

**PERFORMANCE AUDIT ON SCHEMES  
FOR FLOOD CONTROL AND FLOOD  
FORECASTING**

MINISTRY OF JAL SHAKTI

PUBLIC ACCOUNTS COMMITTEE  
(2023-24)

ONE HUNDRED AND FORTY THIRD REPORT

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SEVENTEENTH LOK SABHA



सत्यमेव जयते

LOK SABHA SECRETARIAT  
NEW DELHI

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(2023-24)**

**(SEVENTEENTH LOK SABHA)**

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FLOOD FORECASTING**

**MINISTRY OF JAL SHAKTI**



*Presented to Hon'ble Speaker, Lok Sabha on: 29.04.2024*

*Presented to Lok Sabha on:*

*Laid in Rajya Sabha on:*

**LOK SABHA SECRETARIAT  
NEW DELHI**

**April, 2024 /Chaitra, 1946 (Saka)**

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**COMPOSITION OF THE PUBLIC ACCOUNTS COMMITTEE**  
**(2023-24)**

Shri Adhir Ranjan Chowdhury - Chairperson

**MEMBERS**

**LOK SABHA**

2. Shri Subhash Chandra Baheria
3. Shri Thalikkottai Rajuthevar Baalu
4. Shri Bhartruhari Mahtab
5. Shri Jagdambika Pal
6. Shri Pratap Chandra Sarangi
7. Shri Vishnu Dayal Ram
8. Shri Rahul Ramesh Shewale
9. Shri Gowdar Mallikarjunappa Siddeshwara
10. Dr. Satya Pal Singh
11. Shri Rajiv Ranjan Singh alias Lalan Singh
12. Shri Jayant Sinha
13. Shri Balashowry Vallabhaneni
14. Shri Ram Kripal Yadav
15. Vacant<sup>1</sup>

**RAJYA SABHA**

16. Shri Shaktisinh Gohil
17. Dr. K Laxman
18. Shri Derek O'Brien
19. Shri Tiruchi Siva
20. Dr. M. Thambidurai
21. Shri Ghanshyam Tiwari
22. Vacant<sup>2</sup>

**SECRETARIAT**

1. Dr. Sanjeev Sharma - Joint Secretary
2. Smt. Bharti Sanjeev Tuteja<sup>3</sup> - Director
3. Shri Girdhari Lal - Deputy Secretary
4. Shri. Ashiko Alemo - Committee Officer

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<sup>1</sup> Shri Brijendra Singh resigned w.e.f 12 March 2024

<sup>2</sup> Dr. Sudhanshu Trivedi retired from Rajya Sabha w.e.f. 2 April 2024

<sup>3</sup> Till 21.03.2024

## INTRODUCTION

I, the Chairperson, Public Accounts Committee (2023-24) having been authorised by the Committee, do present this One Hundred and Forty-third Report (Seventeenth Lok Sabha) on "Schemes for Flood Forecasting and Flood Management" based on C&AG Report 10 of 2017 relating to the Ministry of Jal Shakti.

2. The Report of the Comptroller and Auditor General of India was laid in the Parliament on 21<sup>st</sup> July, 2017.

3. The Public Accounts Committee (2023-2024), selected the aforesaid subject for detailed examination and took oral evidence of the representatives of the Ministry of Jal Shakti on the subject matter on 19<sup>th</sup> February, 2024. The Minutes of the sitting of the Committee are appended to the Report. The Committee considered and adopted the draft report on the subject *vide* digital circulation on 20<sup>th</sup> April 2024 and authorised the Chairperson to finalise the same and present it to the Hon'ble Speaker.

4. For facility of reference and convenience, the Observations and Recommendations of the Committee have been printed in **bold** and form Part-II of the Report.

5. The Committee would like to express their thanks to the representatives of the Ministry of Jal Shakti for tendering evidence before them and furnishing the requisite information to the Committee in connection with the examination of the subject.

6. The Committee also place on record their appreciation of the assistance rendered to them in the matter by the Committee Secretariat and the Office of the Comptroller and Auditor General of India.

NEW DELHI:  
20 April, 2024  
31. Chaitra, 1946 (Saka)

ADHIR RANJAN CHOWDHURY  
Chairperson,  
Public Accounts Committee

# REPORT

## PART – I

### I INTRODUCTORY

India is highly vulnerable to floods. Out of the total geographical area of 329 million hectares, about 45.64 million hectares is flood prone. Floods are a recurrent phenomenon, which cause huge loss of lives and damage to livelihood systems, property, infrastructure and public utilities. The C&AG Report No.10 of 2017 examined whether schemes for flood control and flood forecasting were efficient and effective; and whether the review and oversight mechanisms were effective.

2. The Public Accounts Committee selected this subject for detailed examination and took oral evidence of the representatives of the Ministry of Jal Shakti and also some State Governments and obtained written replies on the subject. Based on the oral evidence and written replies, the Committee examined the subject in detail, the findings of which are contained in the succeeding paragraphs.

3. The Committee learnt that Government of India has set up various Committees for management of flood like Rashtriya Barh Ayog, Task Force 2004 and Working Group on Water Resources for XI Plan. Government has also framed National Water Policy, 2002 and 2012 to govern the planning and development of water resources and their optimum utilization. The reports of the above committees/policies gave certain recommendations for management of flood in time bound manner. To achieve the above recommendations, schemes for flood control viz. Flood Management Programme, Flood Forecasting, River Management Activities and Works related to Border Areas and Emergency Action Plan for Dam were implemented.

4. Audit had sampled 206 Flood Management Programme projects, 38 flood forecasting stations, 49 River Management Activities and works related to Border Area projects and 68 large Dams, in 17 selected States/UT during 2007-08 to 2015-16 and found varied shortfalls in financial management of Flood Management Programme (FMP) and other schemes, execution of FMP, Flood Forecasting, implementation of recommendations of review and oversight committee for flood control measures, monitoring and evaluation etc.

#### A. FINANCIAL MANAGEMENT OF FLOOD MANAGEMENT PROGRAMME (FMP)

5. The Committee have been given to understand that Flood Management Programme (FMP) guidelines contain provisions relating to financial parameters viz. release of funds in stipulated time, eligibility for FMP funds, reimbursement of expenditure, phasing of expenditure, submission of Utilisation Certificates (UC) and audited statement of expenditure, etc. According to FMP guidelines, for projects

approved up to July 2013, the proportion of Central and State Share of funds was to be 75 *per cent* and 25 *per cent* respectively. In the case of Special category States the proportion of Central and State Share of funds was to be 90 *per cent* and 10 *per cent* respectively. For the projects sanctioned after July 2013, the proportion of Central and State Share of funds was to be 50 *per cent* each and 70 *per cent* and 30 *per cent* respectively in the case of Special category States. FMP guidelines stipulated that first instalment of Central assistance shall be released immediately on approval of the scheme by the Empowered Committee (EC) limiting to the corresponding provision made by the State in its budget in respect of both the Central share as well as the matching State share. Further, the grant-in-aid along with State share should be released by the State Government to the concerned project authorities executing the works within 15 days of receipt of central assistance from the Gol failing which the full central grant-in-aid released for the work should be converted into loan and be recovered as per usual terms of recovery of central loan.

6. In 17 selected States/UTs, Audit found cases of inadequate budget provision and short release of Central and State share of funds, delayed release of Central assistance to State Governments, non-recovery of Central assistance including interest from State Government, release of funds/rush of expenditure at fag end of the year, parking of funds, diversion of funds, inadmissible expenditure/excess release of Central Share, delay in reimbursement of expenditure, non-submission of audited statements of expenditure, delayed or non-submission of UCs in respect of each projects etc.

