

**Report on the outcome of the Workshop
Held on 14th June, 2016
To discuss on the findings of the study titled
'Flood Damage Mitigation Measure for Barak Valley
In South Assam including effects of Climate Change'**

1. Introduction:

Assam State Disaster Management Authority (ASDMA) had conducted a study "Flood Damage Mitigation Measures for Barak Valley in South Assam, including Effects of Climate Change" in collaboration with National Institute of Technology, Silchar. Moreover NIT, Silchar had partnered with IIT, Guwahati for undertaking the climate change component for the project. The final report of the study was submitted in the year 2014. The report comprised of study findings along with suggestions, short and long term for flood mitigation measures in Barak Valley. To take forward the study findings, the executive summary along with short and long term solutions were submitted to the concerned Departments viz. Water Resources Department, Soil Conservation Deptt, Agriculture Department, Department of Environment, Forest & Climate Change and Inland Water Transport Department for taking necessary action.

To review and understand the actions taken by concerned department in this regard, ASDMA organized a half-day workshop on 14th June, 2016 at ASDMA Conference Hall where the findings of the study were presented by Prof P.S. Choudhry, Civil Engineering Department, NIT, Silchar and also discussed suggestions regarding the implementation of the same. ASDMA also presented regarding the short & long-term goals and highlighted department-wise modalities in its implementation. The workshop was attended by 34 officials from various concerned departments and participated in the group discussion held to take stock of the actions taken and explore the strategy for future planning that would be helpful towards mitigation of flood in Barak valley.

2. Study Objectives:

- Assessment of existing flow capacity for different Channels in the basin
- Assessment of effectiveness of existing embankments in the study area.
- Improvement works for lateral channels and natural reservoirs
- Investigation of sediment load in the river system and erosion potential for different sub catchments
- Evaluation of impacts of flow from upstream catchments on downstream flood flows
- Development of an improved flood forecasting tool for the study area incorporating flow contribution from gauged and ungauged catchments
- Evaluation of effects of climate change on flood flows in the river system.

3. Workshop outcome:

Based on the presentations made by the Prof P.S. Choudhury, NIT Silchar & ASDMA and the points highlighted (including actions taken so far) during Group Discussions are listed District-wise against the project findings as below:

3.1 Study Findings:

3.1.1 Karimganj District:

- Erosion on Left Bank of River Kushiyara at Haritkar, Jobinpur, Deopuretc and Right Bank of River Longai at Morangaon, Koncharchat.
- Water Logging occurs in Karimganj Town Nilambazar during high stages in River Kushiyara.
- Sluice Gate over ChuriaJhumjhum channel near village Muraurein not functioning properly.

3.1.2 Hailakandi District

- In River Katakhal existing Sluice Gates are not functioning making the flood damages near these area further complicated.
- In AshiaBeel, water logging occurs due to blockage in JitaNadi creating flood congestion.
- Dykes from Matijuri to Ratanpurghat (H=1m, W=2m) and from Ratanpurghat to Mohanpur (H=2m, W=2m) are mostly in good condition but breaches are seen in some places.

3.1.3 Cachar District

- Drainage congestion in the southern part of Silchar city and in the adjoining areas reducing the flow carrying capacity.
- Sluice Gates in Rangirkhari channel with outfall at Ghara River do not have sufficient draining capacity.
- In river Sonai, there is no embankment protection on the right side of the bank (approx. length of 3 km and 50 km from river Barak) causing flood damages.
- Jiri and Chiri are two major rivers joining Barak in the upper reaches have no embankment along the river reaches.

4. Group Discussion in workshop by concerned departments are:

4.1 Water Resources Department

4.1.1 Action taken up by Department regarding study finding.

Krimganj District

Kushiyara River

- a. Action already taken up in respect of anti erosion measures on left bank of river Kushiyara at Chandsrikona, Jobinpur, Jagnnathi and Shenulbag under SDRF during 2012-13. Rest of erosion reaches at Bakarshal, Deopur, Sadanashi, Laxmibazar area are in the process of preparedness of DPR/ MEMO for placing in the subsequent TAC (technical advising committee) meeting for central approval.
- b. Water logging in Karimganj town mostly depends upon the town drainage work which was constructed by town and planning department a few years ago. But subsequently it was observed that drainage system is not functioning successfully, so it needs further detailed investigation. Apart from this an additional sluice gate at Char-Bazar will also help partly in regulating accumulated water as well. A proposal in respect of construction of new sluice gate is being processed for recommendation of TAC.

