An Approach for Assessment for Environmental Damage And Estimation of Remediation Costs For Building Construction Projects initiated without obtaining mandatory Environmental clearance (Violation Cases)

1. Ministry of Environment and Forest (MoEFCC) has issued a notification on procedure to be adopted for dealing with the EC violation cases on 14.3.2017[1] and also, gave 6-month amnesty window for such proponents who have violated the EC regulations. These violations are primarily related to initiating the project work or carrying out the project activities without obtaining the mandatory EC. Special EAC was also notified to deal with violations cases at the central level. Subsequently, on 8.3.2018[2], MoEFCC issued another notification which delegated the powers to deal with such 'violation cases' to the concerned SEIAA and further provided an additional amnesty window of one month for such project proponents to apply for grant of EC.

2. The notification dated 14.3.2017 stipulated the procedure for consideration of such cases where construction of projects was carried out without obtaining EC, treating such cases as violation cases. The important provisions for considerations of such proposal in the said notification are as under;

   (2) In case the projects or activities requiring prior environmental clearance under Environment Impact Assessment Notification, 2006 from the concerned Regulatory Authority are brought for environmental clearance after starting the construction work, or have undertaken expansion, modernization, and change in product- mix without prior environmental clearance, these projects shall be treated as cases of violations and in such cases, even Category B projects which are granted environmental clearance by the State Environment Impact Assessment Authority constituted under sub-section (3) Section 3 of the Environment (Protection) Act, 1986 shall be appraised for grant of environmental clearance only by the Expert Appraisal Committee and environmental clearance will be granted at the Central level. (3) In cases of violation, action will be taken against the project proponent by the respective State or State Pollution Control Board under the provisions of section 19 of the

[1] MoEF notification SO 804 (E) Dated 14.3.2017
[2] MoEFCC notification SO 1030 (E) dated 8.3.2018

Environment (Protection) Act, 1986 and further, no consent to operate or occupancy certificate will be issued till the project is granted the environmental clearance. (4) The cases of violation will be appraised by respective sector Expert Appraisal Committees constituted under subsection (3) of Section 3 of the Environment (Protection) Act, 1986 with a view to assess that the project has been constructed at a site which under prevailing laws is permissible and expansion has been done which can be run sustainably under compliance of environmental norms with adequate environmental safeguards; and in case, where the finding of the Expert Appraisal Committee is negative, closure of the project will be recommended along with other actions under the law. (5) In case, where the findings of the Expert Appraisal Committee on point at sub-para (4) above are affirmative, the projects under this category will be prescribed the appropriate Terms of Reference for undertaking Environment Impact Assessment and preparation of Environment Management Plan. Further, the Expert Appraisal Committee will prescribe a specific Terms of Reference for the project on assessment of ecological damage, remediation plan and natural and community resource augmentation plan and it shall be prepared as an independent chapter in the environment impact assessment report by the accredited consultants. The collection and analysis of data for assessment of ecological damage, preparation of remediation plan and natural and community resource augmentation plan shall be done by an environmental laboratory duly notified under Environment (Protection) Act, 1986, or a environmental laboratory accredited by National Accreditation Board for Testing and Calibration Laboratories, or a laboratory of a Council of Scientific and Industrial Research institution working in the field of environment. (6) The Expert Appraisal Committee shall stipulate the implementation of Environmental Management Plan, comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefit derived due to violation as a condition of environmental clearance.

(7) The project proponent will be required to submit a bank guarantee equivalent to the amount of remediation plan and Natural and Community Resource Augmentation Plan with the State Pollution Control Board and the quantification will be recommended by Expert Appraisal

Committee and finalized by Regulatory Authority and the bank guarantee shall be deposited prior to the grant of environmental clearance and will be released after successful implementation of the remediation plan and Natural and Community Resource Augmentation Plan, and after the recommendation by regional office of the Ministry, Expert Appraisal Committee and approval of the Regulatory Authority.

Subsequently, vide notification dated 8.3.2018, such powers have also been delegated to concerned SEIAA.

3. Maharashtra Scenario: In Maharashtra, there are about 104 cases which have been submitted for grant of EC under this 'violation' notification. As per the information given by DoE, there are 91 cases related to building construction projects and 14 cases related to industry. However, this number is likely to increase substantially, as during evaluation of new EC cases, the SEAC generally finds non-compliance in the appraisal process.

4. Department of Environment (DoE) and SEIAA Maharashtra wanted to streamline the process of evaluation of the 'environmental damage assessment' for such violation cases to bring reasonable consistency and uniformity in approach and assessment while dealing with such cases. The assessment of environmental damage is no doubt a very specialised study and the parameters, approach, weightages, techniques are likely to vary significantly from project to project and also, from area to area. Still however, it would be necessary and prudent to develop some broad structure and framework for such environmental damage assessment which can be used by concerned SEAC for consistent and uniform methodology. The SEACs can obviously incorporate any new specific aspect of evaluation, based on project type, damages anticipated and sensitivity of project area by making special reference to such compelling factors to incorporate additional evaluation aspects. This report is outcome of such requirement of DoE and SEIAA Maharashtra.