7. In respect of the mechanism in place to ensure that laid down procedure in FMP guidelines is followed while releasing/reimbursing funds to State Governments, the Ministry, in their Action taken notes stated as under:

“As mentioned before, the Central Assistance (CA) to the States under the scheme is not released for a particular project until the UC for earlier released CA is submitted thereby, supporting the expenditure incurred by the concerned State Government. Further, as per the new operational guidelines of Ministry of Finance, the State Government will transfer the Central share received in its account in the RBI to the concerned Single Nodal Agency's (SNA's) account within a period of 21 days of its receipt. The Central share shall not be diverted to the Personal Deposit (PD) account or any other account by the State Government. Corresponding State share should be released as early as possible and not later than 40 days of release of the Central share. The funds will be maintained by the SNA in the Single Nodal Account of each CSS. State Governments/SNAs/IAs shall not transfer scheme related funds to any other bank”

8. The Ministry in their written replies further submitted as under:

“Under Flood Management Programme, funding pattern for the projects / works of Special Category States was 90 (Central): 10 (State) and for projects / works of states other than Special Category States it was 75 (Central): 25 (State) during XI Plan. The funding pattern was revised to 70:30 (Special category States) and 50:50 (General States) during XII Plan.

First installment of central share is released only after submission of the Proposal with all relevant documents as per annual budget provision. Second/balance installment of central share of the particular financial year is released only after submission of utilization certificate of 75% of first installment, recommendation of monitoring agency, audit statement and certificate duly signed by the concerned Principal Secretary that the State has released its full State Share to the project, provided in the Annual State Budget.

SNA account opened by the State Government is mapped with PFMS and the central share under the scheme lying in State treasury beyond certain period is required to be returned to the Consolidated Fund of India.”

9. The Committee have learnt from Audit findings that funds amounting to Rs. 171.28 crore in six projects in five States including Bihar and West Bengal were not utilised and remained parked with the executing agencies for periods ranging between 15 months to more than 60 months.

10. When enquired in regard to the number of projects of the State Governments of Bihar and West Bengal where funds remained parked with the executing agencies and the reasons for parking of funds and action taken by the Ministry to prevent parking of funds, the Ministry, through written submission stated as under:

“As informed by the State Government of West Bengal, except in case of the project for “Reconstruction, remodeling and improvement of embankment in Sundarban and adjoining areas in the district of North and South 24 Parganas, West Bengal damaged by severe cyclone ‘Aila’ (WB-16)” the central grants against other 8 projects, released in between 2007-08 to 20015-16, were utilised within the periods ranging from minimum 3 months to maximum 22 months.

The progress of the project, “Reconstruction, remodeling and improvement of embankment in Sundarban and adjoining areas in the district of North and South 24 Parganas, West Bengal damaged by severe cyclone ‘Aila’” is delayed mainly due to land acquisition problem. However, in this project the



Central Assistance released till October'2023 amounting to Rs. 666.52 crore has been fully utilized. Total expenditure is Rs. 1075.15 Crore till October'23

As per the new operational Guidelines of Ministry of Finance, the State Government has to designate a Single Nodal Agency (SNA) in respect of each Centrally Sponsored Scheme who will maintain a bank account which will be mapped in Public Financial Management System (PFMS). The State Government will transfer the Central share received in its account in the RBI to the concerned SNA's account within a period of 21 days of its receipt. Corresponding State share will also be released as early as possible and not later than 40 days of release of the Central share. State Governments/SNAs shall not transfer scheme related funds to any other bank account, except for actual payments under the Scheme.

Moreover, Ministries / Departments will release not more than 25 % of the amount earmarked for a State for a CSS for the financial year. Additional central share (not more than 25% at a time) will be released upon transfer of the stipulated State share to the Single Nodal Account and utilization of at least 75% of the funds released earlier (both Central and State share) and compliance of the conditions of previous sanction.

This would eliminate parking of funds with the State's treasury.”

11. The Committee also learnt through Audit observations that funds amounting to Rs.36.57 crore in six projects in three States including Assam and Tamil Nadu were diverted by the implementing agencies for works not approved in the DPR. Assam: In the project AS-85 on 'Emergent measures for protection of Rohmorja area in Dibrugarh district', Water Resources Department, Dibrugarh (WRD) incurred expenditure of Rs.1.55 crore for construction of office building. Similarly, under project AS-105 on 'Protection of Makadhuj area from the erosion of river Brahmaputra', provision of Rs.18 lakh was kept for construction of boundary wall. Both the above works were not included in the approved scope of work, resulting in diversion of funds of Rs.1.73 crore. Tamil Nadu: As per CWC guidelines permanent building constructed for maintenance of the project should be discussed in DPR. However, in the project TN-03, Rs.81 lakh was diverted towards construction works that were not mentioned in the DPR. Further, in the same project, an amount of Rs.1.65 crore was diverted from project savings and sanctioned for the work of desilting the river, which was not originally provided in the estimate. The State Government stated (November 2016) that necessary provision of funds was made in the DPR duly approved by CWC. However, the duly approved DPR could not be furnished.

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12. When asked of the reasons for not including the aforesaid works in the approved scope of work which resulted in diversion of funds and fixing responsibility and follow up action taken by the Ministry and State Governments, the Ministry in their written reply stated as under:

**“Assam**

The Government of Assam has informed that an expenditure of Rs. 1.73 crore was against K-Building component without which the execution of the scheme was difficult. It may be stated that CWC has formulated guidelines for preparation of Detailed Project Report and WRD, Assam follows the guideline for formulation its Detailed Project Reports. In the guidelines of CWC, the main works component (I-works) comprises various sub-heads such as A-Preliminary, B-Land, C- Works, K-Building, M-Plantation, R-Communication, O-Miscellaneous, P-Maintenance etc

Following the guidelines, the project report of AS-85 was prepared and it was techno-economically approved the CWC, New Delhi and Investment Clearance was accorded by Planning Commission, New Delhi. Accordingly, provision of K-Building was made in the estimates for the schemes AS-85 and AS-105 and the work was completed as per approved estimate.

This building was utilized for storage of construction materials of FMP schemes and for proper management and monitoring of these projects.

**Tamil Nadu**

State Government of Tamil Nadu has submitted that the provision of K-Buildings (5-7% in plain area is available in the guidelines for preparation of project estimates for Flood Management Project and associated buildings were primarily constructed for supervision of flood management works comprising flood control cell, flood management centre and quarters for Irrigation Assistants at critical places. Moreover, the expenditure incurred was less than 2% of the total cost of the project.”

13. Audit found that it was necessary to furnish Utilization Certificates in respect of each project so that the quantum of progress achieved in each project could be ascertained from the UCs and release of funds regulated commensurate with the achievements. However, five States, including Assam, Bihar and West Bengal did not submit UCs for funds amounting to Rs. 182.82 crore.

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14. When enquired into the action taken by the Ministry to ensure timely submission of UCs, the Ministry in their written reply submitted as under:

“Subsequent release of central assistance is made only after receipt of UCs as per GFR-19A [Rule 212(1)] of CA released in earlier years. Moreover, Department of Expenditure has issued revised procedure for release of funds to States for Centrally Sponsored Schemes (CSS) and monitoring utilization of the funds released vide DoE OM F.No.1(13) PFMS /FCD/2020 dated 23.03.2021 and with this it would not be possible for the States to park the released central funds without sending it to implementing agencies. As per guidelines of FMP, the State Governments are required to submit audited statements of expenditure incurred on the FM component with 9 months of completion of current financial year. At the time of release of subsequent instalment of central assistance, Department insists that audited statement of expenditure due as per above guidelines is submitted by the State Government. Further, the State Governments are impressed upon to submit the pending audited statement of expenditure from time to time and it is ensured that Audited statement are submitted by respective State Governments.”

15. In respect of keeping a strict vigil on utilization of funds by the State Governments and executing agencies so as to avoid parking and diversion of funds, the Ministry submitted in their written reply as under:

“DoE, MoF has issued guidelines for the release of funds to the State Governments and monitoring of funds through PFMS. With a view to have more effective cash management and bring more efficiency in the public expenditure management, a set procedure will be followed by all the State Governments regarding release and monitoring utilization of funds under Centrally Sponsored Scheme (CSS) with effect from 1st July, 2021. Every State/UTs government will have to designate a Single Nodal Agency (SNA) for implementing each CSS and SNA have to open a Single Nodal Account for each CSS at State level in a Scheduled Commercial Bank authorized to conduct government business by the State Government.

