated position, the Committee recommend that Government of India should examine the feasibility of making maximum use of the provisions of the Indus Water Treaty, in terms of full utilization of all accessible water of the eastern rivers and maximum utilization of the irrigation and hydropower potential of western rivers including permissible water storage as per the provisions of the treaty.

### **REPLY OF THE GOVERNMENT**

The efforts towards the complete utilization of waters of Eastern rivers are being made through the construction of Shahpur Kandi dam, Ujh Multi-purposure project and Second Ravi Beas Link, which have all been declared as National Projects. Central Assistance to Minor Irrigation schemes identified by the Government of Jammu, Kashmir and Ladakh is being provided on priority for utilizing the irrigation potential of western rivers as per provisions of the Treaty. Technical assistance towards the identification of other schemes and preparation of proposals is also being provided through regional offices of the Central Water Commission under this Ministry.

As rightly noted by the Committee, the Treaty allows India to build storage projects on the western rivers to create storages up to 3.6 Million Acre Feet. So far, no storage project has been constructed. Pakal Dul Project on Marusudar river (1000+500 MW) will be the first Indian storage project on Western rivers. This project of 108 Million Cubic Meter storage is currently under development.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

## **RECOMMENDATION NO. 31 (Para No. 2.39)**

### **INDUS WATER TREATY BETWEEN INDIA AND PAKISTAN**

The Committee observe that although Indus Water Treaty has stood the test of time, they are of the view that the Treaty was framed on the basis of knowledge and technology existing at the time of its agreement in 1960s. The perspective of both the nations at that time was confined to river management and usage of water through construction of dams, barrages, canals and hydro-power

generation. Present day pressing issues such as climate change, global warming and environmental impact assessment etc. were not taken into account by the Treaty. In view of this, there is a need to re-negotiate the Treaty so as to establish some kind of institutional structure or legislative framework to address the impact of climate change on water availability in the Indus basin and other challenges which are not covered under the Treaty. Hence, the Committee urge the Government of India to take necessary diplomatic measures to renegotiate the Indus Water Treaty with Pakistan.

### **REPLY OF THE GOVERNMENT**

The Indus Water Treaty, signed in 1960, between India and Pakistan was finalised after 8 years of negotiations under the aegis of the World Bank. The Permanent Indus Commission comprising the Commissioners of the two countries, supported by their respective Advisers has been established under the Treaty where various questions and issues pertaining to the Treaty are discussed.

The Article XII (3) of Indus Water Treaty (IWT) provides that “The provisions of this Treaty may from time to time be modified by a duly ratified treaty concluded for that purpose between the two Governments.” Further, The Article XII (4) provides that “The provisions of this Treaty, or, the provisions of this Treaty as modified under the provisions of Paragraph (3), shall continue in force until terminated by a duly ratified treaty concluded for that purpose between the two Governments.

As brought out above, the Treaty can be modified jointly by the two Governments. The recommendations of the Committee have duly been shared Ministry of External Affairs, being the line Ministry in the international affairs.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

### **RECOMMENDATION NO. 32 (Para No. 2.40 & 2.41)**

#### **INDO-CHINA WATER RELATIONS**

From the submission made by the Department of Water Resources, River Development and Ganga Rejuvenation, the Committee note that presently there is no water treaty with China. However, Memoranda of Understandings (MoUs) on Brahmaputra and Sutlej rivers have been signed by the two nations, which will be in force for five years and are renewed regularly. Besides, an Expert Level Mechanism (ELM) between both the nations has also been set up for ensuring co-operation with regard to provision of hydrological data by China during flood season, emergency management and other issues regarding trans-border rivers as agreed upon by the two countries. The Committee express their satisfaction over the fact that China is sharing hydrological data with regard to rivers of Brahmaputra and Sutlej, though on payment basis. The only aberration is the year 2017 when no data was supplied by it.

Further, the Committee have been apprised by the Ministry of External Affairs that three hydropower projects on the main stream of Brahmaputra River in Tibet Autonomous Region have been approved by the Chinese authorities and a hydropower project at Zangmu was declared fully operational by Chinese authorities in October 2015. It has also been stated that the Government of India is carefully

monitoring all the developments on the Brahmaputra River and has consistently conveyed its views and concerns to the Chinese authorities in order to ensure that the interests of downstream States like India are not harmed by any activities undertaken in upstream areas. China has conveyed to India on several occasions that they are undertaking run-of-the-river hydropower projects which do not involve diversion of the waters of the Brahmaputra. The Committee express apprehension that though 'run of the river' projects undertaken by China per se may not lead to diversion of waters, but there is every possibility that water can be stored in pondages and released for running the turbines, which may lead to certain diurnal variation in downstream flow and as a consequence have an impact on water flows in Brahmaputra river and thus affect India's endeavours to tap the region's water resources. The Committee recommend that India should constantly monitor the Chinese actions so as to ensure that they do not pursue any major interventions on Brahmaputra river which would adversely affect our national interests.

