

Strategic Environmental Assessment: Current Status, Practices and Challenges in Bangladesh

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Authors' contributions

This work was carried out in collaboration among all authors. Author MSH designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors MSB and MSR managed the analyses of the study. Authors MAH and MMA managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Strategic environmental assessment (SEA) is an appraisal device of policies, plans, and programs and has evolved from an alternative of environmental impact assessment (EIA) to a potential environmental policy integration tool in national policy planning. Bangladesh has likewise rendered SEA in its environmental evaluation framework to consider environmental and social outcomes of policies, plans, and programs (PPPs), but the practice and current situation of SEA in Bangladesh is unknown to all. Considering this crisis the study was carried out to analyze the present status of SEA as well as to find out the constraints for successful SEA implementation in Bangladesh as an approach to integrate environmental considerations in the PPPs. The data were collected through multiple methodological techniques including document review as well as survey by standard questionnaire and key informant interviews (KIIs) with different stakeholders of the various backgrounds of Bangladesh related to policymaking. The study showed that SEA first appeared in Bangladesh in 2006 with the support of the World Bank as a donor agency and the first SEA was done in Bangladesh on the Dhaka metropolitan development plan in 2007. But through the enactment of the National Environmental Policy 2018, SEA gained formal status in the country.

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Now, This study also revealed that most of the organizations (government and non-government) i.e. 55.77 percent never practice SEA whereas only 15.38 percent of organizations of Bangladesh practice SEA on regular basis, and 28.85 percent of organizations practiced partially for assessing SEA in their proposed PPPs. A diverse list of constraints such as lack of political will, lacking awareness of SEA, inadequate finance, weak enforcement of environmental law, and inadequate knowledge of the implementation of SEA in PPPs were identified. Therefore, awareness building, capacity development, and proper training on SEA in Bangladesh are urgently needed.

Keywords: SEA; environmental assessment; practice; challenges; Bangladesh.

1. INTRODUCTION

Bangladesh is an emerging developing country. For development purposes every year Bangladesh is being undertaking a number of small and large projects without maintaining strategic and long term plan. That's why Bangladesh is facing a continuing local and regional environmental problems. Due to environmental problems, every year Bangladesh loses about \$6.5 billion, which is about 3.4% of the GDP of 2015 and the cost is \$1.44 billion in Dhaka alone, which is 0.72% of the national GDP [1]. To achieve the upper-middle income status, Bangladesh must act now to tackle environmental problems and the country must now act to put in place the right policies and legislations. In Bangladesh, the current environmental impact assessment (EIA) process suffers from a number of common and continuing problems that need to be addressed earlier at the strategic level [2]. In these circumstances, at PPPs levels, strategic environmental assessment (SEA) may be an important tool to manage these problems. It may also assist to reach the sustainable development goals (SDGs) of 2030 by unlocking Bangladesh from its unsustainable development pathway to more sustainable[3]. Indeed, SEA leads to better environmental protection and management. It also strengthens the PPPs making process, thereby providing a number of immediate and longer-term benefits for development agencies, planning authorities and governments. Although SEA become more popular across the globe after European Union Directive on SEA, 2001 and Keive protocol, 2003 [4], South Asia countries like Hong Kong, China, Taiwan, Vietnam South Korea, and Indonesia already transposed SEA as tool in their environment assessment system to consider environmental and social consequences of policies, plans and programmes (PPP) [5,6]. SEA also appearing in Nepal, Pakistan and India in different PPPs particularly, forest planning, hydropower development, drainage programs, coastal zone planning and industrial development [7]. SEA is urgently needed in

Bangladesh along with EIA system to cope with emerging climate change concerns and natural resource degradation for achieving sustainable development in the country. Bangladesh did not transpose SEA obligations in their national legislations but they adopted either for donor funded projects or voluntarily in some policies, plans and projects. But the practice and present situation of SEA in Bangladesh is unknown to all that means there is no clear information about the present condition of SEA. Considering the above reasons, this study was conducted to find out the present status and limitations of successful implementation of SEA in PPPs in Bangladesh.

