

Research Article

Environmental Impact Assessment (EIA) Approval System in Bangladesh: A Review of the Environmental Conservation Rules (ECR) 2023

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Abstract

The Environmental Impact Assessment (EIA) serves as a mechanism to evaluate the environmental, social, and economic consequences of a project before any decisions are made. In recent years, however, governments, environmental specialists, researchers, media, and local communities have developed a comprehensive legislative and institutional framework for the EIA. To mitigate the environmental and social risks associated with any proposed project and its related components, as well as to safeguard and conserve the environment from negative effects, the Government of Bangladesh (GoB) has established specific regulations, policies, and guidelines. The EIA study has become a regulatory requirement for all RED categories and certain ORANGE categories of projects, contingent upon the directives issued by the Department of Environment (DoE), as specified in the Environment Conservation Rules. This study is essential for securing the Environmental Clearance Certificate, which is a prerequisite for any industrial and developmental initiatives. The Ministry of Environment, Forest and Climate Change (MoEF&CC), in accordance with Section 20 of the Environmental Conservation Act (ECA) 1995, has introduced the Environmental Conservation Rules 2023 (ECR 2023), thereby repealing the previous regulations enacted in 1997. According to Rule 5 (1) of ECR 2023, for the issuance of the Environmental Clearance Certificate (ECC), every industrial unit or project will be categorized into four classifications based on their site and environmental impact. This categorization is determined by the spatial extent of potential impacts on human health and both natural and manmade resources. The current review outlines the rules, fundamental principles, and procedures for EIA approval, while also highlighting the comprehensive guidelines for EIA approval in Bangladesh as per the new ECR 2023.

Keywords

EIA, ECR, Bangladesh

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Received: 8 September 2025; **Accepted:** 17 September 2025; **Published:** 19 December 2025



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1. Introduction

Environmental Impact Assessment (EIA) is a globally established process for identifying, predicting, and evaluating potential environmental impacts of proposed projects before decision-making [10]. Globally, the EIA process is institutionalized in more than 190 countries, reflecting its vital role in environmental governance [26]. It is a method for evaluating the major environmental impacts of a project or development proposal. It ensures that persons making decisions about a project consider the potential environmental impacts as soon as feasible and work to prevent, lessen, or balance those impacts. This guarantees that before judgments are taken, proposals are fully understood. EIA's main objective is to guarantee sustainable and ecologically sound development by including environmental factors into the planning and decision-making procedures [16].

The International Association for Impact Assessment (IAIA) defines an environmental impact assessment as "the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made" [24]. EIA was established in the 1960s to make more awareness on the environment. It gained formal status within the USA in 1969 with the enactment of the "National Environmental Policy Act (NEPA)." Before that, infrastructure agencies did not think about their projects' impacts on the environment. However, after establishing NEPA, it becomes mandatory for all agencies to consider environmental impacts of their decisions.

Screening and scoping are the first phases of a full-scale EIA, which typically consists of several important tasks and steps. The goal of these tasks is to assist in concentrating the EIA on the important environmental factors that could negatively impact the environment and perhaps impact the project design. Furthermore, these issues and the steps taken to address them are significant to the authorities who make decisions about whether or not a project can move forward. Scoping and screening are ways to focus on the most important environmental issues and prevent needless work on issues that aren't important for decision-making.

Although there were relatively few laws and regulations pertaining to EIA in developing nations thirty years ago, many of these nations now incorporate EIA into their planning processes [23]. The World Bank, Asian Development Bank and UNEP have developed guidelines for EIA in the devel-

oping countries (Sadler, 1996). EIA regulations are still difficult to enforce in some nations, and the separate initiatives of different ministries have not produced the expected outcomes. The EIA has not guaranteed the sustainability of the environment in developing nations. The universal EIA process, as described by the United Nations Environment Programme (UNEP), includes screening, scoping, impact assessment, mitigation, reporting, review, decision-making, and monitoring [23].

Although the quality of implementation varies, South Asian nations such as Bangladesh, India, Pakistan, and Nepal have made EIA a statutory obligation [15]. Screening classifies projects according to their possible environmental impact and establishes if a project needs an EIA. In South Asian cultures, unclear criteria and inadequate institutional capability frequently make screening difficult [5]. Scoping defines the key environmental issues and determines the terms of reference for the EIA study, ensuring that only relevant impacts are assessed [13]. Effective scoping often involves public consultation to incorporate local knowledge, which is increasingly recognized in the South Asian EIA systems [20]. Baseline data collection is a critical step that establishes environmental conditions prior to project implementation, yet in South Asia, data gaps remain a major concern (Ahmed & Faysal, 2008). The impact prediction and evaluation phase examine potential physical, biological, and socio-economic effects, assigning a significance rank to each [10]. An Environmental Management Plan formalizes mitigation strategies, which are intended to prevent, lessen, or offset negative environmental effects [26]. Due to institutional and financial limitations, EMP implementation and enforcement are still lacking in many South Asian nations, including Bangladesh [14]. Even though public engagement guarantees that community issues are addressed and improves transparency, it can occasionally be tokenistic in South Asian practice [18]. Stakeholder participation is emphasized by international best practices as an ongoing activity that lasts the whole EIA cycle [12].

The EIA report (Environmental Impact Statement) must be comprehensive, clearly written, and accessible to all stakeholders for informed decision-making [21]. For sustainable development it should meet the emerging needs of the present and succeeding generations [19]. One table represented in the following regarding global history of EIA.