Government of India release the central share for each CSS to the State Government's account held in Reserve Bank of India for further release to SNA's Account. Funds will be released to the States strictly on the basis of balance funds of the CSS (Central and State share) available in the State treasury and bank account of SNA as per PFMS for scheme-specific portal fully integrated with PFMS. The SNAs have to mandatorily remit the interest earned from the funds released to respective Consolidated Funds on pro-rata basis. ”

16. The Committee found that Audit observed instances where expenditure incurred prior to approval of EC was also included in the cost of the projects.

a. Inadmissible Central share

Scrutiny of records at MoWR, RD&GR revealed that in four projects of three States, expenditure amounting to Rs. 18.12 crore incurred in the previous financial year before its approval by EC was included in the cost of the project. Further, an amount of Rs. 15.43 crore of Central share was included in the cost of four projects of three States, which was inadmissible as expenditure was incurred by the State Government prior to the year of approval of the project by EC.

b. Excess release of Central share

Audit observed instances of excess release of Central share of funds in Bihar and Uttarakhand. In Bihar, the project BR-48- Bagamati Flood Management Scheme, Phase-II was approved by EC (August 2011) for a total cost of Rs. 576.41 crore. Of this, 7 expenditure of Rs. 116.54 crore was incurred in 2010-11 i.e. the year before the year of approval by EC. However, the cost approved by EC under FMP was Rs. 120.94 crore. The proportionate expenditure for the year 2010-11 was Rs. 24.45 crore<sup>17</sup> of which, 75 per cent amounting to Rs. 18.34 crore was not admissible as Central share. However, the entire Central share of Rs. 90.70 crore was released, resulting in excess release of Rs. 18.34 crore.

## **B. EXECUTION OF FLOOD MANAGEMENT PROGRAMME**

17. Critical flood control and river management works in the entire country are covered under the Flood Management Programme (FMP). These works include river management, flood control, anti-erosion, drainage development, anti-sea erosion, flood proofing works besides flood prone area development programme in critical regions. It also includes restoration of damaged flood control/ management works. The concerned State Governments submit preliminary reports covering surveys and investigations, International/Inter-State aspect, hydrology, etc. to CWC, which conveys 'in-principle' consent to State Governments for preparation of Detailed Project Report (DPR). Project report after having secured all mandatory clearances from the specified Committees including State Technical Advisory Committee, State Flood Control Board, Forest Clearance, techno-economic viability acceptance of CWC/GFCC/Advisory Committee of MoWR, RD&GR (as applicable), erstwhile Planning Commission, etc. were to be considered and finalized for Central assistance under this scheme by an Empowered Committee (EC) headed by Secretary (Expenditure), Ministry of Finance (MoF) during XI FYP and by an Inter-Ministerial Committee (IMC) headed by the Secretary, MoWR, RD&GR during XII FYP.

18. Audit observed that in eight States including Assam and West Bengal, there was no integrated approach in identification of flood management works and Preliminary Project Report (PPRs) /DPRs were not prepared in accordance with the Scheme guidelines.

Assam:

Though the scope of works was proposed at Divisional level, DPRs of each of the projects executed under FMP were not prepared. During discussion with Audit, the Divisional Officers stated (May-July 2016) that the detailed estimates were considered as DPR. The reply is not acceptable as DPRs containing records of Morphology study, Survey and Investigation, authority/technical Committee who selected the site, etc. were to be prepared. Further, one project (AS-105) out of the above works with an estimated cost of Rs.14.94 crore was recommended for review (November 2009) by the 47th State TAC. However, the project was implemented without obtaining the final approval of TAC.

West Bengal:

(a) In four selected Projects (WB-3, WB-6, WB-11 and WB - 14), FMP works were not taken up in an integrated manner, covering entire stretch of the affected portion of the river. Rather, these four projects were taken up in a fragmented manner at different locations or stretches of the rivers. For instance, the project WB-6 was executed on two rivers in five different locations and clubbed into one FMP scheme. Similarly, in Project WB-3, two different work sites were clubbed together in one FMP scheme.

(b) Out of nine selected FMP works, DPRs of only three projects were prepared by Irrigation and Water Department (IW&D). In other six projects only project booklets containing cost estimate of each item, analysis of rate, quantity calculation, etc. were prepared. The project booklets of these six projects did not contain any meteorological data, survey of soil, socio economic benchmark survey, water logging, salinity and drainage and engineering survey. It also did not contain population that would be benefitted by implementing these projects.

(c) Task Force constituted (June 2009) by Gol to assess the damage caused by cyclone Aila and to suggest remedial measures to prevent further breaches in embankments and consequent flooding of areas recommended for short term and long term measures to be implemented by Irrigation & Waterways Department. DPR for the long term measures was to be prepared by February 2010. However, the Department did not prepare (March 2016) DPR of long term measure due to poor progress of short term measures (re-construction of embankments).

Audit also found delay of more than 7 years and 10 - 75 months occurred in approval of DPRs by EC/IMC in Assam and Bihar respectively.

19. When asked of the action taken or proposed to be taken by the Ministry to ensure that projects are formulated in an integrated manner covering the entire river/tributary or a major segment of rivers/tributaries, the Ministry, in their written submission stated as under:

“Flood management including erosion control falls within the purview of the States. Flood management and anti-erosion projects are formulated and implemented by concerned State Governments from own resources 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.

Projects, which are consistent with River Basin Master Plan, prepared by States/UTs and which is further approved by State TAC only are appraised by CWC. Generally, projects formulated in an integrated manner only are included under FMP scheme. However, projects for critical reaches and of emergent nature are also included to timely safeguard the people and area.”

20. Upon further scrutiny regarding non preparation of DPRs for projects under FMP and mechanism in place to ensure speedy approval of DPRs, the Ministry, through a written submission, stated as under:

“FMP projects are included for funding only after techno-economic clearance of DPR of the project by Advisory Committee of the DoWR, RD & GR. The DPR of the flood management projects, now-a-days are submitted online through e-PAMS and are prepared as per the guidelines of Central Water Commission. Appraisal by Advisory Committee of DoWR ensures that only techno economically sound proposals are included for funding.”

21. The Committee have also found that as per clause 4.9 of FMP Guidelines 2009, flood management works of critical nature are expected to be completed in a time bound manner, say in a maximum of two to three financial years. Audit had found cases of delays in completion of projects in five States/UTs, including West Bengal. In the State of West Bengal, the some portion of the desilting project of the Baghai river by excavation of the river bed was not taken up due to delay in land acquisition.

22. When asked of the steps taken by the Ministry to ensure completion of delayed projects as well as new projects within a stipulated time frame, the Ministry, in their written reply stated as under:

“Regular review meetings at different levels are held with concerned States by the Ministry for early completion of delayed projects. The CWC/GFCC officials during monitoring visits also deliberate with project authorities on the delays affecting the progress and suggest measures for resolving technical issues.”

23. The Committee have noted that Audit observed that in four projects implemented in Assam, Himachal Pradesh and Tamil Nadu, expenditure was incurred on projects without approval of the Competent Authority. Assam: Under the project AS-85 - Emergent measures for protection of Rohmorja area in Dibrugarh district, the erstwhile Planning Commission accorded (February 2010) investment clearance to the work at Rs. 59.91 crore. State Finance Department restricted the rates of items of the estimate and accorded (December 2010) concurrence at Rs. 52.35 crore based on which Water Resources Department (WRD) accorded Administrative Approval (AA) (December 2010) and Technical Sanction (TS) (February 2011). However, against the sanction, actual expenditure of Rs. 59.82 crore was incurred, resulting in unauthorized expenditure of Rs. 7.46 crore. Tamil Nadu: Under the Project TN-4, expenditure of Rs. 2.03 crore was incurred for removal of sand shoal under FMP which was not in order as the same was not included in the scope of work. The Department stated (November 2016) that the desilting work was executed out of the savings in the lump sum provision. However, approval of higher authority was not furnished to Audit.

24. Upon enquiry on the reasons for the lapses and fixing of responsibility against the errant officials for incurring expenditure without the approval of competent authority, the Ministry, in their written reply stated as under:

“Noted. Central Monitoring agency will ensure this while carrying out the monitoring of projects under their jurisdiction all such deviations from approved scope of works are approved by the competent authority.”

