Netherlands Commission for
Environmental Assessment

Review of the Preliminary Social and Environmental Strategic Assessment of the River Stabilisation Plan

Advisory report

BANGLADESH

28 September 2020
Ref: 7220

Advisory Report by the NCEA

Title	Review of the Preliminary Social and Environmental Strategic Assessment of the River Stabilisation Plan – Bangladesh Advisory Report
To	Bangladesh Water Development Board – Project Management Office PMO-FRERMIP
Attn	Md. Rafiqul Islam Choubey – Project Director
Request by	Md. Rafiqul Islam Choubey – Project Director
Date	28 September 2020
From	The Netherlands Commission for Environmental Assessment (NCEA)
Members of the working group	Ms M.W.J.A. (Tanya) van Gool, MSc – Chair Mr G.J. (Gert Jan) Akkerman, MSc- Expert river hydraulics Mr S. (Shaakeel) Hasan, PhD – Expert water, environment & climate Mr G.J. (Gert Jan) de Graaf, PhD – Expert fisheries and aquaculture Mr J.F. (Jeroen) Warner, PhD – Expert socio-economic issues Mr A.J. Kolhoff (Arend), PhD – Technical Secretary and Expert SEA and environmental issues
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Netherlands Commission for
Environmental Assessment

Md. Rafiqul Islam Choubey
Project Director
Bangladesh Water Development Board
Project Management Office PMO-FRERMIP
Dhaka
Bangladesh

Our reference: 7220/KH/LW
Enquiries to: A.J. Kolhoff
Direct phone no.: +3130 234 76 04

Date: 28 September 2020

Subject: Review of the Social and Environmental Strategic Assessment of the River Stabilisation Plan – Bangladesh

Dear Md. Rafiqul Islam Choubey,

On 6 November 2019, you requested the Netherlands Commission for Environmental Assessment (the Commission) to review the Social and Environmental Strategic Assessment (SESA) for the River Stabilisation Plan. It is my pleasure to submit herewith our advice for your comments.

I would like to draw your attention to the following main issues:

- Three years ago (1 March 2017) your predecessor Ms Aminul Haque requested the Commission to review the SESA (version July 2016). Since then, we have reviewed subsequent versions of the SESA report. We would like to acknowledge that the quality of the content of the SESA has improved progressively. Also, we conclude that good practice principles for especially the SESA process have not been totally met (and cannot be met anymore) as the River Stabilisation Plan that could have benefitted from the SESA is already finalised. Therefore, we appreciate that the fifth version of the SESA (April 2020) has been renamed as a “preliminary” SESA.

- SESA is a decision support tool, but I would like to emphasise that it can also be used as communication tool to inform and consult key stakeholders and representatives of affected groups of people during the implementation of FRERMIP. Therefore, I sincerely welcome the intention that the SESA will be updated once every five years, to support the

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5-yearly planning cycle for the development of the river Stabilisation Plan 2025-2030. Moreover, we welcome the follow-up to our recommendation to start developing a model that can be used to better facilitate communication.

- River stabilisation of a river system as large as the Jamuna-Padma-Meghna is new and a huge challenge. Adaptive management, based on increased knowledge, as proposed by FRERMIP, is in our view the most suitable approach in this situation. This requires however systematic monitoring and evaluation of the effects of the interventions. We therefore recommend setting up a monitoring and evaluation system that supports a process where the lessons learnt are applied in the development and implementation of the interventions.

Finally, the NCEA is willing and ready to provide support regarding training or advice to contribute to the quality of the next scheduled SESA.

Yours sincerely,

Tanya van Gool
Chair of the working group

Table of contents

1. Introduction

1.1 Brief description of the rationale of the initiative

The Jamuna-Padma-Lower Meghna river system is highly dynamic and has the third largest discharge of all rivers in the world. These rivers cause erosion of riverbanks, resulting in the loss of about 3,200 ha of land annually, forcing the movement and disruption or loss of livelihood of some 30,000 people (assuming 1,000 people/km2). A large number of these people migrate to urban centres where they form the majority of slum dwellers. In addition, frequent flooding events disrupt lives and livelihoods, rivers and distributaries are silting up continuously, leading to reduced navigability and drainage congestion, which affects agricultural productivity.

To tackle these problems the government of Bangladesh is developing a River Stabilisation Plan as well as a Regional Master Plan for the period until 2040. These plans are made within the framework of the ongoing ADB-funded Flood and Riverbank Erosion Risk Management Investment Program '2014-2023 (FRERMIP), implemented by the Ministry of Water Resources (MoWR) and the Bangladesh Water Development Board (BWDB). To guide the development of the River Stabilisation Plan and the Regional Master Plan, a Strategic Framework was developed, see section 1.2 for a brief description.

The subject of this review is the Strategic Environmental and Social Assessment (SESA) that primarily intended to support the development of the River Stabilisation Plan.

1.2 Brief description of River Stabilisation Plan, Regional Master Plan and Strategic Framework

River Stabilisation Plan

The objectives of the River Stabilisation Plan are as follows:

- A stabilised planform
- Land recovery in narrowed corridors
- Stable off take locations
- More stable and deeper dry season navigation channel

The approach of the River Stabilisation Plan for the period until 2040 is: long-term stabilisation of the main rivers between the Indian border in the north and the Meghna Estuary in the south over a 400 km-long stretch and narrowing the width of the active river corridor from presently on average 10-12 km towards on average 6-6.5 km in the Jamuna River and 8-10 km in the Padma River. In addition, this plan will focus on two additional strategic thrusts (see table 1, thrusts 6 and 7) but these are not yet elaborated. The identified objectives are planned to be achieved through the implementation of a strategic 25-year plan of approximately USD 7.3 billion (price level 2019) consisting of the following investments:

- realisation of about 220 km new river training works;
- up to 1,500 km2 of land that will be reclaimed, enough to settle at least 1.8 million people;
- a 350-meter wide navigable channel in the main rivers;

- restoration of five new distributaries.