Table 1. Global chronological history of EIA Study.

Serial No.	Year	Brief History
1	1960s	EIA serves as an integral part of the environmental policy framework in the United States
2	1969	The National Environmental Policy Act (NEPA) of 1969 mandates that an environmental assessment be con-

Serial No.	Year	Brief History
		ducted for all significant federal projects and programs that may impact the quality of the human environment
3	1972	During the United Nations Conference on the Human Environment held in Stockholm, the UN General Assembly reached a consensus on a Declaration that encompasses 29 principles related to environmental issues and development
4	1973	Canada officially implements Environmental Impact Assessment (EIA) legislation via the federal Environmental Assessment and Review Process (EARP)
5	1974 - 2006	Between 1974 and 2006, various countries implemented Environmental Impact Assessment (EIA) legislation globally. Below is a list detailing the introduction of EIA legislation in these nations; Australia (1974), Germany and Thailand (1975), France (1976), Brazil (1977), Philippines (1978), Israel (1981), Costa Rica (1982), Pakistan (1983), Italy (1986), Netherlands (1987), Tunisia and Sri Lanka (1988), Belize and Estonia (1992), Bosnia and Herzegovina (1993), Nicaragua (1994), Romania and Bangladesh (1995), Montenegro and Nepal (1996), Japan (1997), Ecuador and Ireland (1998), Lebanon (2002), Panama (2006)
6	1984	The World Bank has implemented its "Environmental Policy and Procedures," which mandate the incorporation of environmental factors during the early phases of project definition and preparation
7	1985	The EIA Directive mandates that European Union Member States carry out Environmental Impact Assessments (EIAs) before granting approval for development projects that are expected to have considerable environmental impacts
8	1987	The United Nations Environment Programme (UNEP) has endorsed the Goals and Principles of Environmental Impact Assessment, which consist of 13 guidelines aimed at supporting the establishment and advancement of EIA systems in member nations, while also fostering the creation of a global EIA framework
9	1989	The EIA Operation Directive (OD) is intended for staff use and details the methods and procedures for implementing EIA in proposed projects, in addition to offering manuals tailored to specific sectors
10	1992	Principle 17 of the United Nations Rio Declaration highlights the significance of Environmental Impact Assessments (EIAs) as a "national instrument" applicable to all projects that may cause considerable negative environmental effects and are under the jurisdiction of national authorities
11	2002	UNEP highlighted the necessity for Environmental Impact Assessments (EIAs) to place greater focus on incorporating social and health effects
12	After 2010	Day by day additional studies are carried out to supplement the EIA decision making process in all over the world

Sources : [11, 17, 22, 23]

Bangladesh initiated environmental impact assessment (EIA) guidelines in 1992 for the water sector development. Afterwards, Legislative bases for EIA in Bangladesh are the Environmental Conservation Act 1995 and by the Environmental Conservation Rules 1997, EIA gained formal recognition in the country. Although the responsibility of the proponent to conduct an EIA of development proposal, the responsibility to review EIAs for the purpose of issuing Environmental Clearance Certificate (ECC) rests on DOE (Department of Environment). Bangladesh has established some legislative acts for EIA. According to ECA '95 "No industrial unit or project shall be established or undertaken without obtaining environmental clearance from the Director General, DOE, in manner prescribed by the rules [6]. Environmental Conservation Act 1995 and Environmental Conservation Rules '97 are milestones for Bangladesh to create a sustainable society where there would be a balance between

development and environmental protection. Yet lack of accountability and transparency in projects allow unplanned development projects that have a harmful impact on society and the environment, economic loss.

South Asian countries often struggle with effective EIA follow-up due to inadequate staffing, poor data management, and lack of enforcement authority [14]. The capacity building of EIA professionals and regulatory agencies is essential to strengthen EIA systems in the region [25]. Regional cooperation among South Asian countries can enhance EIA effectiveness through knowledge sharing and harmonization of standards [2]. Aligning Bangladesh's EIA system with global best practices while addressing context-specific challenges can ensure more transparent, inclusive, and environmentally responsible project approvals [1, 6]. However, it is widely speculated in Bangladesh that EIA still remains an instrument for project approval and not a tool that can promote the environmental sustainability of the project. Very recently

Bangladesh Government revised the national environment conservation rules in 2023. By amending the Environment Conservation Rules, 1997, on 2 March 2023, Bangladesh Government has introduced the Environment Conservation Rules 2023 with S.R.O No. 53/Act/2023 [7]. Considering the above facts, the present study was undertaken to prepare a guideline for the multi-dimensional stakeholders that it helpful for EIA preparation.

2. Methodology

This study examines Bangladesh's Environmental Impact Assessment (EIA) approval requirements using a desk-based review approach. Instead of performing new empirical research through fieldwork or surveys, desk research, also known as secondary research, entails the methodical collecting, examination, and analysis of previously published literature, reports, government acts, laws or policy papers, and university studies [3, 4].

The review focused on government regulations, guidelines published by the Department of Environment (DoE) of Bangladesh, relevant peer-reviewed journal articles, environmental policy documents, and international best practices in EIA procedures. Sources were identified using academic databases such as Google Scholar, Scopus, and Web of Science, as well as government and institutional repositories. The collected materials were critically examined to identify common themes, procedural gaps, strengths, and areas requiring improvement in the EIA approval process.