25. With regard to upkeep and maintenance of the existing FMP projects, the project authority was to draw programmes for maintenance of works after their completion for effective utilisation of investment on the project. For this purpose, a separate budget was to be provided. Further, as per Para 7.12 of the Report of Working Group on Flood Management and Region Specific issues for XII plan (October 2011), GoI, inventory register was required to be maintained by the Department to have a holistic view on the works already completed and further measure required for reasonable flood management. Audit had observed cases of deficiencies in maintenance and upkeep of the projects and inventory register.

26. When asked to specify the reasons for not maintaining basic records to facilitate monitoring of assets created under the FMP and steps taken for proper maintenance of records henceforth, the Ministry, in their written reply submitted as under:

"The periodic maintenance of structures constructed under FMP is the responsibility of the State Government and is undertaken with their budgetary resources. Normally, provisions for maintenance are made to the respective Units/Divisions and are not kept project-wise. Tamil Nadu Government has stated that, though no separate funds were provided for the maintenance and upkeep of the completed FMP schemes, periodical inspection are being made by the field officials especially during monsoon and rectification works attended at essential places, utilizing local funds. Maintenance grants are allotted Irrigation System wise and not scheme wise. All the projects completed under FMP are being maintained properly and regularly.

All maintenance works in Assam are executed from State own provision i.e. Maintenance & Repairing of Flood control Structures."

27. Audit observed that in seven States including Assam, Tamil Nadu and West Bengal, land was not acquired before the start of work with the result that the projects were stalled, resulting in unfruitful expenditure of Rs. 59.88 crore in 13 projects in these States.

### **C. FLOOD FORECASTING**

28. The Committee have taken note of the fact that CWC undertook the work of modernization of flood forecasting network during the IX Plan on pilot basis. The modernization works envisaged establishment of telemetry equipment in the FFS to enable collection and transmission of automatic real time data, automatic formulation of flood forecast and expeditious dissemination thereof in order to increase the lead time for enabling concerned agencies to undertake mitigation measures for reducing the risk of disasters from flood. Against a target for the XII Plan for installation of 219 telemetry stations, 310 base stations and 100 flood forecasting stations, only 56 telemetry stations had been installed as of August 2016. Most of the telemetry stations installed during XI plan were non-functional due to which real time data was not available at these stations. Therefore, CWC did not depend on telemetry data even after investing in modernisation of telemetry station network for nearly 20 years which defeated the purpose of establishment of telemetry stations. There were insufficient number of flood forecasting stations in some of the States. There were deficiencies in installation and maintenance of flood forecasting stations. In Odisha, non-maintenance of water level in Hirakud dam as per the rule curve, and simultaneous opening later on of 50 flood gates caused heavy discharge of water resulting in flooding in downstream areas. In Uttarakhand, the flood forecasting could not be issued in time due to incorrect fixation of warning and danger level.



29. Further, they have learnt that there are 27 Rain Gauge Stations in Lower Brahmaputra Division in West Bengal. Scrutiny of records revealed that since construction of these stations, a number of flood protection works like barrages, embankments, spurs, culverts, etc. were constructed. These hydrological structures disturb the flow of the river causing time lag between base stations and forecast stations. Besides, most of the small tributaries of the major rivers remained un-gauged. In view of the difficulties in assessment of river flow during heavy downpours, the Division felt (since 2008) the deficiency of Rain Gauge Stations and requirement for more Rain Gauge Stations. However, CWC was 13 yet to approve any new forecasting stations. Thus, flood forecasting was not effectively carried out in this division.

30. When asked whether sufficient rain gauge stations have now been installed in the Lower Brahmaputra Division in West Bengal, the Ministry, in their written submission stated as under:

“There are a total of 28 rain gauge stations under the Jurisdiction of LBD, CWC, Jalpaiguri. Out of these, there are 25 stations are in West Bengal and all of them are functional.”

31. Audit observed that flood forecasting was not done in some States (due to lack of sanction for the scheme, absence of request from State Government, etc.

(i) No flood forecasting scheme was sanctioned in the State of Tamil Nadu during XI Plan under Central Sector scheme. In XII Plan, action plan for installation of 41 telemetry stations in Tamil Nadu was prepared (July 2016) but tenders remained to be finalised (July 2016). Modernised flood forecasting infrastructure using real time data acquisition system and forecasting models for all river basins were not developed in Tamil Nadu. Floods forecasting were based on the meteorological forecast and special warning issued by IMD.

(ii) There were 32 FFS in Bihar under CWC. However, Inflow forecast of reservoirs or barrage was not done as the request in this regard from State authorities was not made.

(iii) Flood forecasting operations were not conducted in Himachal Pradesh. The Regional Committee for scientific assessment of flood prone area asked (September 2014) CWC Shimla to take up the matter with Government of Himachal Pradesh to collect/share related information and real time data available with project authorities to develop a robust flood forecasting system.

(iv) The Karimganj FFS at River Kushaira, Assam was modernised under XII FYP so as to get real time data through telemetry system. Though a telemetry machine was installed (January 2015), data regarding water level and rainfall

was not collected from the telemetry machine, as the FFS had not received any instructions in this regard. Non utilisation of the telemetry machine for flood forecasting defeated the purpose for which it was installed.

(v) CWC proposed to install 14 and 15 telemetry stations in Damodar and Lower Brahmaputra Divisions respectively during 2012-17. However, as of June 2016, no progress was made in this regard.

32. When asked of the contributory reasons for non-utilisation of telemetry machine for flood forecasting and steps taken by the State Governments to make all telemetry stations operational, the Ministry, in their Action taken note submitted as follows:

"Installation of telemetry system has been completed at all locations except following 03 (three) stations:- (i) Khanabal under Chenab division, Jammu pending due to court case since 2018. Alternate location is identified and installation will commence soon. (ii) Sara thang and Dambong under SID Gangtok - Installation pending due to clearance from Forest Dept since 2017. Matter is being pursued regularly with Principal Secretary, Forest & Environment Dept, Govt of Sikkim."

33. The Ministry, in their written reply further stated as under:

"Issues like theft/vandalism, washing out of equipment due to heavy flood, siltation, faults in sensors etc will lead to non-receipt of telemetry data, whereas flood forecasting needs uninterrupted dissemination of data. However, the telemetry data is normally utilized in Flood forecasting activities where all above issues are not encountered."

34. Regarding the number of telemetry stations installed and the functionality, the representatives of the Ministry submitted before the Committee during oral evidence as follows:

"Sir, we have installed 1056 telemetry stations. They are all functional. In addition, 5337 more stations have been installed. We have just given you data but if you see in the presentation, there are 5337 more real time data acquisition systems that have been installed under the National Hydrology project also and these are also functional."

35. In response to a query on the activities carried out at the Central level regarding flood forecasting, the representatives of the Ministry, during oral evidence, stated as under:

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"Sir, I would now like to present some of the activities carried out at the Central level. The Central Water Commission is issuing flood forecast at 338

locations all across the country. Basically, two kinds of forecasts are issued. One is level forecasting where river levels are forecasted. Another level is inflow forecasting. Certain structures are there like dams and barrages where what is the likely inflow of water during the next few days is forecasted so that some action can be taken for depleting the reservoirs and that incoming flood can be absorbed in that. So, there are level forecasting and inflow forecasting. Then there are two kinds of forecasts. One is short range forecast where the lead time is 12 to 24 hours. Another one is 7-day advisory wherein based on rainfall projections, we forecast the likely scenario after seven days”

36. On the query regarding mandatory forecasting of inflow of water in reservoirs and emergency action plan on the event of dam break and extreme flood situation, the representatives of the Ministry stated as under:

“Sir, I fully agree with you. We are working with the States to try and implement these measures. Under the Dam Rehabilitation and Improvement Programme Phase-I, all 223 dams that were taken up, emergency action plans were prepared. Now, with the Phase-II of the Dam Rehabilitation and Improvement Programme, more than 800 dams are being taken up and emergency action plans have been prepared for all these dams. In addition, under the Dam Safety Act, it is now mandatory for every dam-owning authority to prepare an emergency action plan and this is being done. In the first stage, we are ensuring that every dam-owning authority does the pre-monsoon and post-monsoon inspection. This was not being done in the past but since the Dam Safety Act has been enacted, we are working with States to ensure every Dam Safety Authority does the pre-monsoon and post-monsoon inspections. We will also over the next couple of years ensure that every dam has an emergency action plan. It takes certain amount of time. There is a process. You have to do public consultation to prepare the emergency action plan but over the next two years, in a phased manner, we will ensure that every dam in the country has an emergency action plan which is in the public domain and which has been prepared through public consultation.”