The study area is formed by the river corridors of the Jamuna-Padma-Lower Meghna river system between the Indian border in the North and the Meghna Estuary in the south, see figure 1. The preparation of this plan includes the design of suitable interventions, incorporating and examining findings and results of relevant other studies and projects such as the Flood Action Plans (FAP), Capital Dredging Feasibility Study by BWDB (FSCD&SRMB), the Bangladesh Delta Plan 2100 (BDP2100) and the World Bank's *Riverbank Management Improvement Program (RMIP, 2015) upstream of Jamuna Bridge, and the feasibility study for FRERMIP (2014).*

The stabilisation approach will make use of the currently ongoing consolidation of the sediment balance in which the river morphology is tending to develop towards a more accentuated channel pattern, similar to the one observed in the 1970s, before the dramatic widening (from the 1970s to 2000) took place.

Regional Master Plan

The aim of the Regional Master Plan is to capture socio-economic and environmental value to Central Bangladesh, including Greater Dhaka Metropolitan Region and river stabilisation is a condition for this. The Regional Master Plan aims at providing an overall view on future interventions for sustainable and multi-use of the Jamuna-Padma-Lower and Upper Meghna river system by focusing on above mentioned six strategic thrusts.

The study area of the Regional Master plan is considerably larger than the study area of the River Stabilisation Plan (see Figure 1).

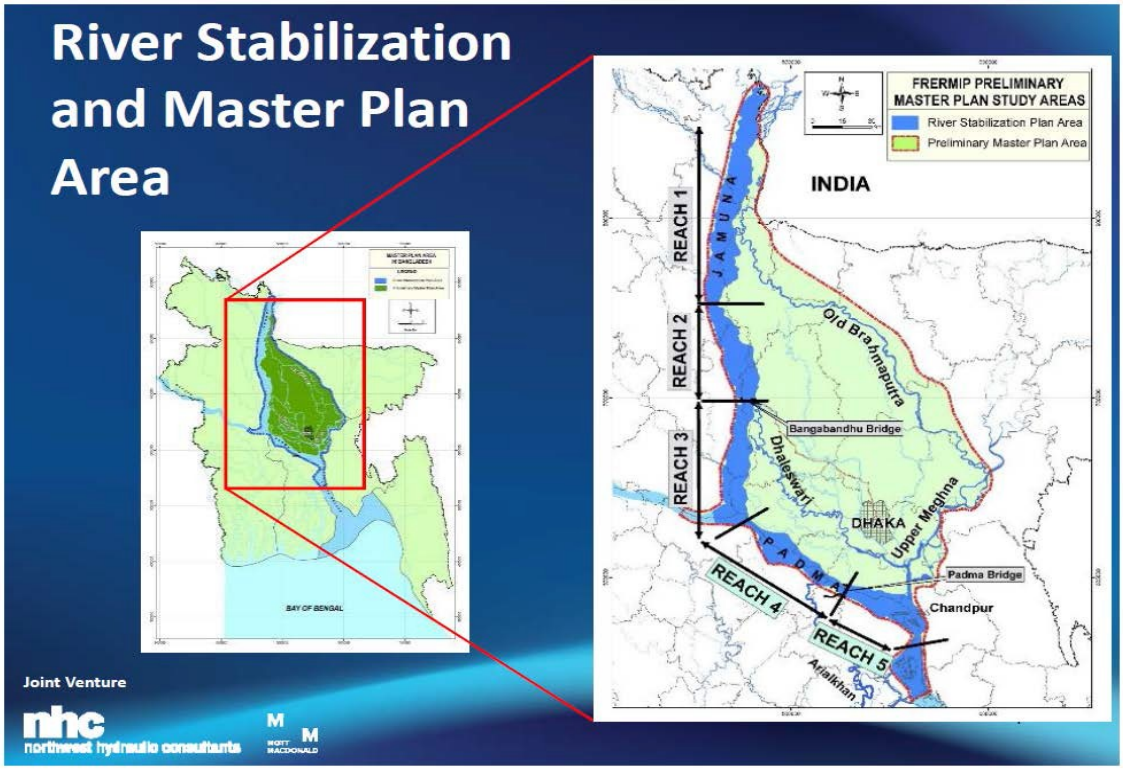

Figure 1: Study area of the River Stabilisation Plan and the (Regional) Master Plan.

Strategic Framework

The Strategic Framework aims to capture socio-economic and environmental value in the study area of the Regional Master Plan in the medium term (to 2040 and beyond) enabled and catalysed by 'hard' interventions to achieve river stabilisation (pre-dominantly until 2030). The framework is more river centric than catchment/ basin centric and emphasises the need for adaptation and flexibility. The strategic framework consists of six strategic thrusts that have and will be elaborated in respectively the River Stabilisation Plan and the Regional Master Plan, see table 1.

Table 1: Strategic thrusts listed in the Strategic Framework, elaborated in the River Stabilisation Plan and the Regional Master Plan

Strategic thrusts	River Stabilisation Plan	Regional Master Plan
1. Stabilising the river corridor	X	-
2. Land reclamation	X	X
3. Flood risk reduction	X	X
4. Navigation restoration	X	X
5. Distributary restoration	-	X
6. Increased land-based productivity	-	X
7. Environmental enhancement	X	X

1.3 Role of the Commission and justification of the approach

Request for this advice

The BWDB requested the Netherlands Commission for Environmental Assessment (hereafter referred to as 'the Commission') to review the quality of the *Strategic environmental and social Assessment (SESA) of the River Stabilization Plan and Development: Jamuna-Padma and Dependent Area for FRERMIP*, by two letters dated 1st of March 2017 and 6th of November 2019, see Annex 1a and 1b. Since March 2017, the Commission has reviewed five versions of the SESA. The characteristics of the reviews are briefly described in the next section.

The purpose of this advice is to review whether the SESA meets international good practice standards. The findings presented in this advisory report are the result of the review of the fourth and fifth version of the SESA (denoted 'hereafter' as SESA-4 and SESA-5).

A draft of this advisory report has been sent to the BWDB for comments on 8 May 2020. In September 2020, the BWDB responded to the draft report that it is clear, understandable and no comments concerning the content of the advice were raised. The final advice is published in September 2020. This final advisory report is publicly available on our website www.eia.nl. It is the intention that this report can be read as a standalone report by a relative outsider (a consolidated version of all reviews).