The desk-based method was selected because it was economical, time-efficient, and provided access to a large body of known information [9]. It makes it possible to synthesize many viewpoints and makes it easier to comprehend the entire regulatory and procedural environment surrounding EIA in Bangladesh.

To improve clarity and facilitate comparative analysis, the results were arranged topically and presented with tables and figures. These graphic aids make it easier to summarize intricate regulatory systems and see trends in various papers and sources.

Using reputable sources to offer insights into the present and future orientations of Bangladesh's EIA approval processes, this methodological approach guarantees that the study retains a high degree of rigor and relevance.

3. Current Environmental Impact Assessment Procedure in Bangladesh

For effective impact identification, a simple logical and systematic approach is recommended. All the important environmental/project impacts and interactions must be taken into account. At the same time, ensure that indirect and cumulative effects which may be potentially significant are not inadvertently omitted. Some or all of the impacts identified may require detailed analysis and evaluation. However, there is no need to address every issue identified with the same level of details. The levels of details should be appropriate to the scale, sensitivity and complexity of the issue. Choice of chosen methodologies should reflect these criteria.

Impact assessment can be facilitated using a range of prediction tools available. Below is a list of common formal qualitative and semi-quantitative prediction tools that are commonly used in impact assessment.

- 1) Expert Opinion
- 2) Consultations and Questionnaires
- 3) Checklists
- 4) Spatial Analysis
- 5) Network and Systems Analysis
- 6) Risk Matrices
- 7) Carrying Capacity Analysis

In practice, relatively simple methodologies are recommended and preferred, rather than more complex, data-demanding ones. When undertaking the assessment, it is important to remember that the assessment which will be carried out is project specific and site specific. It is appropriate to know if the methodology selected is appropriate for use having considered the local conditions around the site. For example, local meteorological conditions may not allow the use of data that is measured at locations far from the site. In this case, treatment of the data may be needed, and the limitations of the method and the results will have to be highlighted accordingly.

Modelling Tools

The ability to predict impacts quantitatively makes comparison among alternatives and baseline conditions easier and facilitates impact monitoring and auditing later in the EIA process. These can be done with the aid of various mathematical and statistical models. Table 2 below presents a list of sample methodologies that may be applied for the assessment of impacts due to various concerns.

Table 2. Various mathematical and statistical modelling tools.

Impacts	Method of Assessments
Soil Erosion	Soil loss models such as Revised Universal Soil Loss Equation (RUSLE)
Sedimentation, Water Quality and Pollution (in rivers, flood plains, irri-	Sediment transport model such as MIKE11, HSCTM2D 1) Mixing zone model such as CORMIX

Impacts	Method of Assessments
gation canals, reservoirs and other inland water bodies)	2) Water quality simulation model such as QUAL-II E, MIKE11, 3) ATV, AQUASIM, AquaDyn 4) Streeter-Phelps technique (one dimensional, two-dimensional, modified for estuarine analysis) such as WASP5, DYNHYD5
Marine Quality	1) Hydrodynamic/ Sediment transport models 2) Chemical/ geochemical models 3) Biological/ benthic model
Flood	Peak flow hydrographs for rainfall-runoff events in large river basins or small urban watersheds such as: HEC-HMS, FLO-2D, TUFLOW
Groundwater and Hydrogeology	Groundwater flow models and contaminant transport model such as MODFLOW, GMS, Aqua3D, HSSM (Hydrocarbon Spill Screening Model)
Air quality	Air dispersion models: Box model, Gaussian model, Lagrangian model, Eulerian model, Dense gas model etc.
Noise	Techniques prescribed in: 1) ISO 9613 Part 1 and 2, 2) British Standard 5228 (construction sites) Modelling software such as SoundPlan, CadNa,
Vibration	Techniques prescribed in: 1) ISO 2613 Part 1, 2 and 3 2) British Standard 6472
Land Use	Map overlay techniques Comparative valuation against structure and/or local plans
Transportation	Traffic generation and flow models Marine traffic generation and flow models
Risk to Life	Risk Assessment (not necessarily full/detailed assessment)
Occupational Safety and Health (OSH)	1) ISO 45001 Occupational Health and Safety Management Systems 2) International Labour Organisation (ILO) Guidelines and Training 3) World Bank Group Environmental, Health and Safety (EHS) Guidelines: Occupational Health and Safety
Socio- economic	1) Cost benefit analysis 2) Extrapolative methods 3) Normative methods
Ecology	1) Ecological models 2) Comparative evaluation of conservation value 3) Expert opinion
Biodiversity	Spatial model such as GLOBIO3
Visual Aesthetic	1) Paper-based matrices for systematic comparison 2) 2-D Viewshed Analysis (GIS layer) 3) 3-D Viewshed Analysis (ArcGIS)
Waste management	Comparative evaluation against guidelines

Source: [8].

There are a number of factors which will influence the approach adopted for the assessment of indirect and cumulative impacts and impact interactions for a particular project. The

method should be practical and suitable for the project given the data, time and financial resources available. It should also be able to provide a meaningful conclusion from which it

would be possible to develop, where necessary, mitigation measures and monitoring. Key points to consider when choosing the method(s) include:

- 1) the nature of the impact(s),
- 2) the availability and quality of data,
- 3) the availability of resources (time, finance and staff).