2. METHODOLOGY

A qualitative research approach was adopted to document strategic environment assessment status, practices of application and constraints for successful SEA implementation in Bangladesh. Multiple methodological techniques were used in this study including review of literature, survey and key informant interviews (KIIs). Many international and domestic literatures were reviewed to appraise the progress of SEA implementation in Bangladesh in terms of practice and constraints. The reviews were based on academic literature, policies and planning documents, environmental acts, environmental regulations, newspapers and reports etc.

The survey was conducted through standard questionnaire (Appendix A) to capture the perceptions of the selected respondents related to policy making from selected institutions in Bangladesh. The questionnaire composed of varieties questions with pre-defined answers. The questions were focused on the respondents' backgrounds and experiences with SEA and general questions about SEA implementation as well as about the constraints of successful SEA implementation in Bangladesh.

Data were arranged in spreadsheets. Familiarity with SEA, training exposure on SEA, knowledge

on SEA as a concept and SEA conduction and attitude towards SEA were categorized based on an overall distribution of the respective data while organizational practice, SEA legislation/procedure/guideline, public participation during SEA process and constraints were expressed as a percentage. A number of possible constraints were selected to measure the extent of constraints for successful SEA implementation in Bangladesh. The extent of constraints faced by the respondents as well as the organizations was recorded on a four-point Likert scale. The Problem Facing Index (PFI) was then calculated based on the individual and overall responses of the respondents on each statement of constraints. In case of the PFI, lower values of the PFI indicate fewer constraints and higher values indicate high constraints. Statistical analysis (multiple response and descriptive statistics) was performed using SPSS (22.0) statistical software.

3. RESULTS AND DISCUSSION

3.1 SEA Profile of the Respondents

A summary of five selected characteristics of the respondents have been presented in Table 1. In case of the familiarity with SEA as a concept, the respondents were categorized into three groups such as very familiar (taken/taking part in SEA) group, familiar (only read/heard about SEA) group and not familiar group. Majority of the respondents (60.6 per cent) were not familiar at all with SEA and only 13.5 per cent were in familiar (only read and heard the term SEA) group whereas 26.0 per cent of the respondents were in very familiar group i.e. they had taken or were taking part in SEA process. The general unfamiliarity with SEA was highlighted by results raises several key issues such as the lack of promotion of SEA in Bangladesh, and more fundamentally, the need for clarification of SEA terminology. In case of training exposure on SEA or related SEA, the highest proportion (57.7 per cent) of the respondents were participated in any training related SEA and 42.3 per cent of the respondents had no training exposure. This data mentioned that the respondents were not get enough training on SEA. So, it need to increase more seminar or training for developing the capacity and skill of the respondents about SEA. The highest proportion (42.3 per cent) of the respondents had moderate knowledge on SEA, while 32.7 per cent had good knowledge and

only 25.0 per cent of the respondents had poor knowledge on SEA as a term. On the other hand, the highest proportion (59.6 per cent) of the respondents had poor knowledge on SEA conduction, while 24.0 per cent had moderate knowledge and only 16.3 per cent of the respondents had good knowledge on SEA conduction. The greatest proportion (56.7 percent) respondents possessed slightly favourable attitude while only 16.3 percent of the respondents had highly favourable attitude towards SEA. Ali et al. [5] found also similar result from Pakistan and Omondi [8] from Kenya.

3.2 Practice status of SEA in Bangladesh

SEA has very recently begun to appear in high-level policy documents in Bangladesh. According to the practice of SEA in different organization in PPPs, the organization were categorized into three groups such as regular basis, partial basis and never practice SEA (Fig. 2). The result indicates that the most of the organizations (government and non-government) i.e. 55.77 percent never practice SEA whereas only 15.38 percent of organizations of Bangladesh practice SEA on regular basis, and 28.85 percent of organizations practiced partially for assessing SEA in their proposed PPPs. SEA was first introduced in Bangladesh in 2006 and the first SEA implementation was done in Bangladesh on the Dhaka metropolitan development plan in 2007; another policy SEA for Bangladesh Sundarbans performed by the World Bank in 2012 [3,9]. SEA was designed there to give for holistic urban development to strengthen and direct the preparation as well as implementation of Detailed Area Plans (DAPs) of Dhaka city. Besides this several SEA studies remain in Bangladesh, some of which have completed, some are ongoing and some proposed upcoming (Appendix B). Bangladesh with a Tier 4 ranking for SEA integration resulted from SEA paradigm analysis i.e. Bangladesh has only the presence of one SEA construct of either SEA application, SEA public participation provision or SEA public participation application. Tier 4 ranking also includes countries with no SEA constructs. These countries typically fail to prioritize SEA or are unable to implement both structured and non-structured policy instruments to drive SEA policy and practice [6]. More or less similar condition also found in Pakistan, India, Sri Lanka etc. as south Asian countries [5,6].