Brief description of the review process of five SESA versions

Review of first SESA report (Version 1)

The first version of the SESA report (July 2016) was reviewed in the period March-July 2017. This review was requested by the BWDB on March 1st, 2017 and resulted in a draft advisory review that has been submitted to the BWDB and ADB for comments on 21 July 2017. The Commission decided not to publish this draft advisory report for the following two reasons:

1. the SESA report was rather incomplete and the Commission considered it a preliminary SESA that did not meet international good practice standards yet, as agreed upon in the Kiev Protocol (2003); and
2. the BWDB stated that they would take note of all recommendations to improve the quality of the SESA report.

Review of second SESA report (Version 2)

The second version of the SESA report (December 2018) was reviewed in the period December 2018 – January 2019). Despite improvements, it was concluded that the quality still did not meet good international SEA practice. Therefore, we decided not to prepare and publish an advisory review report, instead we made an extensive list of recommendations. During two meetings in the first quarter of 2019, the Commission presented and discussed these recommendations with respectively the project director and his staff in Dhaka (January 2019) and with the lead consultant and the consultant responsible for the SESA in Utrecht (March 2019).

Review of third and fourth SESA report (Versions 3 and 4 respectively)

By letter dated 6 November 2019 (see Annex 1) the BWDB requested the Commission to review the quality of the SESA River Stabilization Plan and Development: Jamuna-Padma and Dependent Area for FRERMIP (September 2019). This was the third version of the SESA report that was reviewed in the period December 2019 – February 2020. In February 2020, the Commission was informed that the third version was under revision and on 3 March we received version 4 of the SESA report (March 2020). A draft advice in which the findings of the review of the SESA (version 4) are presented was submitted for comments to the BWDB on 31 March 2020. This draft advice has not been made public. The BWDB informed the Commission they will adjust SESA-4 and prepare a next version of the SESA report.

Review of fifth SESA report (version 05)

April 11, 2020 the NCEA received the revised draft of the SESA report following comments & recommendations in the draft advice by the NCEA (31 March 2020):

- *Preliminary Strategic Environmental and Social Assessment for River Stabilization and Development: Jamuna-Padma and Dependent Areas (hereafter referred to as SESA), within the framework of FRERMIP Project-1*; 6 April 2020, Version 5.

In June 2020, the final SESA report (identical to SESA version 5) was approved by the BWDB and the report is available on the FRERMIP website ….

Review framework and additional documents

For the review of the SESA report, the Commission made use of:

1. international SEA good practice as described in the Kiev Protocol[1] as a reference framework; and
2. its long-term practice experience in reviewing SESAs by applying the following review criteria: completeness of the information, quality of the information and relevance of the information for decision making.

The Terms of Reference for the SESA provided by the ADB (p. 8 of the SESA report version 1 July 2016) have not been used as a reference framework, because the Commission

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[1] Protocol on Strategic Environmental Assessment to the Convention on Environmental impact Assessment in a Transboundary Context, Kiev, 2003.

considered those as very generic. SESA legislation has not been developed in Bangladesh yet, so this could not be used as reference framework either.

In addition, the following documents have been read to better understand the SESA report:

- *FRERMIP; Strategic Framework; Stabilization and development value capture: Jamuna-Padma-and dependent areas*; November 2016.
- *FRERMIP; Site selection and initial economic assessment. Flood and riverbank erosion risk management investment program – project 2*, May 2017.
- *FRERMIP; Technical Note No. # (not numbered yet). Long-term effects of river narrowing on water levels.* Draft report, June 2016.
- *FRERMIP; River Stabilization and development: Jamuna-Padma and dependent areas. Final draft;* 5 February 2020.

Expert working group

This advisory report has been prepared by a working group of experts:

- Ms M.W.J.A. (Tanya) van Gool, MSc – Chair
- Mr G.J. (Gert Jan) Akkerman, MSc- Expert river hydraulics
- Mr S. (Shaakeel) Hasan, PhD – Expert water, environment & climate
- Mr G.J. (Gert Jan) de Graaf, PhD – Expert fisheries and aquaculture
- Mr J.F. (Jeroen) Warner, PhD – Expert socio-economic issues
- Mr A.J. Kolhoff (Arend), PhD – Technical secretary and expert SEA and environmental issues

The Dutch Ministry of Foreign Affairs has funded the preparation of this advisory report under a multi-annual agreement with the Commission to provide such services in a selected number of countries, including Bangladesh.

Reading guide

The structure of this advisory report is as follows: after the present introductory Chapter 1, Chapter 2 presents the main findings of the review of the SESA report version 4 and version 5.

2. Main review findings of the SESA

2.1 Introduction

On 1 March 2017, the BWDB asked the Commission to review the first version of the SESA report (published in July 2016) and it was recommended to adjust the report. This process was repeated when the Commission reviewed SESA version 2 in the period December 2018 – January 2019). The review findings of SESA version 1 and 2 were shared with the BWDB but the advisory report was not made public because the BWDB stated that they would respond to the recommendation in a new version of the SESA. In the period January – March 2020 the Commission has reviewed SESA version 3 and 4 (SESA-4). The review findings and recommendations were presented in a draft advisory report that was submitted to the BWDB on 31 March 2020. The main conclusion and recommendations of this advice are presented in section 2.2 and further elaborated in Annex 2. Based upon the recommendation in this advice the BWDB made SESA report version 5 (SESA-5). In section 2.3 the Commission presents its review findings of SESA-5 focussing on how the recommendations made in the draft advisory report (31 March 2020) were applied in SESA-5.

The Commission acknowledges the pioneering status of the SESA work by the BWDB and noticed that despite the critical reviews, the quality of SESA improved step by step and the added value was increasingly recognised. Therefore, the Commission would like to compliment the BWDB that they decided to update the SESA supporting the update of the River Stabilisation Plan as part of the five-year planning cycle during the implementation of FRERMIP until 2040.

2.2 Main review findings SESA-4 and recommendations for SESA-5

In the review of the SESA, the Commission makes a distinction between an assessment of the process and the content of the SESA.