5. As a part of preparation of Approach paper, a draft was widely circulated among the stakeholders including the NABET approved consultants and also, the associations of the project proponents. A consultative meeting

was also held in Pune on 21.12.2018 wherein inputs for stakeholders were also received.

6. The present approach paper deals only with Building construction project. However, the broad principles can be adopted with suitable modifications for the industrial projects. The subject of environmental damage assessment and also, restitution and restoration of environment is a very complex and multidisciplinary subject and the present approach paper is based on desktop studies to prepare some basic framework for assessment of the proposal received in order to ensure a broader consistency in appraisal for various SEAC. The framework is generic in nature and obviously, open for further updating with gain of knowledge and experience while dealing with subject, based on field level data and information.

7. Assessment of environmental damages and preparation of remediation plan are highly specialised subject and very much case specific. The methods and techniques to assess the damage would vary from project to project and also, has significant correlation with project site. Considering this, the scope of this approach paper has been limited to preparation of broad guidelines and framework to assess the damage, rather than detailing actual procedure and methodology. Considering the types of projects, the environmental damage assessment methodology can be conveniently grouped in three types of activities/process namely; a. building and construction activities b. infrastructure and mining and c. industries. The broader contours of environmental damage assessment of these three sectors would vary significantly in its content, scope of investigation and analytical processes to assess the damages. Considering the present scope of this report, the report only deals with damage assessment aspects of violation cases. In fact, most of the literature on environmental damage assessment is related to unauthorised effluent discharges, ecological damages, chemical accidents, ground water contamination, hazardous waste disposal etc. Though, there is also a serious and urgent need of developing India specific protocols for such environmental damage assessment as a part of enforcement strategy and interventions, the report does not deal with these aspects and the scope

strictly remains limited to damage assessment for violation cases as per MoEFCC notification dated 14.3.2018, with main focus on Building and construction projects as per the requirement of DoE and SEIAA.

8. Legal background: The "Polluter Pays" principle as interpreted by Supreme Court[3,4] means that the absolute liability for harm to the environment extends not only to compensate the victims of pollution but also the cost of restoring the environmental of the damaged environment is part of the process of "Sustainable Development" and as such polluter is liable to pay the cost to the individual sufferers as well as the cost of the reversing the damaged ecology The precautionary principle and the polluter pays principle have been accepted as part of the law of the land. It is thus settled by Supreme Court that one who pollutes the environmental must pay to reverse the damage caused by his acts. In *Vellore Citizens' Welfare Forum v. Union of India and Ors.: AIR1996SC2715*, the precautionary principles and polluter pays principle were held to be part of the environmental law of the country. It was held that the polluter pays principle means that the absolute liability for harm to the environment extends not only to compensate the victims of pollution but also the cost of restoring the environmental degradation. Remediation of the damaged environment is part of the process of sustainable development.

9. The use of liability assessment following instances of physical damage or pollution of environmental resources has long been a feature of national legislations. The restitution and restoration aspects have been part of Water (P&CP) Act, 1974, but unfortunately no specific guidelines or protocol have been established so far. There are also not much of established success stories of restitution which can provide some guidance. The National Green Tribunal Act, 2010 specifically provides provisions for restitution, restoration and compensation in case of environmental damages or incidences of environmental degradation, on strict liability basis. However, no technical guidelines or procedures are available for such environmental damage assessment or restoration or

[3] Enviro-Legal Action vs. Union of India 1996 (2) JT 196

[4] (1997)1SCC388B . W.P.(C) No996: M.C. Mehta Vs Kamal Nath and ors.

compensation etc except one prepared for CPCB for liability assessment for HW disposal.[5] Still however, there are no published case studies regarding application of these guidelines.

10. For example, the US Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) has provided for the clean-up of hazardous waste sites since 1980 and requires resource damage assessment for this and similar instances of environmental injury. In Europe, the Environmental Liability Directive (ELD 2004/35/EC) now applies a common approach to assessment which aims to prevent and remedy environmental damage by holding those responsible liable for remediation. However, while there are prescribed procedures for remediation, there remain the difficulty of how to achieve an equivalent level of habitat quality to that, which existed before an incident and how to account for interim losses, including losses to social wellbeing.

11. Damage as defined by the ELD presupposes that liability can be identified. Where this is possible, the ELD allows for three types of remediation:
    a. Primary remediation to restore a damaged resource or impaired service to its baseline condition;
    b. Complementary remediation when a site cannot be fully restored using primary remediation and which involves intervention or improvements to habitat at another site which is physically or geographically linked in terms of species/ habitats or human interactions;
    c. Compensatory remediation in cases where there are interim losses before ecological functions can be fully restored or replaced.

12. Liability to the government for clean-up costs and natural resource damages under CERCLA is generally joint and several, unless the defendant can show that the harm is divisible or another reasonable basis for apportionment. However, in the present case, as there is only single project, there is no occasion to consider proportioning the liability. The entire liability (absolute) on the complementary basis stands against the

[5] Guidelines on Implementing Liabilities for Environmental Damages due to Handling & Disposal of Hazardous Waste and Penalty, published by CPCB 2016.

project proponent, as the remediation and restoration of construction site is not envisaged.

