

BEFORE THE NATIONAL GREEN TRIBUNAL, PRINCIPAL
BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 994/2019

IN THE MATTER OF:

Residents of Gaur Sportswood, Sector-79, Noida... APPLICANT(s)

VERSUS

Union of India & Ors.

.....RESPONDENT(s)

**COMPLIANCE REPORT ON BEHALF OF U.P. POLLUTION
CONTROL BOARD.**

In the matter of O.A. No. 994/2019, Residents of Gaur Sportswood, Sector-79, Noida Vs. Union of India & Ors, the following order's have been passed on 15-10-2019 by the Hon'ble NGT.

"1. This application has been filed with a grievance that a construction & demolition waste processing plant has been set up by Ramky Reclamation & Recycling Limited in Sector 79, Noida without requisite Environmental Clearance (EC) or Consent under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 and the applicable Rules.

2. Before we consider the grievance, we find it necessary to require the Uttar Pradesh Pollution Control Board (UPPCB) to furnish a factual report in the matter within one month by e-mail at judicial-ngt@gov.in.

A copy of this order be sent to the UPPCB by e-mail for compliance. The applicant may serve a set of papers on the UPPCB and file an affidavit of service within one week."

Present status is as follows.



1. The Construction and demolition waste facility is not covered under environmental clearance category as per Notification SO No. 1533 dt. 14-09-2006. Copy annexed **Annexure-1**
2. Construction & demolition waste facility is covered under orange category as per guideline of CPCB Environmental Management of Construction & Demolition (C & D) Waste 2018 copy annexed **Annexure-2**
3. New Okhla Industrial Development Authority (Noida) has allotted a land, plot no-C-48 Sector-80, Noida Gautambudh Nagar to M/s Ramky Enviro Engineer's Ltd for establishment of C&D waste utilization plant of capacity 300 Tons per day. copy annexed – **Annexure-3**
4. An Application for Consent to Establishment (CTE) has been applied online by the said firm in the name of M/s Construction & Demolition Waste Management facility plot no- C-48, Sector-80, Noida, Gautambudh Nagar. Considering the proposals submitted by them, a conditional consent to establishment (CTE) has been issued to them on 03-10-2019. Copy annexed. **Annexure-4**
5. Construction work for making boundary wall and leveling of the land is being done at the site now.

Status report submitted for kindly perusal.


19.12.19
(Krishna Mohan Srivastava)
Asstt. Environment Engineer,
UP Pollution Control Board
E-12/1, Sector-1, Noida


19/12/19
(Dr. Anil Kumar Singh)
Regional Officer,
UP Pollution Control Board
E-12/1, Sector-1, Noida

(Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii)
MINISTRY OF ENVIRONMENT AND FORESTS
New Delhi 14th September, 2006
Notification

S.O. 1533(E). - Whereas, a draft notification **under sub-rule (3) of Rule 5 of the Environment (Protection) Rules, 1986 for imposing** certain restrictions and prohibitions on new projects or activities, or on the expansion or modernization of existing projects or activities based on their potential environmental impacts as indicated in the Schedule to the notification, being undertaken in any part of India¹, unless prior environmental clearance has been accorded in accordance with the objectives of National Environment Policy **as approved by the Union Cabinet on 18th May, 2006** and the procedure specified in the notification, by the Central Government or the State or Union territory Level Environment Impact Assessment Authority (SEIAA), to be constituted by the Central Government in consultation with the State Government or the Union territory Administration concerned under sub-section (3) of section 3 of the Environment (Protection) Act, 1986 for the purpose of this notification, was published in the Gazette of India ,Extraordinary, Part II, section 3, sub-section (ii) vide number S.O. 1324 (E) dated the 15th September ,2005 inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from the date on which copies of Gazette containing the said notification were made available to the public;

And whereas, copies of the said notification were made available to the public on 15th September, 2005;

And whereas, all objections and suggestions received in response to the above mentioned draft notification have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986, read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 and in supersession of the notification number S.O. 60 (E) dated the 27th January, 1994, except in respect of things done or omitted to be done before such supersession, the Central Government hereby directs that on and from the date of its publication the required construction of new projects or activities or the expansion or modernization of existing projects or activities listed in the Schedule to this notification entailing capacity addition with change in process and or technology shall be

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

undertaken in any part of India only after the prior environmental clearance from the Central Government or as the case may be, by the State Level Environment Impact Assessment Authority, duly constituted by the Central Government under sub-section (3) of section 3 of the said Act, in accordance with the procedure specified hereinafter in this notification.