Table 1. SEA profile of the respondents

Selected characteristics	Categories	Measurement scale (Range)	Respondents	
			No.	(%)
Familiarity with SEA	Very familiar (taken/taking part)	Number	27	26.0
	Familiar (only read/heard)		14	13.5
	Not familiar at all		63	60.6
Training exposure on SEA	Yes	Number	44	42.3
	No		60	57.7
Knowladge on SEA as a term	Poor knowledge (up to 11)	Rated score (7-20)	26	25.0
	Moderate knowledge (12-16)		44	42.3
	Good knowledge (>16)		34	32.7
Knowladge on SEA conduction	Poor knowledge (up to 11)	Rated score (7-20)	62	59.6
	Moderate knowledge (12-16)		25	24.0
	Good knowledge (>16)		17	16.3
Attitude towards SEA	Slightly favorable (up to 26)	Rated score (22-35)	59	56.7
	Moderately favorable (27-31)		28	26.9
	Highly favorable (>31)		17	16.3

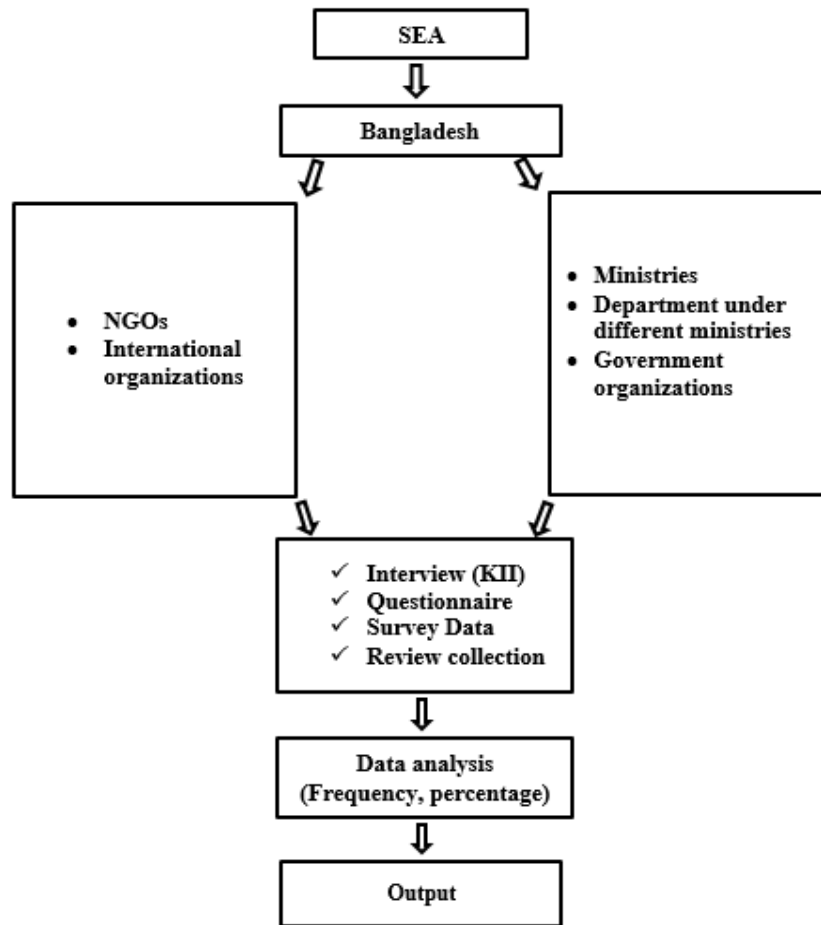


Fig. 1. Methodological framework



Fig. 2. Practice status of SEA in different organization based on the respondent perception