## IMPLEMENTATION OF THE RECOMMENDATIONS OF REVIEW AND OVERSIGHT COMMITTEES FOR FLOOD CONTROL MEASURES

37. Audit Recommendations of Rashtriya Barh Aayogh with regard to identification of area affected by flood in the country remained unfulfilled. In most of the States the scientific assessment of flood prone areas was not carried out. Non-preparation of Digital Elevation Models led to non-demarcation of various flood zones in the Country digitally and absence of scientific images of the food affected areas. Morphological studies with a view to achieve better results in building, renovating and maintaining revetments, spurs and embankments to control and mitigate disasters caused by floods were not completed by any of the 17 States/UT. None of the States/UT sampled in audit had prepared Comprehensive Master Plans (CMP) for flood management. Six severely flood affected Ganga basin States did not constitute Implementation Committees for time bound implementation of the recommendations of the CMP for management of floods. None of the sampled States except Jammu & Kashmir, Manipur and Uttarakhand had enacted Flood Plain Zoning Acts. As such, enforcement of the measures to minimize/avoid damages due to floods could not be ensured.

38. In response to the query on whether the recommendations of the Rashtriya Barh Ayog, Task Force 2004, working Group on Water Resources for XI and XII plan and National Water Policy (2012) have been implemented, the Ministry in their written reply stated as under:

"Brief of recommendations of said committees is as given below:

### **1. Rashtriya Barh Ayog (1980) recommendations:**

- I. Flood plain management measures should be undertaken by the states where necessary legislation exists. Suitable legislation should be enacted in other states.
- II. Data collection for providing information on their long term performance and their impact on various socio-economic factors.
- III. Legislation and enforcement by States to prevent unauthorized river bed cultivation and encroachments into drains etc.
- IV. Separate reporting of flood damage for (i) Unprotected areas (ii) Protected areas and (iii) Areas situated between the embankments.
- V. Legislation for management of flood plains.
- VI. Intensifying studies on sedimentation of reservoirs.
- VII. Forming a national council for mitigating disaster.

VIII. Priority for measures to modify the susceptibility of life and property to flood damage.

2. **Task Force 2004 recommendations:**

Recommendations are categorized as proposed and general measures for flood management.

**Proposed Measures**

A number of measures proposed by the state governments in, order to urgently tackle the menace of flood and erosion problems. Keeping in view the availability of resources and infrastructure as well as criticality of the schemes, measures have been categorized as under:

- i. **Immediate Measures:** The measures of immediate nature requiring completion before monsoon 2005. Schemes for closure of breaches, raised platforms, critical anti-erosion works fall under this category.
- ii. **Short-term Measures:** Schemes for raising & strengthening of embankments, anti-erosion works, drainage development, etc. fall under this category, the measures required to be completed within the next -two years of the X Five Year Plan are categorized as *short-term 1* whereas measures to be completed in XI Plan are categorized as *short-term 11*.
- iii. **Long-term Measures:** The measures, such as reservoirs, which require more time and involve a number of issues to be sorted out before implementing them are categorized as long-term measures. The cost of these proposal has not been estimated at this stage.

**General measures:** In general measures some of the following are recommended by task force:

- i. Construction of Raised Platform
- ii. Raising and Strengthening of Embankments
- iii. Construction of Drainage Development Schemes
- iv. Wetlands management for flood moderation
- v. Erosion Control close to Embankments
- vi. Catchment management/treatment
- vii. Modernization of flood forecasting activities
- viii. Disaster management system

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3. **Working Group on Water Resources recommendations**

As per Report of Working Group on Flood Management for XII Plan, an integrated basin management approach is needed that encourages the use of the resources of a river basin as a whole instead of traditional, fragmented and localized approach. It also emphasized that for making use of new technologies, it is desirable that a scientific assessment of the flood prone areas detailing at micro level and considering frequency of flooding, duration and depth of inundation, etc. should be done. It is also stated that **Flood Plain Zoning (FPZ)** as one of the major flood mitigation measures stating “Discouraging creation of valuable assets/settlement of the people in the areas subject to frequent flooding i.e. enforcing flood plain zoning Regulation”.

#### 4. National Water Policy 2012 recommendations

Recommendations of National water policy related to flood management are given as under:

- I. While every effort should be made to avert water related disasters like floods and droughts, through structural and non-structural measures, emphasis should be on preparedness for flood / drought with coping mechanisms as an option. Greater emphasis should be placed on rehabilitation of natural drainage system.
- II. Land, soil, energy and water management with scientific inputs from local, research and scientific institutions should be used to evolve different agricultural strategies and improve soil and water productivity to manage droughts. Integrated farming systems and non-agricultural developments may also be considered for livelihood support and poverty alleviation.
- III. In order to prevent loss of land eroded by the river, which causes permanent loss, revetments, spurs, embankments, etc., should be planned, executed, monitored and maintained on the basis of morphological studies. This will become increasingly more important, since climate change is likely to increase the rainfall intensity and hence, soil erosion.
- IV. Flood forecasting is very important for flood preparedness and should be expanded extensively across the country and modernized using ~~real time data acquisition system and linked to forecasting models.~~  
Efforts should be towards developing physical models for various basin

sections, which should be linked to each other and to medium range weather forecasts to enhance lead time.

- V. Operating procedures for reservoirs should be evolved and implemented in such a manner to have flood cushion and to reduce trapping of sediment during flood season. These procedures should be based on sound decision support system.
- VI. Protecting all areas prone to floods and droughts may not be practicable; hence, methods for coping with floods and droughts have to be encouraged. Frequency based flood inundation maps should be prepared to evolve coping strategies, including preparedness to supply safe water during and immediately after flood events. Communities need to be involved in preparing an action plan for dealing with the flood/ drought situations.

To increase preparedness for sudden and unexpected flood related disasters, dam/embankment break studies, as also preparation and periodic updating of emergency action plans/disaster management plans should be evolved after involving affected communities. In hilly reaches, glacial lake outburst flood and land slide dam break floods studies with instrumentation, etc., should be carried out.”

39. On a query regarding concerns/constraints expressed by States/UTs for not implementing the recommendations of Central/State advisory bodies, the Ministry, in their written reply submitted as under:

“The following constrains are commonly expressed by states in implementation of Flood Plain Zoning:

- I. Most of the flood plain areas are densely populated. Therefore, there are constraints in evacuation of people who are already occupying the floodplains. Evacuation may pose socio-politico problem in such areas in absence of viable & suitable alternatives.
- II. There are limited availability of land in such areas and so there is lack of alternate settlement elsewhere due to constraints of flood.
- III. Non- Availability of high-resolution DEM for flood prone assessment studies.
- IV. Lack of clarity on proper definition of flood plain.
- V. Inter State issues in the implementation of Flood plain Zoning.”

#### **FLOOD PLAIN ZONING**

40. The Committee learnt that CWC circulated a Model Bill on Flood Plain Zoning to all the States in 1975 for guidance of States for enactment of legislation in this regard. The Model Bill provided model clauses about flood zoning authorities, surveys and delineation of flood plain area, notification of limits of flood plains, prohibition or restriction of the use of the flood plains, compensation and power to remove obstruction after prohibition. The 21st Parliamentary Standing Committee on Water Resources recommended (2013-14) that MoWR, RD&GR take vigorous steps for persuading the States to enact the necessary legislation in this regard without delay. Audit observed that only three States, Manipur, Rajasthan and Uttarakhand had enacted Flood Plain Zoning Acts. As such, due to non-enactment of legislation for Flood Plain Zoning, enforcement of the measures to minimize/avoid damages due to floods could not be ensured.