The method chosen should aim at presenting the results in a way that can be easily understood by the Project Proponent, decision maker and the public. Moreover, all significant positive or negative changes need to be described conclusively with appropriate assessment methodology applied to verify its conclusion. Each method has its limitations, and the accuracy of the findings differs. Hence it is required to indicate the reason for its selection and to highlight what the limitations are for the method and the results that are generated by it.

Project Screening and Categorization

The MoEFCC, under the provisions of Section 20 of the ECA 1995, has issued the Environmental Conservation Rules 2023 [6] and repealed the prior ones that were enacted in 1997. In accordance with Rule 5 (1) of ECR 2023 - for the purpose of issuance of Environmental Clearance Certificate (ECC), every industrial unit or project, in consideration of their site and impact on the environment, will be classified into the four categories and they are:

- 1) Green: Green category projects are those industrial projects which have relatively low impact on the environment and human health. Before setting up a new green industrial establishment, there is no need to obtain location clearance, and only ECC from regional DoE office is required.
- 2) Yellow: Yellow category project shall mean all such industrial establishment or projects which have a moderate impact on the environment and human health and to avoid such impacts, these industrial establishments or projects need to take environmental pollution mitigation measures. Unlike green category project, yellow category projects need to obtain location clearance as well as ECC from regional DoE office.
- 3) Orange: Orange category project or industrial establishment are those projects which have significant impact on the environment and human health which must be avoided for the purpose of environmental impact of these industrial establishments or projects must be reduced by adopting appropriate environmental pollution mitigation measures. Project/ activities mentioned in Serial No. 1 to Serial No. 62 of schedule 1, ECC need to obtain from regional DoE office and in case of projects mentioned in Serial No. 63 to Serial No. 113, clearance need to obtain from DoE headquarter.
- 4) Red: In the red category, all the industrial establishments or projects have severe impact on environment and human health which need to be avoided to an appropriate extent for the preservation of environment and significant environmental pollution mitigation measures must be followed to reduce the environmental

impact of the proposed project. Red category projects need to obtain location clearance as well as environmental clearance certificate from DoE headquarter.

The categorization of project is based on spatial extent of potential impacts on human health and natural and manmade resources. The detailed list of Green, Yellow, Orange and Red category projects is described at ECR 2023. However, an indicative list is presented in Table 3.

Table 3. Indicative List of Orange and Red Category Projects which needs to EIA preparation.

Orange Category

- 1). Land Development (5 acres to 25 acre).
- 2). Road construction or expansion (5 to 10 km).
- 3). Construction of bridge (100m to 500m).
- 4). Reconstruction of airport and expansion of less than 50%.
- 5). Expansion of ports and harbors (less than 50%).
- 6). Residential and commercial building (5000 to 20000 sq.m. built-up area).
- 7). Electricity, oil and gas transmission line (up to 25 Km).
- 8). Hospital and clinic (up to 50 beds).
- 9). Port and harbour construction.
- 10). Housing and Urban Development Project (less than 25 acre).
- 11). Medical Waste/ Hazardous Waste treatment and disposal facility.
- 12). Groundwater abstraction (2,500-5,000 m³/day).
- 13). Water Treatment Plant.
- 14). Wastewater Treatment Plant (< 1000m³/day).

Red Category

- 15). Land Development (more than 25 acre).
- 16). All Kind of industrial city.
- 17). Construction of under river tunnel/underground tunnel/ common utility tunnel (more than 200ml).
- 18). Construction of road or expansion (more than 10km).
- 19). Construction of bridge or flyover (more than 500m).
- 20). Laying of railway line.
- 21). Mass Rapid Transit System.
- 22). Expansion of ports and harbors (more than 50%).
- 23). Construction of airport and expansion of more than 50%.
- 24). Housing and Urban Development Project (more than 25 acre).
- 25). Construction of housing complex (more than 5 acre).
- 26). Landfill site of municipal waste.
- 27). Hospital (more than 50 beds)
- 28). River and basin development, irrigation and flood control and drainage project.
- 29). Dam/barrage/cross dam/ rubber dam project
- 30). Ground water abstraction (>5000m³/day)
- 31). Wastewater Treatment Plant (> 1000m³/day)

The ECR, 2023 states that all the four categories of projects need to obtain environmental clearance from DoE. According to the section 15 of ECR 2023 stated that it is mentioned that EIA report needs for all RED categories and certain ORANGE categories of projects, contingent upon the directives issued by the Department of Environment (DoE), as specified in the Environment Conservation Rules 2023. This category of projects needs to obtain a LCC as well as an ECC. For LCC proponent needs to conduct an IEE study and needs to apply by filling up applicable sections as per Form-3 along with the proposed terms of reference (ToR) for the EIA study. For ECC, the proponent needs to conduct an EIA study as per the approved ToR and apply by filling up applicable sections as per Form 3. Based on the nature (importance and emergency) of the project, EIA report should clearly spell out the site-specific environmental impacts/issues and their mitigation measures. The procedure for the EIA study in Bangladesh is presented in following section:

As per EIA Guidelines for Industries 2021, typically the baseline data needs will include the following:

- 1) Physical components: Includes landforms, drainage, land use patterns, hydrology, meteorological data, air quality, water quality, noise, physical infrastructure, other polluting sources, etc.
- 2) Biological components: Includes biodiversity of the site, aquatic and terrestrial habitats, species and population, ecosystem products and services, etc.
- 3) Social and economic components: Includes data on demographics, livelihood, economic activities and occupational patterns, dependence on natural resources, social profile, land acquisition and displacement of population,

Key Points of Regarding EIA Study from ECR, 2023.