SESA process

The Commission concluded that the SESA good practice requirements concerning the process, according to the SEA Kiev Protocol (2003) were not met. This has been acknowledged by the writers of the SESA. The main reason why SESA-4 did not meet international good practice is that the purpose identified in SESA-4 is too narrowly defined. The purpose is defined as:

- to provide initial information on potential impacts from a social and environmental view;
- to inform involved stakeholders about potential impacts resulting from or associated with implementation of potential river stabilisation.

According to SEA good practice, the purpose of SESA is:

- to provide a tool to support and improve strategic planning and decision-making by justifying proposed decisions from the point of view of sustainable development;
- to complement strategic planning by helping to integrate environmental issues into the plan, evaluate their interlinkages with economic and social issues and facilitate a public and governmental dialogue on these issues.

This means that the purpose as defined in SESA-4 was too limited compared to the purpose of good practice SESA. This was in our view a lost opportunity that could not be remedied because the River Stabilisation Plan had already been finalised (February 2020).

In SESA-4 a five-year planning cycle was identified for the implementation of the works, allowing for adaptation of planning decisions to be made on the basis of increased knowledge and experience from previous project implementation stages (according to the Adaptive Delta Management approach). In harmony with this five-year cycle, the intention is to update the SESA accordingly. Consequently, the River Stabilisation Plan that will be adjusted five- yearly can then benefit from an update of SESA that does potentially meet SESA good practice process requirements.

The Commission recommended (1)
Addressing SESA-5 as a preliminary SESA, because SESA-4 did not meet good practice requirements of the SEA process yet. The term 'preliminary' should be reflected in the title of the next version of the SESA report.

Content of the SESA
The Commission concluded that for nine issues, especially regarding socio-economic risk and impacts, information was still not adequately addressed and therefore recommendations were provided on (see Annex 2 for more information):

- scenarios - sediment load and discharge (response to uncertainties);
- phasing of interventions;
- baseline;
- impact assessment approach;
- flood risk reduction;
- recovery of lost floodplain;
- water based productivity – fisheries;
- resettlement action plans, compensation measures & use of reclaimed land;
- risk assessment, monitoring, evaluation and capacity.

The Commission recommended (2)
Developing a brief action plan on how the identified gaps in knowledge and information, and recommendations, will be dealt with in the coming years and how the development of the next SESA 2025-2030 will be designed and aligned with the update of the River Stabilisation Plan 2025-2030 to meet SEA good practice requirements. This action plan should become part of *Chapter 7. Next steps of the preliminary SESA* (next version of the SESA report). This means that the Commission does not expect that identified gaps in knowledge and information as described in Chapter 3 and 4 will be remedied in the next version of the SESA report.

2.3 Main review findings SESA-5 and recommendations

In the review of the SESA, the Commission makes a distinction between an assessment of the process and the content of the SESA.

SEA process

The Commission concluded that the SESA good practice requirements concerning the process, (Kiev protocol 2003) have not been met. The Commission noticed that the BWDB followed the recommendation to change the title of the report into preliminary SESA. A preliminary SESA however, does not aim to achieve good practice requirements and it reflects that this SESA, in particular concerning process requirements, needs be improved to meet good practice.

Recommendation: To ensure the next SESA (2025-2030) will meet good practice SEA requirements, it is important to acknowledge that a legal SESA procedure needs to be started. If at the start of the update of the SESA, for example in 2023, Bangladesh does not have a legal SESA procedure yet , a specific (ad hoc) SESA procedure needs to be designed that can partly follow the legal EIA procedure of Bangladesh. The preliminary SESA (version 5) needs to be made publicly available.

Content of the SESA

The Commission concludes that SESA-5 acknowledges that the following issues, especially regarding socio-economic risk and impacts were not adequately addressed:

- scenarios - sediment load and discharge (response to uncertainties);
- phasing of interventions;
- baseline;
- impact assessment approach;
- flood risk reduction;
- recovery of lost floodplain;
- water based productivity – fisheries;
- resettlement action plans, compensation measures & use of reclaimed land;
- risk assessment, monitoring, evaluation and capacity.

In SESA-5 these gaps in knowledge and information have been recognised and an action plan has been included, as recommended by the Commission. This action plan describes how the identified gaps in knowledge and information will be dealt with in the coming years so the information is available when the SESA 2025-2030 will be prepared.

Annex 1A: Request by BWDB dated 1 March 2017

বাংলাদেশ পানি উন্নয়ন বোর্ড

Bangladesh Water Development Board

Project Management Office: PMO-FRERMIP
Flood and Riverbank Erosion Risk Management Investment Program
Firoz Tower (12th Floor).
152/3/B, Bir Uttam Nuruzzaman Road,
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Tel: 880-2-9141691, Fax: 880-2-9141887
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প্রকল্প ব্যবস্থাপনা দপ্তর :পিএমও-এফআরইআরএমআইপি
ফ্লাড এন্ড রিভার ব্যাংক ইরোশন রিস্ক ম্যানেজমেন্ট ইনভেস্টমেন্ট প্রোগ্রাম
ফিরোজ টাওয়ার (১৩ তলা),
১৫২/৩/বি, বীর উত্তম নুরউজ্জামান রোড,
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ফোনঃ ৮৮০-২-৯১৪১৬৯১, ফ্যাক্সঃ ৮৮০-২-৯১৪১৮৮৭
ই-মেইল: pdjmremp@gmail.com

Memo no: PMO-FRERMIP/E-4/172 01 March 2017

To
Mr. Arend Kolhoff,
Technical Secretary International Cooperation,
Netherlands Commission for Environmental and Social Assessment,
P.O. Box 2345,
NL 3500 GH UTRECHT,
The Netherlands.

Subject: Request for reviewing and conducting training program for BWDB officials on Strategic Environmental and Social Assessment (SESA) of River Stabilization Plan under "Flood and Riverbank Erosion Risk Management Investment Program" (L3138(SF)/G0396-BAN).

Reference: E-mail of Senior Adviser, Water Management, Embassy of the Kingdom of the Netherlands, dated 23 February 2017.