River Longai:

- a. Raising and strengthening works along the bank of Longai river particularly at Morangaon area, Ptherkandi Bazar and Koncharghat are under execution and rest of the area like village Nalibari, katebari, Kolkolighat, khankar, Muraure, Bahadurpur, Salepur, Teogori, Charrarbazaretc on the right bank are also covered. The existing embankment on these area needs raising and strengthening including anti erosion works and accordingly proposals are being taken up for placing in the TAC meeting.
- b. New sluice gates at PWD colony, Kalibari area & village abdullapur and at Ganghai area are required to get rid of water logging and follow action being taken up by placing memo in the subsequent TAC.
- c. Sluice gates over ChuriaJhumjhum Channel also needs modernization & reconstruction and action are being taken up.

Cachar District

- a. D.C. Cachar district has certified a district level task force to act on a convergent action plan for removal of encroachment from the channel way of Rangirkhari and make the greater Silchar city free from drainage congestion of storm water. Subsequently inclusive for defining and fixing the channel way in the convergent action plan are also been put at that level.
- b. A separate proposal for removal of commercial & domestic garbage has been submitted, implementation will be taken up on approval. Restriction of further garbage dumping has also been requested for regulation by district administration.

- c. Silchar Municipal is likely to soon taken up improvement uses of the drainage channel longaikhal under a sanctioned scheme of Rs. 1.27 crore, as know.
- d. Restricting a height of 3.6 km of the Sunai river embankment from Chandpur to Kezidar is already in progress funded by NABARD RID-XX.
- e. A memo of estimate for sluice gate in Kandhigram is likely to be placed in the next TAC meeting.
- f. As river bank is at higher level mostly embankments are not essential in Jiri and Chiririver. However at the downstream reaches anti erosion works are required to be done.
- g. Badri left bank has already embankment system for 3.2 km lengthbetweenSonaimukh to Medhuremukh beyond which noembankment is required. Right bank area are high level, so flood affect is reached so far.Additionally construction of a major sluice with two opening is in progress and being completed soon under the deptt. This will provide relief to BadripurNeergram area from drainage congestion.

Hailakandi District

- a. Pola Sluice, Hatia Diversion sluice &Hatia Sluice, Lalatal Sluice has been repaired and now they are functioning well except the Pola sluice whose one shutter has been damaged in recent flood and matter has been taken up by mechanical wing for repairing immediately.
- b. There is a embankment portion on left bank and right bank Katakhal from Nutan bazar in Lala area uptoBoroitoli near Hailakandi town for which a proposal for construction of new embankment will be placed in the coming TAC meeting also river side work from Boroitoli to Narainpur bazar will be proposed in the next TAC meeting.
- c. A degrading and de siltation of JeetaNadi is currently in CWC shillong for techno-economic clearance. After approval the scheme will be taken up for execution.
- d. All the breaches have been plugged already.

4.1.2 Feasibility of suggestion from ASDMA:-

- a.Suggestion from ASDMA focused to be feasible like using Geotextile bag, Geo-tube, etc.
- b. Raising and strengthening of existing dykes, construction of additional sluice, repairing of existing sluice are feasible as proposed by ASDMA.

4.1.3 Suggestion incorporated to departmental Schemes:-

For preparation of the estimates under SDRF permission may be accorded for use of geo-bags and geo-sheets and also the embankment and river Barak should be encroachment free and follow up action may be taken up by civil Authority.

4.1.4 Action plan for implementation of the corrective measures and suggestions mentioned in the final study report for

- a. **Short term (1-2 years):-** flood drill, M&R contingency plan are taken up by Cachar and Karimganj Districts.All scheme suchas R/S work, anti erosion work, construction of sluice culvert are being taken up as a short and medium term proposal and these works are going on presently in our different site in Hailakandi Dist.
- b. **Medium term (3-5 Years):-** Erosion control bag, dumping, palisading etc.
- c. **Long term (Beyond 5 years):-** Anti erosion curves with boulder, wire netting, flood wall etc are taken up in Cachar and Karimganj dist.