Regarding EIA study (section 15 of ECR, 2023)

The purpose of setting boundaries is to define the work area for the EIA. Scoping exercise allows definition of boundaries for an EIA in aspects of time, space and subject matter. Identifying the study boundary also effectively leads to efficient baseline data collection on relevant physical, ecological, economic, social, cultural and demographic conditions within those boundaries. Overextending the study boundaries is likely to incur additional cost that may not add to the value of an EIA report. The assessment may also be too difficult to manage and incomprehensible.

- 1) *The Environmental Conservation Rules of 2023 require that an Environmental Impact Assessment (EIA) be conducted for industries or projects classified as Red category. Some of Orange category projects need EIA, depending upon the directives of DoE.*
- 2) *Designated environmental consultants are expected to adhere to the guidelines outlined in Schedule 11 for the preparation of the EIA and Environmental Management Plan (EMP). In cases where these guidelines are unavailable from the Department, the EIA should be developed in accordance with the standards set by inter-*

national development partners.

- 3) *Additionally, proponents of Red Category and some selective Orange Category industries and projects must submit the EIA to the environmental clearance committee of the Department for review.*

Public consultation for EIA (section 16 of ECR, 2023)

According to the ECR 2023, public consultation is required to be undertaken by project proponents to identify concerns of local affected persons and other stakeholders during project design and planning stage. Again, the proponent of the projects that needs to prepare the EIA, need to arrange public consultation/ disclosure in presence of concerned stakeholders and officials of the DoE. Public consultation has been made mandatory for project proponents to obtain environmental clearance.

- 1) *which projects required to prepare an EIA necessitate public consultation that includes stakeholders and Department officials, as appropriate, at either regional or national levels.*
- 2) *The project proponent is required to submit the Environmental Impact Assessment (EIA) along with an Executive Summary in Bengali to the pertinent office, and to arrange for public consultation within seven working days.*
- 3) *Details regarding the consultation process must be made available on the websites of both the Department and the project proponent.*
- 4) *Public feedback on the draft EIA should be accepted for up to 30 days following its publication on the website.*
- 5) *The public consultation process must be finalized within 45 days of the draft EIA report's preparation, with a possible extension of 15 days if deemed necessary.*
- 6) *Active participation from relevant individuals, groups, and institutions is strongly encouraged throughout the consultation process.*
- 7) *Entrepreneurs are responsible for presenting information about the project, including its benefits, environmental and social impacts, mitigation strategies, and other pertinent details during the public opinion verification phase.*

EIA evaluation process (section 17 of ECR, 2023)

- 1) *The Environmental Clearance Committee has the authority to seek input from pertinent departments when deemed necessary for the clearance process.*
- 2) *The evaluation criteria encompass an analysis of the environmental impact, the proposed environmental management plan, public consultation, potential alternatives, site inspections, and requests for supplementary information.*
- 3) *Conditions for site clearance, along with associated reports like the Social Impact Assessment and Risk Management Plan, are subjected to comprehensive review.*

Approval process of EIA (section 18 of ECR, 2023)

- 1) *The Environmental Impact Assessment (EIA) has been*

sanctioned in accordance with Sub-rule (5) of Rule 15.

- 2) In line with Sub-rule (1), the applicant will receive written notification within seven working days if the clearance committee raises any objections.
- 3) The application may be rejected if the necessary corrective measures are not implemented within seven

working days.

- 4) Upon receiving the Site Clearance Certificate (SCC), the project or industry proponent may commence relevant activities.
- 5) The sanctioned EIA will be made available on the website for public access.