Dear Sir,

With reference to the above mentioned memo, I like to inform you that the project "Flood and Riverbank Erosion Risk Management Investment Program (FRERMIP) -Tranche-1" has started its implementation from April/2014 with the financial assistances of ADB & GoN under BWDB. As a part of implementation of the FRERMIP, a number of intervention have been planned to execute in three Tranches, whereas Tranche-1 is already being implemented. BWDB engaged a consulting firm named Northwest Hydraulic Consultants (NHC) in association with Mott MacDonald for consultancy services for preparation of Strategic Environmental and Social Assessment (SESA) of River Stabilization Plan. I would like to request you to review the submitted Strategic Environmental and Social Assessment (SESA) of River Stabilization Plan.

You are also requested to organize training program on SESA instrument for BWDB officials.

Thanking you,

01-03-17

(A.M. Aminul Hoque)
ID No. 620101007
Addl. Chief Engineer/Project Director.

C.C.:
1) Additional Director General (Planning), BWDB, Dhaka.
2) Chief Planning, BWDB, Dhaka.
3) C.S.O to Director General, BWDB, Dhaka.
4) Country Director, Asian Development Bank, BRM, Dhaka. (Attn: Mr. Zahir Uddin Ahmad, Project Implementation Officer, ADB).
5) Cindy Malvicini, Principal Portfolio Management Specialist, SAER, ADB, Manila, Philippines.
6) A.T.M Khaleduzzaman, Senior Adviser, Water Management, Embassy of the Kingdom of the Netherlands.

Annex 1B: Request by BWDB dated 6 November 2019

বাংলাদেশ পানি উন্নয়ন বোর্ড

Bangladesh Water Development Board

Project Management Office: PMO-FRERMIP
Flood and Riverbank Erosion Risk Management Investment Program
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প্রকল্প ব্যবস্থাপনা দপ্তর :পিএমও-এফআরইআরএমআইপি
ফ্লাড এন্ড রিভার ব্যাংক ইরোশন রিস্ক ম্যানেজমেন্ট ইনভেষ্টমেন্ট প্রোগ্রাম
ফিরোজ টাওয়ার (১৩ তলা),
১৫২/৩/বি, বীর উত্তম নুরউজ্জামান রোড,
পান্থপথ (গ্রীণ রোড), ঢাকা-১২০৫
ফোনঃ ৮৮০-২-৯১৪১৬৯১, ফ্যাক্সঃ ৮৮০-২-৯১৪১৮৮৭
ই-মেইল: pdjmremp@gmail.com

Memo no: PMO-FRERMIP/E-4/259 06 November 2019

To
Mr. Arend Kolhoff,
Technical Secretary International Cooperation,
Netherlands Commission for Environmental and Social Assessment(NCEA),
P.O. Box 2345,
NL 3500 GH UTRECHT,
The Netherlands.

Subject: Reviewing on Strategic Environmental and Social Assessment (SESA) of River Stabilization Plan under FRERMIP Project.

Reference: (i) This office memo no. PMO-FRERMIP/E-4/172, dated 01 March 2017; PMO-FRERMIP/E-4/943, dated 19 November 2017 & PMO-FRERMIP/E-4/392, dated 03 January 2019.

(ii) NCEA's no. 7220/KH/LW date 21 July 2017.

Dear Sir,

With reference to the above mentioned memo, I like to inform you that ISPMC of FRERMIP Project submitted updated version of Strategic Environmental and Social Assessment (SESA) report. I would like to request you to review the attached latest version of SESA report of River Stabilization Plan under FRERMIP project at the earliest convenience.
Enclosure: As stated.

Thanking you,

(Md. Rafiqul Islam Choubey)
Project Director
PMO-FRERMIP
BWDB, Dhaka.

Memo no: PMO-FRERMIP/E-4/259/1(9) 06 November 2019

Copy forwarded for kind information/information and necessary action to:

1) Additional Director General (Planning), BWDB, Dhaka.
2) Additional Director General (Western Region), BWDB, Dhaka.
3) Chief Planning, BWDB, Dhaka.
4) C.S.O to Director General, BWDB, Dhaka.
5) Country Director, Asian Development Bank, BRM, Dhaka. (Attn: Mr. Zahir Uddin Ahmed, Team Leader, Water Resources Management Specialist, ADB, BRM, Dhaka).
6) Peter de Vries, First Secretary (Thematic Expert Water Management), Embassy of the Kingdom of the Netherlands, Dhaka, Bangladesh.
7) Prof. Rudy Rabbinge, Chairman of the working group, Netherlands Commission for Environmental and Social Assessment, P.O. Box 2345, NL 3500 GH UTRECHT, The Netherlands.
8) Mr. Knut Oberhagemann, Team Leader, ISPMC, FRERMIP, Dhaka.
9) Office Copy.

06.11.19

(Md. Rafiqul Islam Choubey)
Project Director
PMO-FRERMIP
BWDB, Dhaka.

Annex 2: Main issues and recommendations addressed in the draft advice

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1. Main attention points and recommendations for the content of SESA (V 5)

The main issues and recommendations presented in this annex have been part of the draft advice that was submitted to the BWDB on 30 March 2020. In this draft advice the findings were presented of the review of SESA (version 3 and 4) and recommendations were given for SESA (version 5). All these recommendations have been remedied in SESA (version 5) as pointed out in this final advice, see chapter 2. The Commission includes the findings earlier presented in a draft advice because it has not been made publicly available and it provides a lot of background information that will inform the readers, who were not involved in the review process, how the SESA was developed in the period March 2017 – April 2020.

1.1 Strategy for river stabilisation and options

1.1.1 Discussion on justification of reduction of river corridor width

Although the Commission concludes that the issue of justification of the reduction of the river width provides adequate information now, it is addressed here because it is a very important design parameter that has been discussed with the BWDB on several occasions.

The Assam earthquake in 1950 is generally identified as a major factor that caused a massive widening of especially the Jamuna river system, due to the large amount of sediment that entered the river system. It took approximately 20 years before the sediment started influencing the widening of the river system. As a result, the average flood corridor width of the river system widened from 6 to 7 km in the period before the 1970s to on average of 10 to 12 km in the period of the 1970s to 2000. Since 2000, the width seems to consolidate and even tends to reduce slightly. It is expected that after approximately a century, in order of magnitude, the river will naturally return to the situation of before 1970, assuming that the average discharge hydrographs will not significantly change, and major sediment influx changes by severe earthquakes will not occur.