3.3 SEA legislation and guidelines in Bangladesh

In case of SEA legislation and guidelines as shown in Fig. 3, majority of the respondents (41.45 per cent) said that there was no existence of legislation/procedure/guideline for SEA in Bangladesh while 26.92 per cent of the respondents said that legislation was under developing stage and only 8.65 percent said that there existed SEA legislation in Bangladesh and they mentioned the National Environmental Policy 2018. According to Islam and Zhang [3], Bangladesh has no formal legislation or regulation for SEA. Bangladesh has not transposed its SEA requirements into national legislation [6]. Though SEA gained formal status in Bangladesh through National Environmental Policy 2018 [10] but still it is not sufficient. So, it needs to develop guidelines or procedure and enforcement for SEA of the existing policy during PPPs making. This study also revealed that currently all major donor agencies which are working in Bangladesh have their own SEA guidelines. Therefore, proper implementation of SEAs are largely dependent on the requirements of the donor agencies and actually there is a lack of coordination among the various organizations involved in environmental decision making and of adequate infrastructure to ensure proper SEA.

3.4 Public Participation during SEA Process

The score of the respondents perception was ranged from 5 to 15 against possible range 0 to 18 and based on the perception, the respondents were categorized into four groups such as very insufficient (up to 7), insufficient (8-10), sufficient (11-13) and very adequate (>13) (Fig.4). Result indicated that the insufficient category constituted the highest proportion (58.65 per cent) of the respondents followed by 28.85 per cent as very insufficient whereas 11.54 per cent of the respondents opinion as sufficient and only 0.96 percent as very sufficient in term of public participation during SEA practice in Bangladesh. This data revealed that the public participation during SEA process is not sufficient enough in Bangladesh perspective. So, it needs to increase the participation of public during SEA process. Similar study conducted by Omondi [8] in Kenya and mentioned inadequate public involvement during SEA process. Other studies e.g. Ahmed and Fiadjoe [11] and M'mella and Masinde [12] obtained similar results. According

to Victor and Agamuthu [6], public participation application during SEA process is absent in Bangladesh. The reason behind this could be incomplete regulatory framework on SEA in Bangladesh which hinder the public involvement in the SEA process. Moreover, usually in Bangladesh still the decision making process is top-down process.

3.5 Constraints of Successful SEA Implementation in Bangladesh

The score of constraints of successful SEA implementation in Bangladesh could range from 0 to 36 but the observed range was 20 to 37. According to the respondent's opinion on the observed constraints of successful SEA implementation in Bangladesh were classified into three categories, such as low constraints (up to 26), medium constraints (27-33) and high constraints (>33) (Fig. 5). Results indicated that the highest proportion (58.65 per cent) of the respondents mentioned that there are high constraints prevailed in Bangladesh for the implementation of successful and sound SEA in PPPs whereas 28.85 per cent of the respondents described it as low constraints and only 12.50 per cent agreed as medium constraints. Indeed, there is a diverse list of constraints are responsible behind the successful implementation of SEA in PPPs of Bangladesh. So, for the successful SEA implementation in Bangladesh, all constraints should be removed or at least minimized and take appropriate strategies and policies to reduce the constraints.

The respondents mentioned different constraints for successful SEA implementation in PPPs in Bangladesh and these were ranked according to the respondents opinion as shown in Table 2. Among the constraints, lack of the political commitment was the major constraints for the successful SEA implementation in Bangladesh and this constraint ranked first. The second major constraint was low awareness of SEA. Consequently, legislative deficiencies, inadequate finance, enforcement deficiencies were the third, fourth and fifth ranked constraint for successful SEA implementation in PPPs in Bangladesh, respectively. According to Islam and Zhang [3], legislative framework is the main limitations for SEA in Bangladesh as a planning and assessment tool in all types of development and they also mentioned lack of transparency, absence of political commitment as well as community awareness as the problems for SEA implementation in Bangladesh.

Therefore, absence of the political commitment as well as community awareness of the need for sustainable growth have also been identified as factors slowing the rise of SEA [13,14,2,15,16].