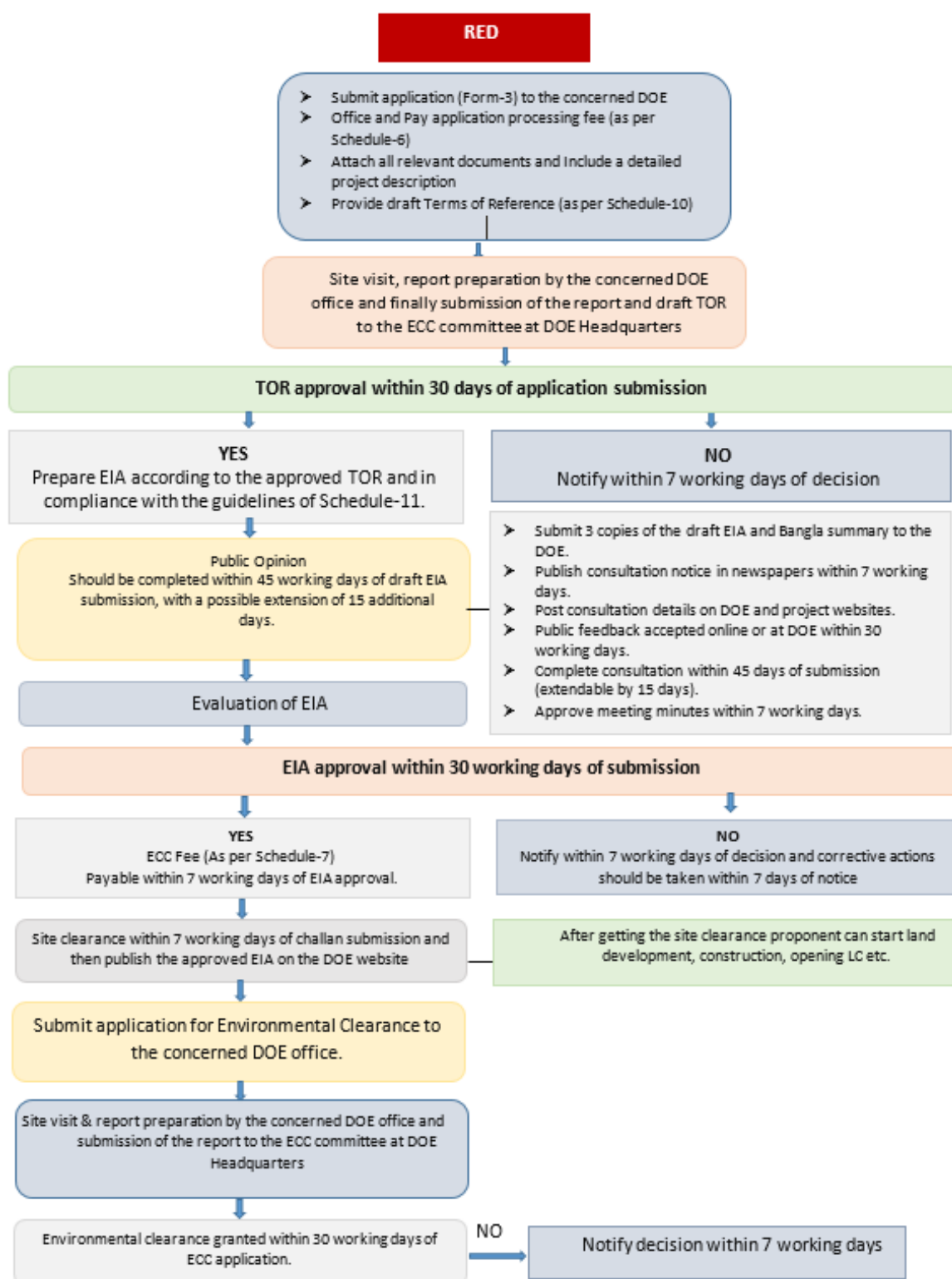


Figure 1. Procedure of approving EIA to issue Site Clearance Certificate.

Procedure of obtaining ECC (section 19 of ECR, 2023)

- 1) *After obtaining a Site Clearance Certificate, the project proponent applies to the Department to start industrial operations or projects.*
- 2) *After that, the Department visits the location to evaluate the site clearance requirements and the suggestions made in the Environmental Impact Assessment (EIA).*
- 3) *A copy is sent to the relevant regional or divisional office, and an inspection report is transmitted to the Department's headquarters' Environmental Clearance Committee.*
- 4) *The Committee evaluates the reports and documentation, subsequently providing recommendations to the Director General regarding the issuance of the Environmental Clearance Certificate.*
- 5) *Once the Director General grants approval, the Environmental Clearance Certificate is issued within 30 working days from the date of application.*
- 6) *In cases of denial, a written notification detailing the reasons will be provided within 7 working days.*
- 7) *For operational projects classified as Red category, the Department may require project proponents to revise the EIA in response to findings from monitoring reports and any environmental or social concerns.*

Validity period of Site and ECC (section 20 of ECR, 2023)

- 1) The Environmental Clearance Certificate for Green Category industries or projects shall be valid for five (5) years after it is issued, with the possibility of renewal every five (5) years after that.
- 2) For projects or businesses classified as Yellow Category, the Site or Environmental Clearance Certificate will be valid for two (2) years after it is issued, with the option to renew it every two (2) years.
- 3) For projects or industries in the Orange and Red Categories, the Site or Environmental Clearance Certificate will be valid for a year after it is issued, with the possibility of renewal every year.

Procedure for renewal of Site Clearance Certificate (section 21 of ECR, 2023)

- 1) For all industries or projects, the proponent must submit Form-4 to request the renewal of the Site Clearance Certificate and pay the fee listed in Schedule-7 in compliance with Rule 7 at least 30 (thirty) days before the Site Clearance Certificate expires. The proper office should receive the application.
- 2) The Site Clearance Certificate for the industry or project in question will be renewed if the competent office determines after a site inspection that the requirements specified in the certificate have been sufficiently met.

Procedure for renewal of Environmental Clearance Certificate (section 22 of ECR, 2023)

- 1) Industries or projects seeking renewal of their Environmental Clearance Certificate must submit an application to the relevant office in accordance with Rule 7

by completing Form-5 and paying the fee specified in Schedule-7.

- 2) The renewal of the Environmental Clearance Certificate for industries or projects classified as Green and Yellow Category will be granted by the relevant office following a site visit, provided that the conditions outlined in the existing certificate are satisfactorily fulfilled and the standards established by the Department are adhered to. In contrast, for industries or projects categorized as Orange and Red, the relevant office will forward the opinion, inspection report, and associated documents to the metropolitan, regional, or divisional office for a decision regarding the renewal of the Environmental Clearance Certificate.
- 3) Upon receiving approval for the recommendation outlined in Sub-rule (2) from the metropolitan, regional, or divisional office, the relevant office will proceed to renew the Environmental Clearance Certificate for the specified industries or projects.