The Government of Bangladesh intends to speed up this natural process by man-made interventions, i.e. narrowing the river system over the coming decades.

A major reason of the relative strong width reduction as proposed, appears to be the strong economic driver of major land reclamation. The Commission is of the opinion, based amongst other things on an indicative morphological long-term impact assessment, that the desired corridor width of 6-6.5 km for reaches 1 and 2 is very ambitious and may result in increased flood risk during extreme river discharges. SESA-4 shows that for reaches 3 and 4, where the river stabilisation will further proceed in the coming 10 years, the actual river corridor widths will only slightly deviate from the present widths. This will give time to make use of an updated SESA to support better decision making for feasible river corridor widths of reaches 1, 2 and 5, within the framework of adaptive planning.

The Commission observed that in SESA-4 the preselection of a corridor width has been reported to be abandoned due to acknowledgement of too many current uncertainties (especially expected future sediment inflows and climate induced changes of river discharges), which makes the selection of a feasible river width highly premature at this moment. To this end, the explicitly proposed adaptive planning approach, for which plans for the coming five years will be made, is likely the most practical approach. This approach allows for a selection of the most feasible structural measures for river stabilisation together with well-balanced dredging activities, focused on the latest anticipated actual situation during the execution of the works.

The adaptive planning approach fits within a resilience-based approach for future river system anticipating future development. The concept of resilience for the development of the future river system in the Netherlands is explained in box 1.

Box 1: Towards more resilient river systems - a paradigm shift
Due to increasing population pressure, more intensified river usage - including its resources- and climate change in the catchment of rivers, a better resilience of the rivers against these changes has clear benefits. Examples are: 'more room for the rivers' (present Dutch strategy), expanding natural water buffers and ecological zones, real-time data collection and monitoring, integrated catchment planning. In such a vision, the potential impacts and risks of (large) interventions should be made explicit and mitigation measures should be explored beforehand. Mitigation measures to be developed should preferably be highly adaptive. Disaster preparedness studies are proposed by developing contingency plans against earthquakes, catastrophic river floods, etcetera.

1.1.2 Scenarios - sediment load and discharge (response to uncertainties)

The future Jamuna- Padma-Meghna river system can be influenced by future upstream developments in the Brahmaputra and the Ganges and by for example water usage, climate change and earthquakes. Therefore, realistic scenarios need to be identified including a worst-case scenario for water usage, water discharge and sediment load in order to qualitatively assess the resilience of the proposed interventions and the risk of certain impacts.

SESA-4 emphasises that future changes in sediment load will be a dominant factor influencing the stability of the river. The available historic sediment data is inadequate to make a reliable assessment about potential trends and therefore three possible scenarios are described.

Scenarios on water discharge, including the discharge distribution over the year, due to climate change and water usage have not yet been identified in SESA-4. Setting up realistic alternative scenarios is also challenging but less speculative than changes in the sediment load, as projections based on current climate change scenarios are presently available and changes in water usage (e.g. construction of reservoirs) can generally be anticipated well in advance.
Adaptive planning of interventions as suggested in the SESA report may provide a practical means of timely adaptation when upstream water usage, hydrologic, hydraulic and morphological parameters would change. To identify such changes, not only the actual river status (from monitoring) is important but also changes in anticipated scenarios.

The Commission recommends that based upon existing data, upstream developments and climate change for at least two scenarios and a worst-case scenario, need to be defined to assess possible changes on the river system and impacts on the RSP. In addition, monitoring of hydrologic, hydraulic and morphological parameters, such as the sediment load, should be carried out on a systematic basis, as these parameters will become increasingly important when the river interventions progress further.

1.1.3 Phasing of interventions

The Commission emphasises that practical differences exist between for example bank protection measures, further structural river training measures, and dredging. Bank protection measures have a modest impact on morphology, although when choosing the right locations and implementing sufficient length of bank protection, *positive* stabilisation effects may occur on the low water channel. Capital dredging is on the other side of the spectrum, as dredging will directly impact on morphology, typically being a 'sediment management' measure. The latter however implies a large uncertainty and can be expected to be highly inefficient as long as the river is virtually morphologically 'uncontrolled'. Other structural river training measures are in between both extremities. As a consequence of these differences between the three types of measures, for different stages of channel control a typical set of measures may be most feasible. For instance, for an uncontrolled river starting with adequate bank protection measures, subsequently a gradual supplementation with structural river training measures and modest dredging and finally the implementation of more intensified dredging as a supplementary measure not only for river stabilisation purposes but also for instance sand mining (e.g. to boost land reclamation) and improvement of navigation.

In box 2, the terms are defined, and the general practice is briefly described.

SESA-4 explicitly mentioned to implement the works for Reaches 3 and (upstream part of) 4 first. This is a logical approach, minimising e.g. transboundary effects, risks for narrowing of the river corridor and providing time to obtain a good knowledge base and to learn from these relatively more modest interventions by monitoring & evaluation.

The Commission recommends providing information on the planning of the implementation of the works, relevant for the phasing of the forthcoming interventions on the five-yearly basis, as mentioned in SESA-4. In the updated planning the justification and phasing of the stabilisation works for each of the five reaches, or for the remaining reaches should be identified. We expect that in this plan the coherence of the proposed combination of interventions / measures for river stabilisation will also be elaborated.

The phasing should also take into account the 'connectivity measures' to the floodplains as well as the upgrading of the intake structures for major tributaries (from the Regional Master Plan)

The phasing should also address the robustness of the stabilisation works to account for flaws in financing/timely execution of the works. Such robustness can be expected to be highly different for structural works than for capital dredging.

Box 2: Definition of terms and the practice

Structural river training comprises for instance. bank protection, flow guidance structures, groynes, overflow weirs and closure works (e.g. in branches). Flow regulation structures in the main river systems are not relevant here.

Capital dredging is also a river training measure (however not a structural one) and aims at promoting the desired river planform and channel geometries. When large-scale structural measures are not applied in coherence with the dredging, the capital dredging will generally have to be followed-up by intensive maintenance dredging.