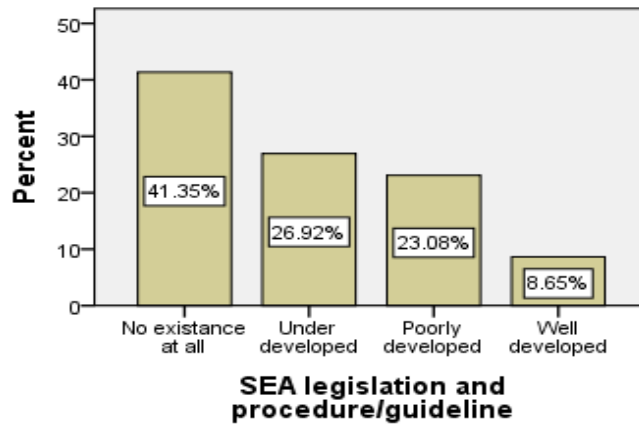


Fig. 3. Distribution of the respondents based on their perceptions on SEA legislation and procedure or guideline

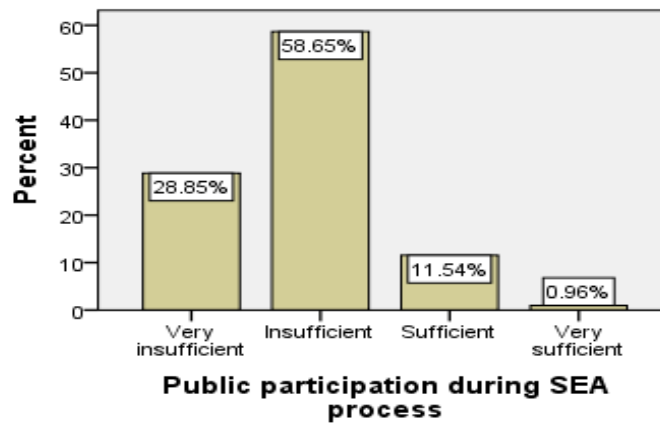


Fig. 4. Distribution of the respondents based on their perceptions on public participation during SEA process

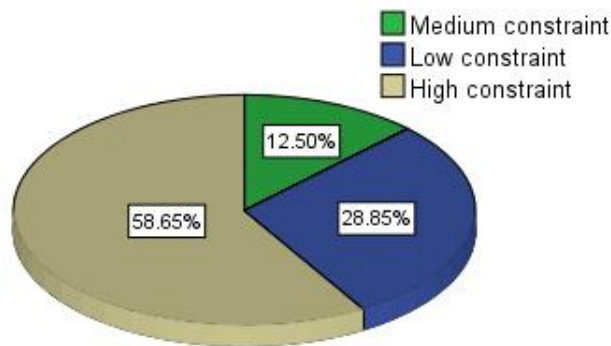


Fig. 5. Distribution of the respondents based on their perception on the constraints of successful SEA implementation in Bangladesh

Table 2. Ranking of the constraints for successful SEA implementation in Bangladesh

Constraints	Number of respondents				PFI	Rank order
	Very high constraints	High constraints	Medium constraints	Low constraints		
Low awareness of SEA	55	8	32	9	317	2
Inadequate finance	31	54	10	9	315	4
Lack of guidance	23	3	49	29	228	10
Low environmental priority	27	42	23	12	292	6
Legislative deficiencies	45	21	35	3	316	3
Enforcement deficiencies	40	19	43	2	305	5
Insufficient SEA appraisal	43	15	23	23	286	7
Inadequate political will	63	8	21	12	330	1
Inadequate technical capabilities	31	16	45	12	274	8
Weak law making system	23	8	44	29	233	9

**PFI (Problem Facing Index*

4. CONCLUSION

The practice of SEA was found to be generally poor and evidence also reflected that SEA has not yet evolved satisfactorily in Bangladesh. Moreover, SEA has no significant position in PPPs in Bangladesh because of the lack of legal, institutional and political framework for SEA and the lack of a requirement for short, medium or longterm development planning in addition to spatial planning. The current environmental assessment processes suffer from a number of common and continuing problems that need to be addressed earlier at the strategic level. The study revealed that there is an explicit concern against the political commitment and governance system, which hinders the path of sustainable development. There is a huge potential for SEA to take the country in the avenue of sustainability. A coordinated effort between all agencies such as government and the development agencies would enable Bangladesh to pursue the path of sustainable development through the development and application of strategic assessment.