### **REPLY OF THE GOVERNMENT**

Government carefully monitors all developments relating to the Brahmaputra river, including plans by China to develop hydropower projects. A hydropower project at Zangmu was declared fully operational in October 2015. In its 12th Five Year Plan for the period 2011-2015, China planned to develop three more hydropower projects on the main stream of Brahmaputra River in Tibet Autonomous Region. Of the three, the first unit of the hydropower project at Jiacha was operationalised in August, 2020. Further, in March 2021, China adopted its 14th Five Year Plan which mentions plans for hydropower development on the lower reaches of the Brahmaputra river. As a lower riparian State, with considerable established user rights to the waters of the trans-border rivers, Government have consistently conveyed our views and concerns to the Chinese authorities. Government have urged them to ensure that the interests of downstream states are not harmed by any activities in upstream areas. The Chinese side has conveyed to us on several occasions that they are only undertaking run-of-the-river hydropower projects, which do not involve diversion of the waters of the Brahmaputra. Various issues relating to trans-border rivers are discussed with China under the ambit of the institutionalized expert-level mechanism as well as through diplomatic channels. Government of India carefully monitors all developments relating to the Brahmaputra River, including plans by China to develop hydropower projects.

(O.M. No. H-11013/10/2019-Parl. dated 04.01.2022)

**CHAPTER – III**

**RECOMMENDATIONS/OBSERVATIONS WHICH THE COMMITTEE DO NOT DESIRE  
TO PURSUE IN VIEW OF THE GOVERNMENT'S REPLIES**

**NIL**

## CHAPTER – IV

### RECOMMENDATIONS/OBSERVATIONS IN RESPECT OF WHICH REPLIES OF THE GOVERNMENT HAVE NOT BEEN ACCEPTED BY THE COMMITTEE

#### RECOMMENDATION NO. 14 (Para No. 2.20)

The Committee note with concern that river erosion in Assam is a big perennial problem causing significant economic loss besides displacement of population. The Committee are of the view that it is high time that Government should consider inclusion of river erosion in the admissible list of calamities for availing assistance under National Disaster Response Fund (NDRF)/ State Disaster Response Fund (SDRF). The Committee also recommend the Ministry to take requisite steps to protect the Majuli Island by strengthening / improving the peripheral embankment system of the Island.

#### REPLY OF THE GOVERNMENT

The 15th Finance Commission in its final report had considered the requests of State Governments for inclusion of various calamities, including river and coastal erosion in the list of notified disasters. The report concluded that the list of notified disasters eligible for funding from State Disaster Risk Management Fund (SDRMF) and National Disaster Risk Management Fund (NDRMF) fulfil the concerns of the States and thus did not find merit in further expanding its scope. However, the Commission has further stated that the calamities like river and coastal erosion can be tackled efficiently through mitigation efforts for which allocation under the mitigation funds have been made.

In State of Assam, in addition to flood management projects under FMBAP scheme of DoWR, RD & GR, some emergent flood management works are executed by Brahmaputra Board from the grant-in-aid under River Basin Management (RBM) Scheme of Ministry of Jal Shakti, D/o WR, RD & GR. Currently, Brahmaputra Board is executing a project for “Protection of Majuli Island from flood and erosion” at an estimated cost of Rs. 233.57 crore.

#### Comment of the Committee

**(Please see Para No. 13 of Chapter – I of the Report)**

#### RECOMMENDATION NO. 22 (Para No. 2.28 & 2.29)

#### FUNDING UNDER FLOOD MANAGEMENT PROGRAMMES

The Committee note that during XI Plan, the Flood Management Programme (FMP) was implemented with an outlay of Rs. 8000 crore and the pattern of funding was 90 % (Centre):10 % (State) for Special Category States and 75 % (Centre): 25 % (State) for General/ Non-Special Category States. However, during XII Plan, though the Programme continued, the funding pattern was revised to 70% (Centre):30 (State) for the special category States viz. North Eastern States, Himachal Pradesh, Jammu & Kashmir and Uttarakhand and for General States it was revised to – 50% (Centre) : 50% (State). The Committee express their concern over slashing the Central share of



funding under these Programmes during XII Plan. Given the precarious state of financing of States particularly poor States like Bihar who shares international border with Nepal and other major flood prone States are not in a position to provide adequate budgetary support for flood management works. The Secretary, DoWR, RD & GR during the oral evidence admitted that annual budget of the Ministry for flood management works is only Rs. 500 crore which is awfully low in comparison to the requirement of funds for flood control works/schemes. He further, stated that more than funding pattern, non-allocation of sufficient funds for the scheme is the major roadblock for undertaking flood management works.