13. A number of US courts have applied the "Gore factors," so named because they were part of a 1980 proposed amendment to CERCLA sponsored by then-Senator (now Vice President) Albert Gore (which was not ultimately enacted):
    a. the ability of the parties to show that their contribution to a discharge, release or disposal of a hazardous waste can be distinguished;
    b. the amount of the amount of hazardous waste involved; - the degree of toxicity of the hazardous waste involved;
    c. the degree of involvement by the parties in the generation, transportation, treatment, storage, or disposal of the hazardous waste;
    d. the degree of care exercised by the parties with respect to the hazardous waste; and
    e. the degree of party cooperation with government officials.

14. Federal courts have also applied the following other equitable factors:
    a. the relative fault of the parties in causing the release of the hazardous materials;
    b. the knowledge and/or acquiescence of the parties in the contaminating activities;
    c. the benefits received by the parties from the contaminating activities;
    d. the relative clean-up costs incurred as a result of the released hazardous wastes;
    e. the financial resources of the parties involved;
    f. contracts between the parties bearing on the subject;
    g. circumstances and conditions of property conveyance in cases involving successive owners; and
    h. any traditional equitable defences as mitigating factors.

15. Role of Consultants: The PP and industries generally take advise of the NABET approved consultants for preparation of EIA report and also, for

completing EC procedure. These consultants are 'accredited' consultants duly recognised by NABET after careful evaluation of their capabilities and understanding of environmental law and regulations besides technical competence. In other words, these consultants have been given special recognition and also, the MoEFCC notification has especially mandated that all the EIAs and EC procedures needs to be done only through NABET approved consultants, carving out a niche business for these consultants. Such a recognition and special business opportunity will obviously entail with 'responsibility' cast upon these consultants to advise the project proponents on compliance, identify the non-compliance and also, bring it to notice of project proponents/regulators at the first instance while advising the project proponents to ensure timely compliance. It is therefore necessary that the role of such consultants, if they are associated with the project proponents during the occurrence of such violation or immediately thereafter, needs to be critically examined in order to ensure that these consultants perform their duty to ensure compliance in a more effective way. The proposed damage and liability assessment exercise needs to cover these aspects which will ensure that the non-compliances in future are brought to the notice of project proponents and regulator in time, for timely enforcement and compliance actions.

16. Considering the above discussions, it is proposed that in this phase of report, methodologies for damage assessment and liability evaluation are proposed for building and construction projects, with following considerations;
    a. These methodologies are for the projects (construction and industries) which are in 'permissible' in the area where project is located and are included in 'regulated' activity as per EC regulations and associated notifications. The methodology cannot be and should not be applied for the projects in non-conforming zone.
    b. These methodologies are evolved only to consider limited violation in terms for initiating the project activities without EC. They cannot and should not be applied in case of any case pollution or degradation incident for which separate methodologies need to be developed and adopted.

17. Damage Assessment and Remediation cost:

The notification of 14.3 2017 describes the rationale for assessment of environmental damage costs and remediation costs as under;

"6. *The Expert Appraisal Committee shall stipulate the implementation of Environmental Management Plan, comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefit derived due to violation as a condition of environmental clearance.*

7. The project proponent will be required to submit a bank guarantee equivalent to the amount of remediation plan and Natural and Community Resource Augmentation Plan with the State Pollution Control Board and the quantification will be recommended by Expert Appraisal Committee and finalized by Regulatory Authority and the bank guarantee shall be deposited prior to the grant of environmental clearance and will be released after successful implementation of the remediation plan and Natural and Community Resource Augmentation Plan, and after the recommendation by regional office of the Ministry, Expert Appraisal Committee and approval of the Regulatory Authority. "

16. Three aspects emerge from the above as under;

a. The project proponent needs to develop remediation action plan commensurate with the environmental damage assessed and also, the economic benefit derived due to violation of EC.
b. The PP also needs to develop natural and community Resource Augmentation plan (NCRAP) along with the cost. This is not linked with the environmental damage or economic benefits accrued from violation.
c. Both the remediation and NCRAP needs to be implemented by PP independently which needs to be verified by regulatory authority. There is no time limit or verification methodology defined for such implementation. Still however, the time limit can always be

considered by authority as a part of EMP while approving the EMP and EC.

17. The literature and references available on environmental damages are mainly related to environmental degradation resulting from waste disposal or degradation of forest. The important aspects in the design of remediation program can be as under;

a. Damage assessment and significance;
   i. Definition of the status of the resource prior to the incident causing damage; (Baseline)
   ii. Assessment of the scale of damage; (Services and beneficial use of site)
   iii. Impact assessment; (modeling) and;
   iv. Determining whether damage is 'significant'. (Significance threshold and integrity of site)

b. Primary restoration options,
   i. With an aim to restore the damaged resource and, if possible, return the resource to baseline (pre-incident) conditions
   ii. Setting restoration targets;
   iii. Identifying primary restoration options;
   iv. Selecting primary restoration options; and
   v. Estimating interim losses

c. Compensatory restoration options.
   i. Setting the objectives for compensatory restoration options;
   ii. Monetary compensation and/or resource compensation;
   iii. Identifying the compensatory options; and
   iv. Selecting the compensatory options.