Measures to be taken against industries or projects operating without Site or Environmental Clearance Certificate (section 23 of ECR, 2023)

- 1) In situations outlined in Rule 6, if it is discovered that an industry or project is operating without a Site or Environmental Clearance Certificate, the Director General will issue a notice to the relevant proponent, allowing a maximum of ten working days to provide justification.
- 2) Following the receipt of the response as stipulated in Sub-rule (1), the Director General will conduct a hearing with all relevant parties within seven working days.
- 3) Should the Director General find the explanations unsatisfactory after the hearing described in Sub-rule (2), he will instruct the appropriate authority to halt the operations of the industry or project and disconnect any utility services, along with implementing any other necessary actions.
- 4) If the industry or project is to be reopened after actions taken under Sub-rule (3), the proponent must complete Form-3 for the Site or Environmental Clearance Certificate, including all pertinent documents and the Environmental Management Plan (EMP). The application must be submitted to the appropriate office in accordance with Rule 7, along with the fee specified in Schedule-7.
- 5) In instances where an industry or project operates without the required Site or Environmental Clearance Certificate, the Director General will evaluate the environmental damage and implement recovery measures within the designated timeframe.
- 6) If the Director General determines any compensation under Sub-rule (5), the proponent of the industry or project will be responsible for its payment.
- 7) Should the proponent fail to remit the established compensation or undertake the necessary remedial ac-

tions within the specified timeframe, the Director General will initiate proceedings as per section (7) of the Act.

- a) *In situations described in Rule 6, where an industry operates without the necessary site or Environmental Clearance Certificate, the Director General will issue a notice to show cause within ten working days.*
- b) *After the response to the show-cause notice is received, a hearing will be set up with all pertinent parties within seven working days.*
- c) *If the Director General remains unsatisfied after the hearing, they may instruct the authorities to halt operations and implement necessary actions, such as disconnecting utility services.*
- d) *To resume operations after such measures, the project proponent must submit Form-3 for clearance, which should include details of the Environmental Management Plan, and apply to the appropriate office in accordance with Rule 7.*
- e) *The Director General will evaluate the environmental damage resulting from the unauthorized operation and will take recovery actions within the specified timeframe.*
- f) *Any compensation determined will be the responsibility of the industry or project proponent.*
- g) *Should there be a failure to pay the established compensation or to undertake the required remedial actions within the designated period, it may result in enforcement actions under Section 7 of the Act.*

Formulation of Environmental Clearance Committee (section 24 of ECR, 2023)

- 1) The Director General will take the following actions in order to fulfill the objectives specified in section 12 of the Act:
 - a) A director or an officer of comparable rank will be called to the Department's headquarters in order to form an Environmental Clearance Committee for projects or industries that fall under the Red Category and the applicable Orange Category. There will be a minimum of five members on this group, all of whom will be Department officers.
 - b) The Head of the appropriate office may be asked by the Department's Regional, Divisional, or Metropolitan office to establish an Environmental Clearance Committee for Orange Category projects or industries; this committee must consist of a minimum of three representatives from that office. For the Metropolitan, Divisional, and Regional offices, it is imperative that the head of the district office under the relevant office's jurisdiction be a member of the Environmental Clearance Committee.
- 2) The Environmental Clearance Committee is allowed to enlist the help of specialists who may offer insightful information on the environmental effects of the pertinent projects or companies.

- 3) Compensation for Environmental Clearance Committee members will follow government guidelines.

Functions of Environmental Clearance Committee (section 25 of ECR, 2023)

The following are the duties of the Environmental Clearance Committee at the Department's Head Office:

- 1) To analyze and appraise the Environmental Impact Assessment (EIA) scope and the EIA itself for projects or industries in the Red category;
- 2) To make suggestions to the Director General on the EIA scope and approval, including the granting of required clearances;
- 3) To set terms and conditions according to the particular projects or industries;
- 4) To recommend to the Director General that clearances be granted following the review of applications and preliminary environmental investigation reports for projects or industries falling under the Orange Category;
- 5) To provide recommendations to the Director General for Red and pertinent Orange category projects or industries after the Environmental Management Plan (EMP) and applications for clearance certificates have been reviewed;
- 6) To encourage industry or project proponents to be more socially and environmentally responsible;
- 7) To suggest that development of air pollution control systems and effluent treatment plants be approved for Red and relevant Orange category companies or projects;
- 8) To visit relevant industries or projects' sites as needed; and (i) To carry out any other duties as delegated by the Director General in compliance with section 12 of the Act.

The functions of the Environmental Clearance Committee at the Metropolitan, Divisional, and Regional Offices of the Department include:

- 1) Making decisions on the issuance of clearances after reviewing the initial environmental examination report and clearance application for applicable Orange category industries or projects;
- 2) Deciding on the issuance of permits by evaluating existing Environmental Management Plan (EMP) reports and permit applications for applicable Orange category industries or projects;
- 3) Setting conditions for concessions based on the nature and characteristics of the industry or project;
- 4) Authorization for the rerouting of the construction of the effluent treatment facility and the air pollution control system for relevant Orange category industries or projects;
- 5) Conduct a site visit to the proposed location of the relevant industry or project as necessary; and
- 6) Perform any additional duties assigned by the Director General in accordance with section 12 of the Act.