5. RECOMMENDATIONS

1. It is necessary to have SEA legislation to reflect the top leadership commitment and to ensure SEA legitimacy.
2. SEA legislation must be accompanied with enabling environment/condition for implementation.
3. To gain motivation and more resources for SEA preparation, the cost norm for SEA should be developed based on realistic SEA experience in Bangladesh with reference from other countries and should be legislated as soon as possible.
4. The law making structure should be revised to reduce vested interest's influence to the creation and approval of legislation.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX

Appendix A: Major questions of the questionnaire used in this study

1. What is your designation/responsibility?
2. Familiarity with SEA: Whereas EIA is applied at project level; SEA assesses policy, plan and programs. How familiar are you with SEA as a concept? If taken or taking part in SEA in Bangladesh, on what capacity?
3. Training exposure: Have you received any training related as SEA yet?
4. Organizational practice: Does SEA practice in your organization?
5. Knowledge: Please answer the following questions.
6. Knowledge on SEA as a concept
 - a) What do you mean by SEA?
 - b) How has SEA as an international concept been adopted in the context of Bangladesh?
 - c) When has SEA been introduced first in Bangladesh?
 - d) What driving forces/actors/motivation was behind the SEA introduction?
 - e) What could have been done differently given the experience of SEA introduction in Bangladesh?
 - f) How is SEA related to the strategic planning process in Bangladesh?
 - g) Why is SEA important?
 - h) Do you think SEA is effective for addressing the consequences of proposed policy, plan and program?
 - i) Compare between SEA and EIA.
 - j) What policy do you think the government should take to disseminate the use of SEA in Bangladesh?
7. Knowledge on SEA conduction
 - a) Who decide if any SEA is to be conducted in your organization?
 - b) What procedure is followed in your organization?
 - c) How many steps are followed in a SEA process?
 - d) Mention the main steps of a SEA process.
 - e) What is the first step of a SEA process?
 - f) What do you mean by screening phase in a SEA process?
 - g) What do you mean by scoping in a SEA process?
 - h) What is monitoring and evaluation phase in a SEA process?
 - i) How long time does it take to complete a SEA process?
 - j) Give two examples within the Bangladesh policy framework where SEA has been applied?
8. SEA legislation and procedure/guideline: Is there any Government provided laws/regulations and procedure/guideline provided for SEA in Bangladesh? If yes, how would you classify their implementation in Bangladesh?
9. Public participation: Mention the extent of consultation of involvement of the following public participation during SEA process.
10. Constraints: Please mention the extent of constraints for successful SEA implementation in Bangladesh.

Appendix B: Completed, ongoing and proposed upcoming SEA studies in Bangladesh

Name of the study	Executing agency	Status
Strategic Environmental Assessment (SEA) of SW Region and the Sundarbans	<ul style="list-style-type: none"> Ministry of Environment, Forestry and Climate Change Department of Forestry 	Ongoing
Coastal Embankment Improvement Project	<ul style="list-style-type: none"> Ministry of Water Resource 	Completed
Dissemination of the SEA study for Power Hub Development in the Cox's Bazar Region in Bangladesh	<ul style="list-style-type: none"> Power Energy and Mineral Resources Division, CEGIS 	Completed
Bangladesh Urban Resilience Project	<ul style="list-style-type: none"> Programming Division, Planning Commission Ministry of Local Government, Rural Development & Cooperatives Ministry of Local Government, Rural Development & Cooperatives Ministry of Local Government, Rural Development & Cooperatives Rajdhani Unnayan Kartripakkha (RAJUK), Ministry of Housing and Public Works Department of Disaster Management, Ministry of Disaster Management and Relief Fire Services and Civil Defense, Ministry of Home Affairs 	Completed
5 projects with a cumulative capacity of 13100 MW requiring 11500 acres of land	Power Development Board	Upcoming
SPM project will require 32.40 acres of land acquisition to set up tank farm	Energy and Mineral Resources Division	Upcoming
To set up a deep seaport there is requirement of 6900 hectares of land	Ministry of Shipping	Upcoming
Preparation of Tourism Master Plan at Kuakata, Patuakhali	Director of Urban Development Directorate	Upcoming
Establishment of a development authority serving Payra, Kuakata, Taltoli, Patharghta , Amtoli and Rangabali	Ministry of Housing and Public Works	Upcoming
Preparation of a Landuse Plan for Moheshkhali, Cox's Bazar	Ministry of Housing and Public Works	Upcoming
Convinced to do 'integrated EIA' instead of EIA for each zone.	Bangladesh Economic Zones Authority (BEZA)	Upcoming

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