18. Generally, the remediation and restoration need to be designed based on either of the three following approaches in order to design, select and determine the scale of the compensatory restitution and restoration options

a. **Service-to-service approach:** Accept a one-to-one trade-off between the services that are lost due to damage and the services that are created through compensatory restoration. Reasonable to make this

assumption if the replacement resources are of the same type, quality and of comparable value.

b. **Value-to-value approach:** Used for scaling of Class II and II options, i.e. when the assumption of a one-to-one match between lost services and compensatory services is not necessarily valid. The approach estimates the economic value of interim losses and the economic value of the services generated by the compensatory restoration option.

c. **Value-to-cost approach:** Within this approach, restoration is scaled by equating the cost of the restoration plan to the value (in monetary terms) of losses due to the injury. This approach is only suitable when damage is relatively minor.

The remediation plan also needs to be proactive on futuristic issues and need to consider following;

- should be the result of an evaluation process based on, but not limited to the following :
  - The cost to carry out the option;
  - Time it will it take for the restoration to be effective;
  - Extent to which each option is expected to return the damaged resource to its baseline;
- Likelihood of success of each option;
- The extent to which each option will prevent future damage (flowing from the initial incident), and avoid collateral damage as a result of implementing the option;
- The extent to which each option generates benefits for the damaged and/or other natural resources beyond returning the damaged resource to its baseline; and
- The effect of each alternative on public health and safety

19. The total environmental damage needs to be assessed based on the environmental restoration cost required considering the above-mentioned project related attributes and as per the settled legal principles, such assessment need to be based on 'absolute' liability principle.

The notification refers to covering mainly three aspects in overall damage assessment studies prior to consideration of such violation cases, namely;

- Opportunity cost: benefits accrued due to early implementation of project without obtaining the mandatory EC and shall also include Cost for deterrence (penalty) for violation of EC regulation which needs to consider factors like project proponents track record, factors contributing to environmental damage etc.
- Environmental damage cost to be assessed based on the available data
- Cost of remediation and restoration.

20. While working on these themes, it would be necessary to keep in mind that the entire exercise is being under the provisions of the EC regulation 2006, as amended and the Environmental protection Act. It is also necessary to note that there are hardly any scientific studies to assess the environmental damages in holistic manner and also, there are very few cases where environmental restoration and restitution has fully been achieved. However, they are related to remediated of contaminated sites and/or contaminated ground water. There are several cases where the SC, HCs and NGT have ordered remediation and restoration, but there are hardly any studies where both restitution/restoration and damage assessment has been carried out simultaneously. It would therefore be necessary to adopt an approach which may be advoc in nature but based on scientific approach. There could be uncertainty in damage assessment but as already held by judicial pronouncements, the uncertainly in environmental damage and restoration on a positive side, towards preserving environment (precautionary principle) is acceptable, while demonstrating the good efforts in assessing the same.

21. Economic Benefit Assessment: One of the important aspects of this notification is inclusion of concept of economic benefits accrued due to violation of EC regulations. Traditionally, this concept has always been integrated in effective enforcement of standards and regulations all over the world because any violation or relaxation in environmental regulations, would result into economic advantage, rather in many cases, environmental norms are violated to derive economic advantages and benefits. In order to ensure that the compliance is encouraged, it would

be in the best interest to develop some tools to incorporate financial disadvantage for the non-compliance.

22. Violators obtain an economic benefit from violating the law by delaying compliance, avoiding compliance or achieving an illegal competitive advantage. In delaying compliance, the violators eventually comply, but they use the money that should have been spent on compliance. The violators then use that money for profit-making investments. In a very simple sense, the violators "gain" the interest on the amount of money that should have been invested in pollution prevention and control measures. When an offender avoids compliance, it essentially does not incur the costs that would have been necessary to come into compliance. The third type of economic benefit is derived from an illegal competitive advantage. It is necessary to have reliable methods to calculate any significant economic benefit of non-compliance. The existence of a well-defined and substantiated methodology strengthens the enforcement agency's position in case of eventual appeal of the assessment.

Though there are several references available for such assessment particularly by USEPA and also, several state environmental agencies besides OECD, One of the good case studies is prepared by OECD and is available at http://www.oecd.org/env/outreach/46959936.pdf. [6]. The study illustrates a key principle that in order to deter future non-compliance, a fine should at a minimum eliminate any financial gain or benefit the operator has obtained as a result of his non-compliance. The "benefit component" of a fine corresponds to the delayed or avoided compliance costs or the illegal competitive advantage and puts the violator in a less favourable situation compared to those who comply with the requirements in a timely manner. The additional penalty amount, or the "gravity component", should reflect the seriousness of the offence and the operator's behaviour. USEPA has also elaborate case studies on such efforts and has also developed the penalty and financial models that can be used to analyze the financial aspects of enforcement actions. https://www.epa.gov/enforcement/penalty-and-financial-models. BEN (5.8.0) - Calculates a violator's economic benefit of noncompliance from delaying or avoiding pollution control expenditures. The model requires the date the violation occurred, the date of compliance, the costs of

[6] REMOVING ECONOMIC BENEFITS OF ENVIRONMENTAL VIOLATIONS IN AZERBAIJAN: Case Study Report, By OCED

compliance and the year the costs were estimated, and the date the penalty will be paid. Still however, no much work has been done in Indian context on this principle of effective environmental governance, particularly enforcement.