41. When enquired into the steps taken by the Ministry and State Governments towards enactment of Flood Plain Zoning Acts, the Ministry, in their Action Taken Note stated as under:

“Central Government has continuously impressed upon the States the need to take follow-up action to implement the flood plain zoning. With regard to the Model Flood Plain Zoning Bill which was prepared by the then MOWR in 1975 and circulated to the State Government for implementation, recently, DoWR, RD & GR, MoJS Vide O.M. No.5/03/2016- FM/1776-1784 plain regulations have also been appended in the Model Bill. Manipur enacted flood plain zoning legislation in 1978, but the demarcation of flood zones is yet to be done. The State of Rajasthan also enacted legislation in the State; however, enforcement thereof is yet to be done. The State Govt. of Uttarakhand has also passed Flood Plain Zoning Act on 16 December, 2012 but the demarcation of flood zones is yet to be done. Some States like Bihar and UP have informed about difficulties in implementation of Bill due to large flood affected areas. Other States have yet not taken any action for enactment of legislation. Enacting and implementing the Flood Plain Zoning Bill in the purview of constituted a Committee to review Model Flood Plain Zoning Bill under chairmanship of Member (RM), CWC in August, 2020. The Draft bill has been modified by the Committee and is under consideration in Ministry of Jal Shakti. A Draft Bill on Integrated Water Resources Management is also under preparation, in which provisions of Flood Plain Zoning Bill will also be included. To further pursue the State Government for enactment of Flood Plain Zoning Bill in their State, Secretary, DoWR, RD & GR, MoJS vide D.O. letter dated 24th May, 2022, wrote to Chief Secretaries of States for enactment of an appropriate legislation for the purpose and delineation and demarcation of Flood plain zones on the notified stretches of rivers of the States/UTs. The role of Central Government is to provide assistance to the State Government in enactment of notification on Flood Plain Zoning in their respective



State and demarcation of Flood Plain. Ministry of Jal Shakti, constituted a special committee vide OM T-12/2017- 18/268/NMCG dated 01.07.2017 to identify and demarcate the flood plains of river Ganga from Haridwar to Unnao and identify no development /construction zone, regulatory zone and the activities that can be /cannot be carried on in the regulatory zone of the flood plain. The committee submitted its final report which has been sent to the Uttar Pradesh Government for necessary action. On the basis of report of the committee, Govt. of Uttar Pradesh has issued necessary order dated 4th September, 2020 for strict compliance of Flood Plain Zoning demarcation on the main stem of Ganga River from Bijnor to Kanpur. The State of Uttarakhand has also demarcated the flood plains (through notification dated 254 28.02.2017) for some stretches.”

42. As per replies of the Ministry, the following constraints are commonly expressed by States in implementation of Flood Plain Zoning:

- a. Constraints of evacuation of people who are already occupying the floodplains
- b. Lack of alternate settlement elsewhere due to constraints of flood.
- c. Non-Availability of high-resolution Digital Elevation Model (DEM) for flood prone assessment studies.
- d. Lack of clarity on proper definition of flood plain. e. Inter State issues in the implementation of Flood plain Zoning.

43. In response to a query on the measures being taken by the Ministry to address the issues expressed by the State Governments, the Ministry, in their written reply submitted as follows:

“Water including flood management being State subject under Indian Constitution, states have to take action in this regard. Ministry of Jal Shakti has been continuously making efforts to impress upon the States to take action to implement the flood plain zoning approach in development. Secretary, DoWR, RD & GR vide letter dated 24th May 2022, has requested States/UTs to take urgent action for enactment of suitable legislation in their respective State/UT. Further, Secretary, DoWR, RD & GR in a meeting held on 17.01.2023 with the State Governments of Assam, Bihar, UP& West Bengal stated that the initiative of flood plain zoning is directly linked with the larger perspective of flood management thereby minimizing the damages caused due to flood. He further emphasized that the concept of flood plain zoning is required to be implemented in all major rivers/ its tributaries. To standardize the concept of flood plain zoning, DoWR, RD& GR is in the process of finalizing ‘Technical Guidelines on Flood Plain Zoning’.”

44. During oral evidence, the representatives of the Ministry stated as under:

"Under non-structural measures, we try to keep people away from the flood by issuing early warning so that movable property or the people can be moved away from the flood. We also try to restrict encroachment of flood plains. If we can implement flood plain zoning, then we try to implement a sort of areas to allow river its room during the flood so that in the event of flood the losses can be minimized. That is one area where a lot of work is still required to be done."

45. On a query regarding the number of States that have implemented the Flood Plain Zoning Act, the representatives of the Ministry stated as under:

"Sir, four States have implemented the Act. Some States are doing through executive order also like Manipur, Rajasthan.

Sir, on ground, Uttarakhand is one State which has enacted the law as well as they have undertaken some groundwork by demarcating different segments where regulated development only can take place or no development can take place. So, this way they have done. Uttarakhand is the only State. Then, based on some NGT order, even UP has done some demarcation on the flood plains.

The structural measures basically keep flood away from people. I mean like we can have some reservoirs where we can moderate the intensity of flood by absorbing certain amount of flood. Or, we raise the banks of the rivers so that water will not spill over. Then, there are certain structural measures which are required for arresting erosion. Erosion is one area where we can strengthen the banks so that at the time of flood, we can save the land from getting eroded or getting engulfed in the rivers"

46. Upon further enquiry into the measures taken by the Ministry to ensure notification of Flood Plain Zoning Act, the representatives of the Ministry stated as under:

"Sir, I will just say two things. One is that yes there have been consultations with the States. The concerned Secretary, Water Resources has been constantly writing to the States saying please notify the Flood Plain Zoning Act and please also demarcate your flood zones. We have also felt the need to update the model Act. The CWC has been undertaking an exercise to update the model Act which has been completed. We are now ready to move into another round of consultation with the States.

The other thing that is happening and I could share it with this Committee is that we are going for Cabinet approval for the next phase of the Flood Management and Border Areas Programme. For that, now the condition for any State to access resources under the FMBAP will be that the State must have enacted the Flood Plain Zoning Act. So, you will not get money under FMP if you have not enacted the Flood Plain Zoning Act. This is the Cabinet Note that has been circulated and we hope that we will get approvals for it immediately."

## PART II

### OBSERVATIONS/RECOMMENDATIONS OF THE COMMITTEE

#### INTRODUCTORY

Consequent to the sifting of all the information and documents available before the Committee in regard to the examination of the subject, they have come to certain observations/recommendations/inferences which are brought out in the succeeding paragraphs of this part of the Report.

The Committee find that out of the total geographical area of 329 million hectares in India, about 45.64 million hectares is flood prone. Floods are a recurrent phenomenon, which cause huge loss of lives and damage to livelihood systems, property, infrastructure and public utilities. The Performance Audit on Schemes for Flood Control and Flood Forecasting revealed that there were long delays in approval of Detailed Project Reports leading to technical designs becoming irrelevant at the time of actual funding. The Committee also find that Flood management works were not under taken in an integrated manner covering entire river/tributary or a major segment of rivers/tributaries. There were evident delays in completion of the projects under Flood Management Programme. A large number of the telemetry stations installed during the XI plan remained non-functional. Consequently, real time data for most of the period was not available. There exist instances of financial mismanagement like parking and diversion of funds. Moreover, several States/UTs have not enacted the Flood Plain Zoning Act. The heading wise observations and recommendations are discussed and given below.

#### IMPLEMENTATION OF FMP

1. The Committee note that under the Flood Management Programme (FMP), critical flood control and river management works are covered across the country. These works include river management, flood control, anti-erosion, drainage development, anti-sea erosion, flood proofing works, in addition to flood prone area development programmes in critical regions, restoration of damaged flood control/management works etc. In view of the dynamic topography of a

large country like India, where there is drought like situation in certain areas and excess of rainfall and flood or flood like situation in another region concurrently, the Committee opine that efficient implementation of the Flood Management Programme (FMP) would be of utmost importance in not only mitigating flood situations but also recharging the ground water level in the region. To achieve this, the Committee are of the view that, wherever feasible, a series of measures to efficiently manage and tackle excess rain water, should be taken across the flood plains of affected rivers during the rainy season. The Committee, therefore, in no uncertain words recommend that the Ministry, in close coordination with State Governments, may look into and put in place successful practices of excess water management as well as water conservation in the country and abroad and emulate the same in flood prone areas across the country.