In practice, river stabilisation of large river systems generally starts with bank erosion control and modest structural river training measures with limited additional dredging (modest capital dredging and maintenance dredging). After river stabilisation succeeds over time, additional structural measures are being implemented, whilst minimising maintenance dredging (although some maintenance dredging will always be needed). For a fully stabilised river system like the Rhine River in the Netherlands, rather modest maintenance dredging and some other minor sediment management measures (e.g. local fixation of the low water channel bed) suffice.

1.2 Baseline situation

SESA-4 estimates the project area's population and acknowledges that still many data gaps and uncertainties remain. As a result, it is not clear yet, how many people live in the project area, how they are distributed, mobility trends, what their livelihoods and risk management strategies are, etc. Faced with so many uncertainties, we lack a proper baseline from which to conclude how many people will be affected and to what extent.

Recommendation:

More quantitative information on demography, livelihood and legal land status will need to be gathered, analysed and presented to assess the current status and future effects of the interventions on different communities and socio-economic groups for the identified land use zones, see section 4.3.1. For the char lands, where possible, make use of well-networked char dwellers as co-researchers, in order to benefit from local knowledge. Reputable Bangladeshi research organisations, such as IWM and CEGIS, have state-of-the-art software systems, to model environmental scenarios taking local differences into

1.3 Intervention, impacts mitigation and enhancement

In this section of our advice the Commission presents the findings of the review of Chapter 5 of SESA-4. In section 4.3.1 a three-step approach is presented, and the development of a post-processing model is recommended to improve the value of SESA as an information and communication tool. In section 4.3.2, 4.3.3 and 4.3.4 information is presented on three of the seven strategic respectively flood risk reduction, recovery of lost floodplain, environmental enhancement - fisheries as we are of the opinion that insufficient information is provided in SESA-4.

1.3.1 Assessment of impacts approach

We observed that in chapter 5 in SESA-4 the positive and negative impacts and mitigating measures of the proposed interventions are presented for the seven determined thrusts. In addition, information is presented on the following four topics agricultural production, water-based productivity – fisheries, land acquisition and resettlement, and water availability. Altogether, mainly qualitative information is provided but it is not presented in a logical and accessible manner and it does not provide an overview of the cumulative impacts of all interventions for affected groups of people that live in different parts of the study area. Moreover, for a programme of this magnitude it is necessary to develop a strategy to quantify the impacts.

Recommendation:
The Commission is of the opinion that due to the significance of the impacts it is necessary to adequately inform the public and other key stakeholders and facilitate a debate on the pros and cons of this programme. In addition to the preparation of an SESA report (every five years in the coming 25 years) a model could be developed linking hydrological models with socio- economic models providing insight in the expected impacts and uncertainties to key stakeholders and representatives of affected groups of people. This model can further evolve when more information is gathered and needs to be updated on a regular basis, for example annually.

Recommendation:
An SESA is considered to be a useful communication tool when affected groups of people living in a certain part of the study area are getting insight in the cumulative impacts of all proposed interventions on their livelihood situation. Therefore, the Commission recommends restructuring the information in the next SESA for the RSP 2025-2030 by making use of the next steps that follow the causal chain, intervention – biophysical impacts – socio-economic impacts – receptors:

Step 1:
Describe the main interventions (reference can be made to thrusts).

Step 2:
Identify, describe and assess the main biophysical impacts of the interventions:

- Risk of erosion
- Recovery of land due to sedimentation
- Risk of flooding
- Water availability

Present a matrix and use maps to show the causal relationships between the interventions and biophysical impacts for the following identified land use zones:

- Riverbed
- Chars
- Riverbank areas
- Land reclamation areas and existing flood plains

- Hinterland (Central Bangladesh) – study area of the Regional Master Plan.

Step 3:
Assess the causal relations between the biophysical impacts and the socio-economic impacts for at least the following three groups of people specified for each of the identified land use zones.

- People living on chars and riverbanks (losing properties due to erosion, due to disappearance of chars because of river stabilisation and/or benefitting from char stabilisation);
- People expected to be displaced because of construction works, road development etc.
- People involved in agriculture and fisheries living in the hinterland, whose livelihoods will be affected. Within agriculture and fisheries further sub-categories need to be distinguished, such as (in case of agriculture) large and small farmers; farmers without land title (e.g. on the chars); sharecroppers and agricultural wage labourers.
- People that will settle or will be resettled in the land reclamation areas.

For each group, estimate the number of people and to what extent they will be affected by the chain of impacts. Where appropriate, gender specific information needs to be provided, for example, distinguishing female-headed households and indicating whether women and men may be differently impacted.

In addition, impacts need to be assessed for the following receptors:

- The proposed and expected industries that will be developed on the stabilised chars and new reclaimed land, as well as on flood protected existing flood plains, need to be identified and briefly described.
- Biodiversity in the study area is also considered a receptor and therefore, the biophysical impacts on biodiversity need to be assessed and presented as well.

Make use of a matrix and maps to present the findings of step 3.

Because the implementation of the interventions is scheduled for a period of 25 years. The factor time needs to be considered in the elaboration of this stepwise approach.

1.3.2 Strategic thrust – Flood risk reduction

Flood risk reduction is one of the major objectives identified in the Strategic Framework. Major risk reduction is obtained by stabilisation of the main rivers, existing dike reinforcements, new dikes, reduction of peak inflows into the offtake rivers (e.g. maximising to 1/10 yr flood, as indicated in SESA-4). However, dependent on the extent of narrowing of the river corridor, adverse effects may occur for the highest floods (even after bed degradation). The placement of flood embankments on the flood plains along the (stabilised) banks will reduce the respective risk behind these dikes but will further increase the flood water levels, when no additional flood conveyance compensation is being realised. This effect is evident in the initial stages, but also in the long-term after bed degradation, flood levels may still rise for extreme floods. SESA-4 addresses these issues.

During the dry (*boro*) season the water availability will be affected negatively. This point has also been identified in SESA-4.