All such economic benefit assessment needs to carefully designed in case of construction projects as scope and extent of construction in such building cases are rather governed by local municipal rules particularly for built up area, FSI, requirement of open area, parking etc. In many cases, the municipal laws are amended and some modifications are made in available permissible limits for the above criteria. The general trend in building industry to initiate the construction in anticipation of such amendments and modification. And therefore, in order to assess the economic benefits, it is proposed to consider the applicable laws on the date of violation, rather than while assessment of the damages and benefits accrued. The allowable built up, FSI, open space etc only shall be considered and any violation of these ground should also be assessed as economic benefits. Based on the actual data, three scenarios can be envisaged for violation of EC regulations by Building construction Industry;

A. The construction work is fully/partly completed without EC and the flats/commercial area is already sold to third parties.
B. The construction work is started and some amount has been received from third party, but now the work is stopped.
C. The construction work is started but no amount has been received from any third party.

23. One such approach adopted by Indiana government [7] elaborately discuss the matrix of calculations for the penalties for environmental violations. Though, presently, this approach paper does not deal with penalties, but the process and structured approach adopted therein, can suitably be adopted in the present study.

Violators Track record: As referred in above references, the violators track record and also, action subsequent to noticing the violations play an important role in formulation of environmental restoration and

[7] INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT NONRULE POLICY DOCUMENT, https://www.in.gov/idem/ctap/files/nrpd_enf-002.pdf

restitution program. Hon'ble Supreme Court in CIVIL APPEAL NO. 10854 OF 2016 decided on 10th August 2018 has elaborately considered such aspects and it is necessary to adopt the same approach while dealing with the EC violators.[8]

24. **Proposed Framework**: Considering the discussions above, following broad approach and framework is suggested to derive the environmental damage cost which needs to be considered while appraising the remediation plan and the costs associated with such proposed remediation costs. Moreover, such cost needs to be appropriately accounted for the opportunity costs which *inter alia* should include the factors related to environmental track record of the project proponents. The proposed framework is suggestive in nature and is an attempt to develop a framework for such assessment in future, based on scientific evidence. Moreover, this framework is essentially for cases of violation of EC regulations in terms on obtaining the EC by construction projects and is not aimed to be used as enforcement tool in case of violation of EC conditions and/or incidences of pollution of environmental degradation. Still however, the SEAC can expand the scope of such assessment and costing with reference to any specific incidence on case to case basis, particularly where construction is carried out at industrial sites and/or there are complaints of pollution due to construction which will further strengthen such appraisal process. It is necessary to collect some specific information from the project proponents to assess such cost of remediation and also, opportunity cost. Therefore, a set of information is proposed to be called from PP as under. Some of the information could be repetitive but it would be worth to have all such relevant information at a place to understand the process.

[8] https://www.sci.gov.in/supremecourt/2016/37233/37233_2016_Judgement_10-Aug-2018.pdf

25. Information Required:

A. Project details;

1	Name and address of Project	
2	Name of Directors	
3	Total construction completed (built-up area as per EC notification):	
4	Total construction proposed, built-up area as per EC notification	
5	Whether the project has any EC; if yes, give details including approved built up area	
6	Total cost of the project and total cost of the project already executed? Also, give total cost of the project constructed without EC.	
7	Date of commencement of project	
8	Date of violation of EC regulation (please justify with documentary evidence)	
9	Date of first submission of information of such violation to the SEIAA or SEAC, if self-notified, along with stoppage of construction work	
	1. No. of days of violation (9-8)	
10	Name and address of Environmental consultant, with date of engagement of such consultant	
11	Any other case of EC violation is reported or pending or decided earlier for projects where any of	

	the directors are involved? If yes, give details	
12	Any court case related to EC violation pending or decided against any of the directors including High Court, NGT and sessions court?	