#### PREPARATION OF DETAILED PROJECT REPORTS

2. The Committee also note that besides non-preparation of Preliminary Project Reports/Detailed Project Reports (DPRs) in accordance with the FMP scheme guidelines by 8 States, including West Bengal, there were huge delays in completion of FMP works ranging from 10 months to 13 years due to delay in approval of DPRs, leading to technical designs becoming irrelevant or obsolete at the time of actual funding. In response, the Ministry have stated that now-a-days DPR for flood management projects are submitted online through e-PAMS and are prepared as per the guidelines of Central Water Commission. Further, the appraisal by Advisory Committee of the Ministry ensures that only techno-economically sound proposals are included under the FMP for funding. The Committee feel that the reasons for non-preparation or delay in submission of DPRs by the non-compliant States should be identified to make the existing system more effective and also to ensure that no FMP Scheme work should halt due to the absence of a Detailed Project Report. The Committee also desire to be apprised of the details regarding the number of DPRs submitted and approved through the e-PAMS till date. While seeking such comprehensive details, the Committee would like to be apprised whether the timelines for submission of DPRs have now improved and scrupulously adhered to or these lacunae have

surfaced again. The Committee also recommend that e-PAMS should be strengthened by ensuring strict compliance of the FMP guidelines.

3. As regards the deficiencies in preparation of DPRs by the State of West Bengal, the Audit found that FMP works were not taken up in an integrated manner. Further, project booklets of some FMP works did not contain any meteorological data, survey of soil, socio economic benchmark survey, water logging, salinity and drainage and engineering survey. It also did not contain details of the sections of population that would be benefitted by implementing these projects. Moreover, DPR for the long term measures, to suggest remedial measures to prevent further breaches in embankments and consequent flooding of areas, was to be prepared by February 2010. In addition, it has come to light that the Department did not prepare (March 2016) DPR of long term measure due to poor progress of short term measures (re-construction of embankments). The Committee desire the Ministry and the State Government to furnish a detailed note on the action taken by them to address the concerns of the Audit. The Committee would also like to be apprised of the outcome of the FMP works taken up and also the remedial measures taken for ensuring timely implementation of short term measures so that DPR of long term measure are prepared as per FMP guidelines.

During oral evidence, the Committee, pointing out that 42% of the total geographic area of the State of West Bengal is susceptible to floods, causing soil erosion and inundation, sought to be apprised of certain details like the quantum of funds allocated and its utilization for management of floods, findings of ground truth verification of satellite imageries of flood prone areas, enactment of Floodplain Zoning Act, installation of rain gauge stations, etc. in the State consequent upon Audit observations. The Committee, however, note with concern that the requisite information from the State Government is still awaited. The Committee, taking exception to the indifferent attitude of the State functionary in this regard, direct the Ministry to impress upon the State Government to be more sensitive and responsible while furnishing the requisite

information to the Public Accounts Committee as without detailed information, the Committee cannot arrive at objective and logical conclusions.

#### SUBMISSION OF UTILIZATION CERTIFICATES (UCs)

4. The Committee note that Flood Management Programme (FMP) guidelines issued by the Ministry *inter alia* stipulate timely submission of Utilisation Certificates (UC) by the States/UTs for release of subsequent installments of funds. The Committee note from Audit observation that five States, namely Assam, Bihar, Odisha, Uttarakhand and West Bengal had not submitted UCs for funds amounting to Rs. 182.82 crore during the period from 2007 to March 2016. There were also cases of delay in submission of UCs which led to non-release of subsequent installments by the Ministry. While expressing surprise over the manner the Ministry released the funds without ensuring the veracity of the demand raised by the States, the Committee would like to place on record that the Ministry has been lax in following the FMP guidelines. For ensuring transparency and efficiency in the implementation of any project, timely submission of UCs is a pre-requisite. The Committee, therefore, while impressing upon all the States/UTs to invariably submit UCs through PFMS, a web based integrated system for processing payments and for tracking, monitoring, accounting, reconciliation and reporting of all receipts and expenditure of the Government of India, the Ministry also need to ensure that UCs are submitted/uploaded in a timely manner so as to facilitate constant monitoring of progress of project work and also aid the Ministry to ascertain the rationale of demand for funds put forth by the States/UTs before release of subsequent instalment of fund.

#### PARKING OF FUNDS

5. The Committee learn that an amount of Rs.171.28 crore in six projects in five States (Bihar, Himachal Pradesh, Jharkhand, Uttar Pradesh and West Bengal) ~~were not utilised and remained parked with the executing agencies for periods~~ ranging from 15 months to more than 60 months. In the opinion of the Committee,

parking of funds with the executing agencies for such a long period would imply absence of any concrete mechanism to monitor flow of funds and utilization of funds by the States/UTs and its executing agencies. The Committee can see that not ensuring timely submission of UCs by the States/UTs, only compounded the issue of idle parking of funds. Since the Ministry released the funds without ensuring the actual expending by the States/UTs, the Ministry failed to verify the parking of funds and taken necessary action for adjustment in the subsequent instalments. The Committee, therefore recommend that the Ministry should strictly monitor the PFMS system to keep track of the flow of funds and submission of UCs/expenditure receipts by the implementing agencies to ensure that sanctioned funds do not remain idly parked for prolonged period.

#### DIVERSION OF FUND

6. The Committee note that the terms and conditions governing grant of funds during XII Plan (2012 to 2017) under the scheme stipulated that funds should be utilised for the purpose for which they were released and no part of it was to be diverted. However, the Committee note from the findings of Audit that funds amounting to Rs.36.57 crore in six projects in three States were diverted by the implementing agencies for works that were not approved in the Detailed Project Report (DPR) which led to under expenditure of funds on the approved projects and irregular expenditure on works not included in the scope of the approved projects. In this regard, the Ministry had stated that States/UTs will be impressed upon to adhere and comply with the terms and conditions of Scheme. While taking note of this fact the Committee would like to have details of the basis and also the details of the authority under whose consent, funds were diverted. The Committee would also question the effectiveness of the internal audit mechanism of the Ministry as it had failed to detect blatant mismanagement of funds. In light of the fact that the States/UTs have paid scant regard to the guidelines of the Scheme as regard to utilization of funds as per approved DPR, the Committee are of the considered view that the Ministry should not be ~~contented with merely issuing guidelines/directions to the States/UTs, but it~~ should ensure scrupulous compliance of the same. By diverting funds which



were allocated for specific purpose, the objectives of the Scheme was defeated as diversion of funds resulted in lesser expenditure on the approved projects and irregular expenditure on works not included in the scope of the approved projects. In view of the fact that lesser expenditure of funds lead to delay or incompleteness of approved projects, the Committee recommend that the Ministry should pursue States/UTs to ensure that funds are not diverted and penal action be taken against officials responsible for diversion of funds. This would result not only accomplishing the completion of the project in a timely manner but would also act as a deterrent for those responsible for such decisions. The Committee would like to be apprised of the concrete action taken in this regard.