The Commission recommends developing an integrated plan that focusses on the connectivity between the river and the floodplain/hinterland taking into consideration the following goals: mitigation or prevention of flood level increase, additional water storage for drought mitigation as well as for maintaining fertile silt supply for agriculture. To be able to provide insight in the risks of flooding, the acceptable levels of flooding need to be indicated on a much more finely grained flood map, participatory vulnerability mapping/flood risk manageability mapping should be implemented (SESA-4 includes flood maps, however we would emphasise the usefulness of ample participatory vulnerability mapping).

1.3.3 Strategic thrust - Recovery of lost floodplain

Recovery of naturally lost floodplain is one of the major objectives of the River Stabilisation Plan. The areas that are planned to be reclaimed in the period until 2040 are briefly listed in the SESA report.

The Commission recommends providing more information on each of the areas that will be stabilised and or reclaimed, concerning location, area size, purpose of the reclaimed land, for example resettlement of replaced people and/or for other economic developments.
Moreover, more information should be provided on how the area will be reclaimed, the origin of the materials used for reclamation, including energy use, as well as the quality of the topsoil.

1.3.4 Strategic thrust - Environmental enhancement – Water-based productivity - Fisheries

In section 5.9 Water based productivity – fisheries, information related to fisheries is presented. According to our understanding this information should be part of Strategic Thrust Environmental enhancement. That is why we present the review findings of section 5.9 under the heading 'Strategic Thrust – Environmental Enhancement'.

The Commission is of the opinion that SESA-4 provides a realistic view on future fisheries. Floodplain fisheries cannot be maintained in a country with such a high population density and land/resource use pattern, and the loss of fish production due to river stabilisation cannot be fully mitigated and therefore in addition compensation measures will be adopted.

Fish friendly regulators or fish passes
The Commission observed some confusion in the report about fish passes and fish-friendly regulators. Fish passes are facilitating inward/outward migration of fish. They are extremely expensive, and their proper function in Bangladesh is still doubtful. Fish-friendly regulators are facilitation inward migration of fish towards the floodplain during the start of the flood season.

The Commission recommends that this difference is clearly explained in the box on fish passes in the report.

Mitigation through aquaculture development

SESA-4 states that aquaculture practices have been growing significantly in the past years. The Commission agrees that aquaculture is developing rapidly in Bangladesh, but this is a process which is independent of the River Stabilisation Plan, however we are of the opinion that more flood protection will increase the investments in aquaculture. In kilogrammes, the availability of fish could be compensated, but what the real access of this fish for the rural poor and fishermen in the project area would be, needs to be properly assessed and cannot depend on unreliable recent studies in Bangladesh.

The Commission recommends elaborating a more in-depth social-economic analysis of the access to aquaculture for the rural poor and fishers. To better assess the impact of the River Stabilisation Plan on the livelihood of the rural poor population currently engaged in fisheries, in particular, on poor fishermen, including the probability that they may get access to aquaculture as a livelihood as a mitigation measure. The potential impact on nutrition (especially in terms of protein provision) due to the foreseeable capture fisheries production losses, should also be addressed.

1.3.5 Resettlement Action Plans, compensation measures and use of reclaimed land

In section 5.10 of SESA-4 reference is made to displacement of people due to land acquisition for new embankments and relocating people who are currently living on existing embankments.

SESA-4 suggests various potential land uses, in particular large-scale agriculture and "flagship peri-urban industrial areas". Use of newly reclaimed lands for displaced people seems appropriate, however, in Bangladesh the distribution of any newly reclaimed land is always a tough process due to the scarcity of land. When discussing resettlement and/or the (positive) impacts of the newly reclaimed land, the use for resettlement of others than large farmers should be more explicitly addressed in the future SESA.

The Commission observed that absence of legislation for newly reclaimed land, hinders an adequate development of these land reclamation areas. The Commission therefore recommends the need to have such legislation in place before large-scale land reclamation along the main rivers will start.

The Commission recommends that the next SESA prepared for RSP 2025-2030 should include indications of the scale of expected dislocation and resettlement, also giving improved indications of the feasibility of successful resettlement of displaced people. Resettlement of affected char communities should be considered as well. The extent to which newly reclaimed land may be used for resettlement and new livelihoods -as farmers or workers- should be more explicitly addressed. The option that the reconstructed or new embankments are in some way used for settlement should be considered, possibly in a "controlled" way, as experience tells us that these are often the only options for resettlement when people lose their homesteads.

The Commission recommends that any lessons learnt from FRERMIP Tranche-1/Project-1 or earlier experiences related to socio-economic impacts, also with regards to land acquisition and resettlement, be identified, e.g. through a separate evaluation of these impacts and the applied mitigation measures. An additional objective of such an evaluation would be to assess how the situation for the identified categories of people has changed in the short and longer run, as a result of the project.

1.4 Risk assessment, monitoring, evaluation and capacity

The Commission observed that a river stabilisation programme for this river system is a very complex process that is characterised by many uncertainties and will be implemented in phases. Step by step, the existing gaps in knowledge and information will be filled in. A consequence is that the SESA cannot yet provide adequate information for all decisions that need to be taken in the period until 2040. The long-term planning of this programme provides a good opportunity to apply the intermediate lessons that were learnt. Therefore, it is necessary to set up a monitoring and evaluation system of which the findings can be used for the ESIAs that need to be prepared for each programme phase or tranche and update the SESA likewise.

The Commission recommends

- that the gaps in knowledge and information are identified and to remedy; they need to be considered in the monitoring and evaluation system in a systematic way;
- to assess the risks of the main decisions that will be taken and describe whether they are due to lack of knowledge and/or information and how these risks will be managed;
- to set up a monitoring knowledge base and evaluation system were the lessons learnt (technical- as well as socio-economic aspects) are systematically gathered, shared and used in future interventions and in ESIAs/SESAs.

The Commission observed that the development, implementation, monitoring and evaluation of this programme that applies an adaptive management approach, is complex. It requires a learning organisation that has the capacity to adjust the programme based upon the monitoring results. The Commission is not aware of the performance of the present organisation nor their needs in terms of number of staff, capacities and means.

The Commission recommends assessing the need of the organisation responsible for this this ambitious programme and support the fulfilment of the identified needs because this is a condition for successful implementation of this long-term programme.