B. What can be the attributes for environmental damages: The PP and consultant needs to describe the details of each attributes in qualitative and quantitative manner; for example;
   1. Air pollution: construction dust, noise, demolition dust
   2. Water: incremental sewage increase, extra water pumped from foundations
   3. Soil: excess foundation excavation, excess ground foot print
   4. Noise: extra time required for construction,
   5. Loss of vegetation: additional trees cut (type, age and number of trees with its significance)
   6. Transport and material handling

C. Description of activities contributing to the environmental damage and degradation;

A.	**Demolition, site preparation**	
1	Whether any demolition work was carried out prior to EC? If yes what is date of commencement of demolition and also date of completion of demolition?	
2	Whether such demolition or site had some asbestos, industrial waste or contaminated soil or hazardous waste etc and if yes, how these types of waste have been segregated and disposed?	
3	If the project is located on any industrial site, whether any due diligence or environmental	

	status of site was assessed? If yes, give details	
4	State the quantity of demolition waste disposed from the site, including quantity and disposal location along with location map and photographs	
5	Any air quality (including noise) monitoring done during demolition work? If yes, results	
6	Whether building plan and layout approved and permission from local authorities is taken to commence the work prior to demolition work	
7		
B.	**Construction stage**	
1	Date of commencement of construction and completion of construction, if any	
2	Whether the construction carried out is strictly as per the sanction plan given by concerned local authority? If yes, please provide such certification	
3	In the additional construction, how much construction material including, sand, bricks, cement etc was required to be transported? No. of trucks and its average haulage?	
4	How many labours were engaged in construction, average per day?	
5	Whether, the additional construction work, over and above valid EC, if so available, has any additional ground foot print? If yes please state, ground foot print in sqm as per EC approved	

	layout and current proposed layout?	
6	Whether the expansion was carried out simultaneously with EC approved work? If not give details of time frame? If yes, please give incremental additional time required for construction of additional area	
7	Is there any change in foundation design, i.e. depth of foundation, basement etc. that were done due to additional area? If yes, what is the additional soil quantity excavated for such incremental foundation depth? Where it is disposed?	
8	What is the quantity of top soil removed and how it is managed?	
9	Also, if water is encountered at such foundation depth, what is the volume of water pumped for such additional depth of excavation?	
10	How much additional water was required for curing and construction purpose? Source of water?	
11	Rain Water harvesting details	
12	Solar light, water heating details	
13	Use of fly ash bricks ensured? Details thereof	
14	Whether any noise or air pollution control measures taken, if so what are they?	
15	Whether any air quality and noise level monitoring done	

	during construction stage, if yes attach results	
16	Whether any third-party rights are created on the construction without EC?	
17	Whether any of the construction without EC has already been occupied? If yes, number of families given such occupation. Also give total commercial area being used presently. Also state type of commercial activity i.e. offices, shops, hotels, restaurants etc.	
18	How many flats sold which are in the area of EC violation and total sale value of such flats	
19	How much commercial area sold which is in area of EC violation and total sale value of such commercial area.	
C	**Commissioning of project**	
1	Date of when the project was made operational either by giving possession of residential or commercial areas of the project?	
2	How many families are staying in project?	
3	What is total water supply to project, source and quality	
4	Total sewage generation m3/day	
5	STP details,	
6	Treated wastewater disposal	
7	Any DG sets, are they complying the norms	

26. The notification provides for "*The Expert Appraisal Committee shall stipulate the implementation of Environmental Management Plan, comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefit derived due to violation as a condition of environmental clearance.".* It can be seen from the provision that EMP is required to have two components i.e. 1. Remediation plan and 2. Natural and community resource augmentation plan. They are required to be corresponding to the ecological damage assessed and economical profit derived due to the violation.

Considering the broad conspectus and the need to evaluate the ecological assessment which will vary from project to project, site to site and also, will be subject of very detailed relative assessment. In absence of standard protocol and guidelines for such ecological damage assessment, it is proposed to adopt an advoc approach only for construction projects within the parameters specified by the notification. It is proposed to have broadly two components i.e. environmental damages and secondly economic benefits derived. The economic benefits derived can suitably take into account the construction stage besides the role and environmental performance record of the project proponent.

And therefore, the EMP and natural resource augmentation plan shall not only cover the ecological damages but also, the track record of project proponents as an attribute of the economic benefits derived. As regards the ecological damages, a protocol which is rather based on basic environmental impacts like soil disposal, noise, air pollution, water pollution etc has been prepared by Gujarat SEAC, which is further modified to incorporate additional factors. The protocol format presented below is required to be prepared and certified by approved environmental consultants who are required to submit an undertaking certifying correctness of the data presented.

Format of Assessment of Environmental Damages

Attributes	Scope of saving on account of environmental protection measures	EMP cost	
		Recurring cost, per day (Rs.)	Non-recurring cost (Rs.)
Air Pollution	Water requirement for sprinkling (KL/day): Cost of 1 KL water (Rs):		
Water Pollution	A. Cost of water requirement: a). Construction phase: b). Operation phase: B. Cost of sewage treatment, reuse & disposal: a). Construction phase: b). Operation phase: C. Quantity of water pumped out during excavation and a lumpsum cost of Rs. 50 per cum for such unauthorized water extraction and disposal D. cost of construction& maintenance of recharge well:		
Soil environment	In case of demolition has carried out, the cost of demolition waste manage-ment plan needs to be discussed and finalized as non- recurring cost.		
	In case there is some hazardous waste like asbestos or the site is located on industrial area where hazardous chemical or waste was handled, the cost based on due diligence of the project site, as given by consultants. (the report must include soil analysis, water analysis, MPCB consent copies, manifest of HW if any). This requires critical examination from SPCB.		