#### INTEGRATED IMPLEMENTATION OF FMP

7. The Committee note that in eight States there was no integrated approach in identification of flood management works under the FMP. In this regard, the Ministry submitted that flood management and anti-erosion projects are formulated and implemented by concerned State Governments from their own resources as per their priority. The Ministry supplements the efforts of the States/UTs by providing technical guidance and also promotional financial assistance for management of floods in critical areas. Moreover, projects which are consistent with river basin master plan, prepared and approved by the State Technical Advisory Committee (TAC) are appraised by Central Water Commission (CWC) and only projects, formulated in an integrated manner, are included in the FMP Scheme. The Committee opine that the CWC and the Ministry should play a bigger role in the whole process of identifying and implementation of flood management works and anti-erosion projects. The Committee are of the view that in addition to providing technical guidance and financial assistance, the Ministry and CWC need to also play the role of a coordinator when multiple States/UTs are involved while identifying and implementing flood management works, anti-erosion projects so as to ensure formulation of wholly integrated FMP projects. The Committee further opine that projects under FMP Scheme need to be ~~implemented in an integrated manner with simultaneous works on water~~ management, water conservation, enhancement of ground water, physical

planning, land use, agricultural needs, nature conservation related activities etc. The Committee, therefore, recommend that the Ministry and CWC also play a proactive active role in identification and formulation of common flood management works, both structural and non-structural projects in close coordination with States/UTs and implementing agencies at all levels so as to mitigate the causes and risks of flood situations on one hand and conserve the environment on the other. Taking into consideration the ground realities and specific requirements of different States/UTs, the Committee also recommend that the Ministry and CWC should involve and seek inputs of all stakeholders while updating FMP guidelines, sanctioning project work etc. so as to ensure efficient implementation of projects based on the customised need of the region

#### FLOOD FORECASTING

8. The Committee learn that flood forecasting was not undertaken in some States due to lack of sanction for the scheme, absence of request from States/UTs etc. The Committee also note several deficiencies in flood forecasting activities like non-functional telemetry stations, non-availability of real time data etc. Moreover, CWC had not depended on telemetry data and relied on manual data even after investing in modernization of telemetry station network, thus defeating the purpose of establishment of telemetry equipment for meeting the requirement of real time data collection and its transmission. The Committee view that flood forecasting activities constitute the non-structural but inevitable aspect of flood management and has been recognized as an effective tool for flood management by providing advance warning to the flood prone areas. It is a proven fact that timely warnings in this regard mitigates the human and property losses in the areas where the flood occurs. The formulation of a forecast requires effective means of real time data communication network between the forecasting station and the base station. Telemetry equipments are installed at flood forecasting stations to enable collection and transmission of automatic real time data, automatic formulation of flood forecast and expeditious dissemination of data for enabling concerned agencies to undertake mitigation measures for reducing the risk of disasters from flood. The Committee, therefore, recommend

that flood forecasting activities and measures should be prioritized and concerned States/UTs be impressed upon to enhance the budgetary allocation on flood prevention activities, flood preparedness measures and flood proofing activities etc. by adopting the latest and best technological equipments, remote sensing apparatus, Geographic Information System (GIS), for accurate flood forecasting and timely dissemination of warnings to minimize loss of life, flora and fauna and property and environmental destruction in the event of floods.

#### INSTALLATION OF TELEMETRY STATIONS

9. The Committee note that installation of telemetry system has been completed at all stations except for three stations, namely, i) Khanabal under Chenab division due to court case since 2018, ii) Sara Thang and iii) Dambong under Gangtok due to non clearance from Forest Department since 2017. According to the Ministry, regarding Khanabal, under Chenab division, an alternate location has been identified and installation of telemetry system would commence soon. In respect of telemetry installation at Sara Thang and Dambong stations, the Ministry are pursuing the matter with the concerned Department of the State Government of Sikkim.

Noting that an alternate location has since been identified for installation of telemetry system in place of Khanabal under Chenab division, the Committee fail to fathom the reason for the delay in installation of the same. With regard to telemetry stations to be installed in Gangtok, the Committee feel that there has already been inordinate delay of seven years due to non-clearance from Forest Department. Emphasising the importance of telemetry stations in collection and transmission of automatic real time data, automatic formulation of flood forecast and expeditious dissemination, the Committee desire that earnest effort should be taken for installation of the telemetry systems in Sikkim in a time bound manner so as to enable concerned agencies to undertake mitigation measures for reducing the risk of disasters from flood based on the data made available by these stations. The Committee also recommend that inspections and maintenance activities of all installed telemetry systems across the country

should also be undertaken at regular intervals. While not oblivious of the fact that the diverse topography of a country like India and the uncertain nature of natural calamities and its aftermath, the Committee further recommend that in addition to installation of telemetry systems, the Ministry need to put in place an infallible system and a comprehensive action plan for worst case scenarios and improving quick response measures during floods.

#### RECOMMENDATIONS OF REVIEW AND OVERSIGHT COMMITTEES ON FLOOD CONTROL MEASURES

10. The Committee note that the Government of India (GoI) has set up various committees for management of flood, such as Rashtriya Barh Ayog, Task Force 2004, Working Group on Water Resources for XI and XII Plan, etc. GoI has also framed National Water Policy (2012) to govern the planning and development of water resources and their optimum utilization. The reports of the above committees/policies contain certain recommendations for management of flood in time bound manner. Audit scrutiny revealed that the recommendations of Rashtriya Barh Aayogh with regard to identification of area affected by flood in the country remained unfulfilled.

In most of the States the scientific assessment of flood prone areas was not carried out. Non-preparation of Digital Elevation Models led to non-demarcation of various flood zones in the country digitally and absence of scientific images of the food affected areas. Morphological studies with a view to achieving better results in building, renovating and maintaining revetments, spurs and embankments to control and mitigate disasters caused by floods were not completed by any of the 17 States/UT. None of the States/UT sampled in audit had prepared Comprehensive Master Plans(CMP) for flood management. Six severely flood affected Ganga basin States did not constitute Implementation Committees for time bound implementation of the recommendations of the CMP for management of floods. As regards the audit observation and the initiatives taken by the Ministry for implementation of the recommendations of the review and ~~oversight committees on flood management, the Committee note that the Ministry~~ while furnishing their replies have chosen to be silent. The Committee while

expressing their displeasure over the indifferent attitude adopted by the Ministry, desire that a detailed note on the status of implementation of recommendations of the review and oversight committees constituted by the Government and consequent observations by the Audit is furnished to the Committee without any further delay.

#### ENACTMENT OF FLOOD PLAIN ZONING ACT

11. The Committee note that CWC circulated a Model Bill on Flood Plain Zoning to all the States in 1975 for guidance of States for enactment of legislation in this regard. The Model Bill provided model clauses about flood zoning authorities, surveys and delineation of flood plain area, notification of limits of flood plains, prohibition or restriction of the use of the flood plains, compensation and power to remove obstruction after prohibition.

The Committee also note that only four States namely, Manipur, Rajasthan, Uttarakhand and the erstwhile J&K have adopted the model bill and enacted the Flood Plain Zoning Act. According to the Ministry of Jal Shakti, the Department has been constantly communicating with the State Governments to notify the Flood Plain Zoning Act and demarcate the flood zones. In a subsequent reply, the Ministry informed the Committee that the Central Water Commission had updated the model Act and the Ministry will move into another round of consultation with the States. The Ministry added that it will be seeking cabinet approval for the next phase of the Flood Management and Border Areas Programme (FMBAP). Under the programme, States have to enact the Flood Plain Zoning Act to avail funds under the FMP. Hoping that the Central Water Commission have addressed the concerns of these States/UTs while updating the model Act, the Committee desire to be apprised of the outcome of the Cabinet Note initiated in the matter. The Committee recommend that the Ministry impress upon all States/UTs to involve all stakeholders in the process of enactment of the Flood Plain Zoning Act so as to ensure enactment of a comprehensive Act, not only on the basis of specific requirements of each States/UTs but also with necessary provisions to deal with the issue of encroachment of floodplains.

**EXPERT COMMITTEE FOR COMPREHENSIVE PLANNING**

12. The Committee note that serious flood situations and massive destruction in the wake of floods continue to persist year after year across the country despite the flood forecasting and flood management measures/works taken by the Ministry and CWC. The Committee, expressing dissatisfaction over the effectiveness of the existing flood forecasting and flood management measures, opine there is an urgent need to further ameliorate the flood forecasting and flood management system in the country. Keeping in mind the dynamic topography of the country and the specific requirement of different States/UTs in the implementation of flood forecasting and flood management works, the Committee recommend that an Expert Committee, consisting of experts/scientists, like geologists, environmentalists, meteorologists, seismologists, ecologists, etc. need to be constituted so as to prepare a comprehensive action plan in collaboration with States/UTs to enhance flood forecasting and flood management programmes and activities in the country and to improve the quick response system.

It goes without saying, here, that constitution of such Expert Committee does not remain merely an 'on paper exercise' but the Action Plan so prepared should be implemented effectively and the tangible results should be seen on the ground.

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NEW DELHI  
20 April, 2024  
31 Chaitra, 1946 (Saka)

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Chairperson,  
Public Accounts Committee