4.2 Soil Conservation Department:

4.2.1 Action taken up by Department regarding study findings (Cachar, Hailakandi, Karimganj Dist.)

Under soil conservation department in Barak Valley 35 no. of IWMP (Integrated Watershed Management Programme) are in progress. The project area covered approx. 5000 hec.

The main objective of this project are:

- (i) Management of water body.
- (ii) Raising of ground water table.
- (iii) Checking of surface runoff.
- (iv) Minimizing of surface erosion.
- (v) Extension of green cover by means of plantation etc. that indirectly will support in mitigation of flood in Barak valley.

4.2.2 Whether the suggestion can be incorporated in the existing departmental schemes.

The measures suggest would be placed to department authority.

4.2.3 Action plan for implementation of the corrective measures and suggestions mentioned in the final study report for:

- (i) **Short term:-** Contour bunds, earthen field bund
- (ii) **Medium term:-** Construction of water harvesting structure.
Construction of Gully control project.
River training work such as spur, Boulderrevetment, check dam, plantation.

4.3 Environment, Forest and Climate Change Department:

4.3.1 Action taken up by Department regarding study finding:

- Plantation are taken up by Department.

4.3.2 Feasibility of the suggestion from ASDMA:

- Vegetative cover improvement and control of flow from upstream
- Shallow trenches
- Flood plain zoning
- Storage of water at different locations
- Check bunds
- Small check dams
- Sediment removal

4.3.3 Suggestion can be incorporated in the existing departmental scheme:-

- Vegetative cover improvement (RDF scheme, NTFP Assam Bikash Yojna)
- Soil moisture conservation (Mulching, Check bunds under NAP, NBM scheme)
- Forest village development scheme & entry point activity scheme (Check bunds, small check dam, dykes etc.)

4.3.4 Action plan for implementation of the corrective measures and suggestions mentioned in the final report:

a. Short term (1-2 Years) :-

- Soil binding and erosion control. Mulching and soil moisture conservation works.
- Raising of pasture, grass/sedges.
- Sylvi-pastoral system of raising vegetation.
- Contour plantation to control erosion and contour terracing.

b. Medium term (3-5 years):

- Shallow trenches and contour bunds.
- Storage of water for diversion into new area.

c. Long term (beyond 5 year):

- Construction of check dam.
- Hydel project to be taken in the Barak river & using power generation to pump the water from river into agriculture areas.
- Diversion of river Barak into Reserve forest area (after forest land diversion permission under F.C. act,1980) for storage of excess water, thereby reduce the excess flow of water in the river.
- construction of storage ponds
- Construction of minor dams to store and release water.

4.4 Agriculture Department:

4.4.1 Action taken up by Department regarding study finding:-

Agriculture department has not taken any action so far.

4.4.2 Suggestion can be incorporated in existing department schemes:-

Deptt may incorporate specific submergence tolerant variety at need base areas.

4.4.3 Action plan implementation of the corrective measures and suggestions mentioned in final study

- a. Short term (1-2 years) :** Introduction of large scale of Flood submergence tolerance variety Swanna sub-I, Ranjit sub-I, Gitesh under BGREi, NAEP, RKVY schemes
- b. Medium term (3-5 years):-** Seed production programme from Breedan seeds- Faendation seeds, Certified seeds under AAU/ Research org.
- c. Long term (Beyond 5 years):-** Integrated farming system model to compensate the loss of one crop by other crop, popularization of Fashal Beema yojna.

Conclusion:

Based on the survey works, field trips and laboratory works conducted to assess existing flow capacity of the channel systems, functioning of the sluice gates, status of existing embankments along the river courses, etc. in the three districts of Cachar, Karimganj and Hailakandi; suggestions & solutions are recommended for improving overall flood condition in the valley. Accordingly, concerned departments, mainly the Water Resources Department has taken actions in some of the areas suggested in the final report of the study like raising and strengthening of existing embankments, construction of new sluice gates, cleaning and blockage in the channel course to improve drainage of surface flow.

This workshop has helped the departments to devise a framework for future course of actions during group discussion session and also facilitated to explore the possibility to accommodate the suggestions in proposals for the regular departmental works. Moreover, as envisaged, long term planning for storage requirements, construction of new embankments, catchment treatment in the upper reaches of the river system, incorporation of new technologies, etc. are the vital issues for integrated flood mitigation in the valley.

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