	Cost of preservation of top soil & excavated earth to be considered. [Area (m2)xdepth (m)x sp. Gravity (kg/m3)x cost per ton (Rs.)]		
Noise and Vibration	For damage due to noise pollution & vibration, the cost of barricades around the project site should be considered. [perimeter (m) x height of the barricade(m) x cost of the sheet)		
Green Belt	In case of any tree cutting without EC cost of Rs. 10000/- per tree apart from any statutory action for such tree cutting if any, Cost of planting & maintaining trees (Number of trees as per the bye-laws) Cost of compensatory tree plantation (5 trees for each tree cut)		
RH/OHS	Cost of workers benefit to be considered in view of Building and Other Construction Workers' Welfare Cess Act, 1996		
	A. cost of health checkup of workers: B. cost of safety measures including PPEs:		
Total			

27. The economic benefits derived can be either on both costs saved towards not taking appropriate environmental protection measures and also, the benefits derived by going ahead with project to gain commercial gains. This aspect has also been considered by Gujarat SEAC, by apportioning 10% amount of profit which is considered to be 20% construction costs including the land value. All the standard literature including regulatory guidelines referred above incorporate such commercial economic benefits accrued from early going ahead by starting and commissioning project without obtaining EC. It is therefore necessary to incorporate such

consideration in assessing the economic benefits which can be deterrent factor in future cases. At the same time, it is necessary that there should be a consideration for such cases where the project proponent has applied for EC but for some reason or other the EC is not considered and granted without assigning any reason beyond a reasonable time frame. There could be different scenarios for such economic benefit assessment;

- The construction (residential/commercial) under violation, where the construction is stopped after some time:
- The construction (residential/commercial) under violation and where the full construction area is occupied by the third party:
- The construction area (residential/commercial) under violation where the partial construction is occupied by the third party

There could be different ways to assess the Economic benefit derived, considering various aspects like stage of construction, Ready reckoner cost, project cost, cost of the construction under violation, status of violation and also, track record of environmental compliance of the project proponent. However, the notification neither refer to any method or technique to assess the economic benefits nor provide any specific method for assessing environmental damage. There are no standard guidelines available on assessing the economic benefits proportioning above mentioned attributes. And hence, in absence of uniform and objective methodology on pan India basis, it would be prudent to adopt simplistic and uniform approach for such assessments. This will primarily avoid subjectivity and reliance on unverified and uncertain data. Another aspect which is relevant here is that the present proposals are submitted under the amnesty scheme and hence, a specific view needs to be taken while appraising the projects to avoid further complications and uncertainty. However, there is an urgent need to evolve specific guidelines and methodology for assessment of economic benefits accrued due to environmental no-compliance.

Detailed deliberations on these aspects have been held and it is noted that the economic benefit can best be realistically assessed in terms of the % of total project cost. Considering the present practice in states like Gujarat and also, Tamil Nadu etc, and keeping high cost of property in the state, it is proposed to consider 1% of project cost, including land, as

declared by the project proponent before SEAC, as the economic benefit accrued due to non-compliance, subject to maximum amount of Rs. 10 Cr. Such an approach seems more rational, consistent and objective without any subjectivity, in the absence of any specific guidelines or methods given in the notification or any specific guidance from MoEFCC on these issues. Such an approach is also consistent with the spirit of notification. It would be important to note that such methodology is not universal and is only applicable for the building and construction projects, and will be applicable till a scientific methodology is evolved at national level or any specific guidelines are issued by MoEFCC. However, it is imperative and necessary to ensure that these additional costs are required to be borne by Project proponent and cannot be and shall not be passed on to the consumers. In fact, the customers are entitled to seek any other legal remedy for any compensation etc as per prevailing laws.

28. In addition to above environmental damage costs, it is necessary to incorporate certain consideration for the environmental track record of the project proponent as a part of economic benefits accrued by the proponents and it is proposed that for each of earlier or similar other EC violation in other projects being developed by project proponents shall be accounted for Rs. 10,00,000/- (Rs. Ten lakhs) in the community action plan. This consideration directly stems from Gore's correction referred earlier. This will surely bring the frequent and habitual defaulters on a common platform which is a significant step for future compliance enforcement. The regular defaulters will find such a criterion as a 'reputation risk' which itself will trigger the compliance in future. The final amount towards remediation, and natural and community resource augmentation action plan can be summation of these aspects or the amount equivalent to the CER amount as per the MOEF&CC's office Memorandum No: F NO 22-65/2017-IA-III dated 01/05/2018, whichever is higher.

29. **Calculation of Cost of remediation plan and natural & community resource augmentation plan**

Sr	Description	Details	Amount
A	Assessment of Environment Damages		
1	Total of recurring cost	Cost arrived from above table per day X number of days in violation	
2	Non-recurring cost	Cost as arrived from above table	
	Sub Total (1+2 above)	(Subject to minimum Rs. 1 crore)	
B.	Economic benefits accrued due to violation		
1.	Economic benefits	1% of Total Project cost including land, as declared by PP before SEAC, subject to maximum Rs. 10 Cr.	
2.	Track Record of Project proponent	Incremental cost of Rs. 10 lakhs for each EC violation by PP observed at any other projects in last 3 years	
C.	Cost of remediation plan and natural & community resource augmentation plan	Sum of A and B above or amount equivalent to the CER amount as per the MOEF&CC's office Memorandum No: F NO 22-65/2017-IA-III dated 01/05/2018, whichever is higher.	