Keeping in view the large scale destruction caused by the floods every year and also the delicate financial position of the States, the Committee urge the Department to vigorously pursue with the Ministry of Finance to provide adequate budgetary support for flood Management Programme. The Committee also recommend that the Department should impress upon the Niti Aayog to revise the existing fund sharing pattern between Union and States under the Flood management schemes with a view to increase Centre's share. Further, to augment the funding for flood management programme, the Committee urge the Department to explore the possibility of setting up a dedicated fund on the lines of Clean Ganga Fund for NamamiGange Programme whereby a trust may be set up for seeking contributions from corporate entities as well as individuals. Besides, to incentivize the corporates, the donation to dedicated FMP Fund may be exempted from Income Tax under relevant sections and contribution to FMP Fund may also qualify under Corporate Social Responsibility (CSR) provisions of the Company Act.

### **REPLY OF THE GOVERNMENT**

The proposal for centrally sponsored scheme, FMBAP for the period 2021-26 with an outlay of Rs. 15,000 crore in line with the recommendations of NITI Aayog Committee was presented to Expenditure Finance Committee (EFC). However, as per recommendations of EFC, the overall outlay of the FMBAP for period 2021-26 has been restricted to Rs. 4,500 crore. The funding pattern recommended for projects to be taken up in FMBAP under FMP Component is 60 % (Centre): 40 % (State) for General Category States and 90 % (Centre): 10 % (State) for 8 North Eastern States, J&K, Himachal Pradesh and Uttarakhand.

Realizing the importance of mitigation measures in overall management of disasters, 15<sup>th</sup> Finance Commission has also recommended creation of mitigation funds at both the Union and State levels under – National Disaster Risk Management Fund (NDRMF) and State Disaster Risk Management Funds (SDRMF) – to aid the implementation of mitigation measures in States for the period 2021-26. FC has recommended that the disaster risk management funds shall comprise two components viz. response fund (NDRF/SDRF) and mitigation funds (NDMF/SDMF). Under these funds, 20 per cent shall be allocated for mitigation and the remaining 80 per cent for the response funds. The FC has recommended total allocation for NDMF for the duration of the award period as Rs. 13,693 crore and the total allocation recommended for SDMF to the States for the duration of the award period is Rs. 32,031 crore (Central share - Rs. 24,517 crore, State share – Rs. 7,514 crore). The FC has stated that mitigation fund created should be used for those

local level and community-based interventions which reduce risks and promote environment-friendly settlements and livelihood practices.

**Comment of the Committee**  
**(Please see Para No. 20 of Chapter – I of the Report)**

**RECOMMENDATION NO. 24 (Para No. 2.31 & 2.32)**

**INTEGRATED RESERVOIR OPERATION FOR FLOOD MANAGEMENT**

The Committee take note of the following major instances where release of water from dams has caused flood like situation in other States: (i) Flood like situation in Patna in Bihar and its downstream areas in the year 2016 after releases from Bansagar Dam in Madhya Pradesh and Rihand dam in Uttar Pradesh (ii) Releases from Koyna Dam and other small dams in Maharashtra and Almatti Dam in Karnataka in the year 2019 inundated Telangana and Andhra Pradesh (iii) Releases from dams at Chambal basin in Madhya Pradesh and Rajasthan and dams at Betwa Basin dams in Madhya Pradesh and UP caused flood like situation in UP, Bihar and West Bengal and (iv) Releases from Bhakra Beas Management Board (BBMB) Projects in HP and Punjab creating flood like situation in Punjab. The Committee note that most of the Indian rivers are inter-state flowing through more than one State. Many River Valley Projects have been developed on these rivers by the State Governments within their jurisdiction and they are being operated as a single entity in most of the cases. However, it is not possible for each State to operate the reservoir in an integrated manner with reservoir located in other States without having institutional mechanism for the same. Many a times, sudden release of water from dams in one State has created inundation in other State resulting in loss of lives in addition to large scale economic losses to population and infrastructure.

The Committee express concern over the fact that though dam owners are advised to follow Standard Operating Procedure (SoP) for release of water from their reservoirs and issue advance warnings for the downstream areas, the conflicting objectives and lack of coordination between various States pose a challenge in optimal operation of reservoirs. To obviate this problem, the Committee recommend that setting up of River Basin Authority for each river basin of the country may be expedited in order to ensure integrated operation of reservoirs. The Committee would like to be apprised of the steps taken by the Department in this regard.