Functions of Environmental Clearance Committee (Head Office)

- 1) Assess and analyze the scope of Environmental Impact Assessments (EIA) for industries and projects classified as Red category.
- 2) Provide recommendations to the Director General regarding the scope and approval of EIAs, the issuance of clearances, and the establishment of terms and conditions for projects in the Orange category.
- 3) Evaluate initial environmental examination reports and permit applications for relevant Orange category projects, advising on the issuance of permits.
- 4) Suggest permits for Red and relevant Orange category projects, while reviewing reports on Environmental Management Plans.

Functions of Environmental Clearance Committee (Metropolitan, Divisional, and Regional Office)

- 1) Make a determination regarding the issuance of clearances following the assessment of preliminary environmental examination reports and applications related to relevant Orange category industries or projects.
- 2) Reach a decision on the issuance of permits by evaluating the Environmental Management Plan reports and permit applications for existing relevant Orange category industries or projects.
- 3) Establish the terms and conditions for concessions, taking into account the specific nature and attributes of the industries or projects involved.
- 4) Grant approval for the diversion of the construction of liquid waste treatment facilities and air pollution control systems for relevant Orange category industries or projects.

Ownership Transfer of Site or Environmental Clearance Certificate (section 26 of ECR, 2023)

- 1) In the event that an industry or project is assigned to another individual or entity, the Site or Environmental Clearance Certificate granted to the respective industries or projects may also be transferred. This transfer can occur upon submission of a written request by the representative, donor, or recipient of the industry or project, subject to the approval of the Director General.
- 2) Should a Site or Environmental Clearance Certificate be transferred in accordance with the provisions of sub-rule (1), it will be considered as having been transferred, including any directives issued by the Department that may contradict this transfer or any claims for compensation, if applicable.

Recommendations for Streamlining the EIA Approval System

The current Environmental Impact Assessment (EIA) approval process is a valuable mechanism to manage and guide industrial and development projects. The current process, however, consumes more time than necessary, causing delays in project implementation. To promote efficiency, transpar-

ency, and timely decision-making, the following recommendations are presented:

Reducing ToR Approval Times

Currently, the ToR for EIA approval is issued within 30 days. Reducing this to 15 days would significantly enhance overall efficiency and speed up the initial stages of the EIA process.

Prompt Notification of ToR Rejections

Presently, when a ToR is rejected, notices are given within 7 working days. It is better to issue rejection notices within just 3 working days in order to provide immediate feedback and enable proponents to adopt necessary remedial actions without delay.

Quicker Site Clearance Issuance

The present procedure states that site clearance is granted seven working days after the challan submission date. To allow proponents to move more quickly through later EIA processes, this can be shortened to two working days.

Faster EIA Report Approvals

Sanction and consideration of EIA reports take place now within 30 working days. By reducing this to 15 working days, while maintaining stringent evaluations, the process can be rendered more project-friendly and expeditious, without diluting environmental protection.

Expedited Notifications for EIA Corrections

Where an EIA report needs correction or revision, notifications are currently provided within 7 working days. This needs to be brought down to 3 working days to allow project proponents to revise and resubmit their reports timely without unnecessary delays.

Strengthening Manpower in the Department of Environment (DoE)

The efficiency of the EIA approval process is closely linked to the Department of Environment's capacity. Thus, it is necessary to strengthen workforces, particularly by hiring technical experts and reviewers in order to be capable of handling the increasing number of submissions of EIAs.

Carrying Out Digital Submission and E-Filing Systems

A fully electronic submission and e-filing program would notably reduce processing time, enhance transparency and minimize paperwork burden. An adequate online system would afford faster communication, real-time application status tracking and better accountability in the approval process.

4. Conclusions

Fair use of natural resources is essential to a sustainable built environment so that people can use modern conveniences for their socioeconomic development. Sustainable development principles must be rigorously followed, yet developing countries require more physical development to strengthen their economies and combat poverty. The concerned organization still requires additional funding and support to upgrade its equipment and human resources and better adhere to the EIA's commitments regarding develop-

ment projects, even though lawmakers, decision-makers, the media, and the general public now overwhelmingly support environmental improvement. Bangladesh EIA system is adequate in many aspects as per new environmental conservation rules, 2023. DOE has a potential role to play in guiding development project to be environment friendly. For this, Annadale suggested that a set of 'core criteria' must be met for an EIA to be effective which are: the existence of legal and administrative guidelines, existence of transparent government decision and approvals and adequate administrative support and vibrant private consulting sector. Therefore, an effort between all agencies and transparency would enable the country to pursue the right path for sustainable development through the application of EIA.

Abbreviations

ADB	Asian Development Bank
DoE	Department of Environment
EARP	Environmental Assessment and Review Process
ECR	Environmental Conservation Rules
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
IAIA	International Association for Impact Assessment
NEPA	National Environmental Policy Act
OD	Operation Directive
SCC	Site Clearance Certificate
SRO	Statutory Regulatory Order
ToR	Terms of References
UN	United Nations
UNEP	United Nations Environment Programme
USA	United States of America

Acknowledgments

The authors would like to thank South Asia Research and Corporate Advisory Limited, Level-09, Nahar Plaza, Hatir Pool, Dhaka, Bangladesh for partially funding this study.

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Conflicts of Interest

The authors declare that there is no conflict of interest regarding publication of this work. In addition, the ethical issues including plagiarism, informed consent, misconduct, data fabrication and, falsification, double publication and or submission and redundancy have been completely witnessed by the authors.

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