30. It is manifest from the language of the notification that the spirit of notification is twofold; firstly, there needs to a deterrent action against EC violation and secondly, there needs to be sufficient environmental restoration and restitution of the presumed environmental damages which generally occur in the surrounding due to construction projects. In the present case, most of the construction projects are located in urban areas of Mumbai and Pune and hence, in order to ensure that the local community really gets benefitted by such planned environmental restoration program, it is proposed that such environmental restoration/restitution shall preferably be carried out in the surrounding of the project location.

31. Another important aspect of the notification is that the PP needs to give a bank guarantee of equivalent amount and such bank guarantee will be returned on verification of implementation of such EMP by regional office of Ministry, and further recommended by SEAC and only thereafter, SEIAA can take a decision on return of BG. The notification contemplates inclusion of such action plan as part of EMP. However, it is required to note that the proposed remediation and community restoration program will have to be carried out ex-situ i.e. not at construction site as there would not be appropriate place to carry out remediation or restoration, and moreover, most of the environmental damage would have been in the surrounding area like; in terms of air pollution or noise pollution or the soil disposal related issues. And as such, the project proponent will not have administrative control or mechanism to carry out such complementary remedial actions in the areas which are not under his control. One of the options is conducting such activities similar to CSR. Be that as it may, it is an admitted fact that there is a significant gap in such verification of compliance through environmental regulatory authority and therefore it would be difficult for SEAC and SEIAA to take a decision in this regard.

32. In order to simplify the entire process, it is proposed that the estimated EMP cost can be attributed to overall environmental development works in a fixed approportionate percentage which will avoid ambiguity and inconsistency. Though such a scheme of restoration may not be ideal scenario for any environmental restoration program, but as in the present case, we are strictly dealing with ex-situ restoration or rather environmental improvement program, such a practice can be most appropriate and effective. However, such practice cannot be adopted for

any future on-site restoration/restitution and is not a substitute 'pay and pollute' formulae for well established legal principle of 'polluter pays'.

33. The actual cost of remediation proposed at site can be given separately, duly certified by the environmental consultant which can be considered by SEAC and SEIAA before considering the amount which can be reduced from the cost arrived at above. However, such remediation is not expected to cover mandatory requirements of compliance or EMP, and needs to cover only exclusive efforts of environmental damage remediation.

34. Based on discussions with stakeholders, following areas have been identified for resource allocation through such EMP cost, which are subject to final decision, for both activities and allocation, by SEIAA and Govt of Maharashtra;

Sr. No	Description of Activity	% allocation	Implementing agency	Remarks
1	Afforestation (can include plantation, garden development)	25	Social forestry and Local body	The afforestation can be either through social forestry or the Local body. Preferably within 50 km from project site
2	Water conservation program (Jalyukt shivar, etc)	25		Preferably within 50 km radius of project site
3	Urban environment and sanitation (can include swatccha Bharat, playground development, urban ground-water recharge schemes etc)	20	Local body	
4	Sewerage lines and STP, solid waste management,	20	Local body	

5	Urban air/noise pollution control initiatives	10	Local body	

35. Implementation strategy: The notification envisages the project proponents to carry out the remedial works. As discussed above the project proponent would not be in a position to carry out such remedial works on his own. And therefore, in order to effectively implement the restoration program, it was proposed that the PP can deposit such costs with District collector or Municipal Commissioner, who can spend such amount on identified projects and certify the work completion and/or utilisation of amount. However, such a proposal could not get concurrence from MoEFCC as the proposal is `*stricto senso'* not as per the notification, which envisages submission of bank guarantee by PP and also, carrying the works directly.

Still however, as it is finally SEAC and SEIAA, who need to verify and accept the completion of restoration program, it is necessary to streamline such process of environment restoration in order to have an objective and consistent approach for such post-implementation assessment. It is therefore proposed that the concerned Municipal commissioner (in case of Municipal corporation areas) or the District Collector (for remaining areas) where the project is located shall identify suitable projects as per broad guidelines presented in above table within 5 km from the project site, in consultation with MPCB officials, if necessary, and the project proponent can either carry out such work on his own or can contribute to civic or government funds for such ongoing projects. The PP will need to submit the equivalent BG independently as per provisions of notifications. The Municipal Commissioner or the District Collector can take any other specific project related to environmental restoration in consultation with MPCB. They are further required to take review of implementation of such projects on monthly basis and, on the utilisation of the funds contributed by PP, a utilisation certificate need to be issued for the purpose. Such a certificate can be the basis of verification by Regional office MOEFCC and SEAC for further approval of SEIAA. It is expected that such contribution would be effectively utilised within maximum 2 years.