**REPLY OF THE GOVERNMENT**

The draft River Basin Management Bill, 2018 has been circulated among all States, Union Territories and related Union Ministries by the Department of Water Resources, River Development & Ganga Rejuvenation (MoJS) for comments/ suggestions. The draft River Basin Management Bill, 2018 is presently in public domain available on the website of Ministry of Jal Shakti.

**Comment of the Committee**  
**(Please see Para No. 27 of Chapter – I of the Report)**

**CHAPTER – V**  
**RECOMMENDATION/OBSERVATION IN RESPECT OF WHICH FINAL REPLY OF THE**  
**GOVERNMENT IS STILL AWAITED**

**NIL**

**NEW DELHI**  
**18 July, 2022**  
**27 Ashadha, 1944 (Saka)**

**Dr. SANJAY JAISWAL,**  
**Chairperson,**  
**Standing Committee on Water Resources**

**MINUTES OF THE ELEVENTH SITTING OF THE STANDING COMMITTEE ON WATER RESOURCES (2021-22) HELD ON THURSDAY, 19 MAY, 2022**

The Committee sat from 1500 hours to 1530 hours in Committee Room 'C', Ground Floor, Parliament House Annexe, New Delhi.

**PRESENT**

**Dr. Sanjay Jaiswal – Chairperson**

**MEMBERS**

**LOK SABHA**

2. Shri Bhagirath Chaudhary
3. Shri Nihalchand
4. Shri Guman Singh Damor
5. Dr. K. Jayakumar
6. Shri Sunil Kumar
7. Shri Kuruva Gorantla Madhav
8. Shri Hasmukhbhai Somabhai Patel
9. Shri Pratap Chandra Sarangi
10. Shri Chandan Singh

**RAJYA SABHA**

11. Sardar Balwinder Singh Bhunder
12. Dr. Kirodi Lal Meena

**SECRETARIAT**

- |    |                       |   |                     |
|----|-----------------------|---|---------------------|
| 1. | Shri M.K. Madhusudhan | - | Joint Secretary     |
| 2. | Shri Khakhai Zou      | - | Director            |
| 3. | Shri R.C. Sharma      | - | Additional Director |

2. At the outset, the Hon'ble Chairperson welcomed the Members to the Sitting of the Committee convened in connection with consideration and adoption of a draft Report on the Action Taken by the Government on the observations / recommendations contained in the Twelfth Report of the Committee on "Flood Management in the Country including International Water Treaties in the field of Water Resource Management with particular reference to Treaty/Agreement entered into with China, Pakistan and Bhutan".

3. Before proceeding with consideration of the draft Report, Chairperson drew the attention of the Members to the issue of safety of dams in the country, which is very crucial and of national importance, and the need for ensuring their safety and preventive measures for mitigating the risk of catastrophic flooding, in the event the dams failure. In view of this, he proposed that the subject 'Measures Taken for Safety of Dams' may be selected by the Committee for detailed examination and report during the current term. Members agreed with the proposal.

4. Thereafter, the Committee took up for consideration the above-mentioned draft Action Taken Report. After some deliberation, the Committee adopted the aforesaid draft Report, with some modifications.

5. The Committee then authorized the Chairperson to present the Report on their behalf to both the Houses of Parliament, during the next Session.

The Committee, then, adjourned.

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**ANNEXURE – II**

*[Vide Para 4 of the Introduction]*

**ANALYSIS OF ACTION TAKEN BY THE GOVERNMENT ON THE RECOMMENDATIONS/OBSERVATIONS CONTAINED IN THE TWELFTH REPORT (SEVENTEENTH LOK SABHA) OF THE COMMITTEE**

<b>(i)</b>	Total number of Recommendations/Observations	32
<b>(ii)</b>	Recommendation/Observations which have been accepted by the Government Recommendation Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16 17, 18, 19, 20, 21, 23, 25, 26, 27, 28, 29, 30, 31 and 32	Total – 29 Percentage– 90.625 %
<b>(iii)</b>	Recommendations/Observations which the Committee do not desire to pursue in view of the Government's replies Recommendation Nos. NIL	Total – 00 Percentage – Nil
<b>(iv)</b>	Recommendations/Observations in respect of which replies of the Government have not been accepted by the Committee Recommendation Nos. 14, 22 and 24	Total – 03 Percentage – 09.375%
<b>(v)</b>	Recommendation/Observation in respect of which final reply of the Government is still awaited Para Nos. NIL	Total – 00 Percentage – Nil