¹Includes the territorial waters

2. Requirements of prior Environmental Clearance (EC):- The following projects or activities shall require prior environmental clearance from the concerned regulatory authority, which shall hereinafter referred to be as the Central Government in the Ministry of Environment and Forests for matters falling under Category 'A' in the Schedule and at State level the State Environment Impact Assessment Authority (SEIAA) for matters falling under Category 'B' in the said Schedule, before any construction work, or preparation of land by the project management except for securing the land, is started on the project or activity:

- (i) All new projects or activities listed in the Schedule to this notification;
- (ii) Expansion and modernization of existing projects or activities listed in the Schedule to this notification with addition of capacity beyond the limits specified for the concerned sector, that is, projects or activities which cross the threshold limits given in the Schedule, after expansion or modernization;
- (iii) Any change in product - mix in an existing manufacturing unit included in Schedule beyond the specified range.

3. State Level Environment Impact Assessment Authority:- (1) A State Level Environment Impact Assessment Authority hereinafter referred to as the SEIAA shall be constituted by the Central Government under sub-section (3) of section 3 of the Environment (Protection) Act, 1986 comprising of three Members including a Chairman and a Member – Secretary to be nominated by the State Government or the Union territory Administration concerned.

- (2) The Member-Secretary shall be a serving officer of the concerned State Government or Union territory administration familiar with environmental laws.
- (3) The other two Members shall be either a professional or expert fulfilling the eligibility criteria given in Appendix VI to this notification.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

- (4) One of the specified Members in sub-paragraph (3) above who is an expert in the Environmental Impact Assessment process shall be the Chairman of the SEIAA.
- (5) The State Government or Union territory Administration shall forward the names of the Members and the Chairman referred in sub- paragraph 3 to 4 above to the Central Government and the Central Government shall constitute the SEIAA as an authority for the purposes of this notification within thirty days of the date of receipt of the names.
- (6) The non-official Member and the Chairman shall have a fixed term of three years (from the date of the publication of the notification by the Central Government constituting the authority).

¹“(7) All decisions of the SEIAA shall be taken in a meeting and shall ordinarily be unanimous:

Provided that, in case a decision is taken by majority, the details of views, for and against it, shall be clearly recorded in the minutes and copy thereof sent to MoEF.”

4. Categorization of projects and activities:-

- (i) All projects and activities are broadly categorized in to two categories - Category A and Category B, based on the spatial extent of potential impacts and potential impacts on human health and natural and man made resources.
- (ii) All projects or activities included as Category ‘A’ in the Schedule, including expansion and modernization of existing projects or activities and change in product mix, shall require prior environmental clearance from the Central Government in the Ministry of Environment and Forests (MoEF) on the recommendations of an Expert Appraisal Committee (EAC) to be constituted by the Central Government for the purposes of this notification;
- (iii) All projects or activities included as Category ‘B’ in the Schedule, including expansion and modernization of existing projects or activities as specified in sub paragraph (ii) of paragraph 2, or change in product mix as specified in sub paragraph (iii) of paragraph 2, but excluding those which fulfill the General Conditions (GC) stipulated in the Schedule, *will* require prior environmental clearance from the State/Union territory Environment Impact Assessment Authority (SEIAA). The SEIAA shall base its decision on the recommendations of a State or Union territory level Expert Appraisal Committee (SEAC) as to be constituted for in this notification. ^{II} “In the absence of a duly constituted SEIAA

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

or SEAC, a Category 'B' project shall be considered at Central Level as a Category 'B' project;"

5. Screening, Scoping and Appraisal Committees:-

The same Expert Appraisal Committees (EACs) at the Central Government and SEACs (hereinafter referred to as the (EAC) and (SEAC) at the State or the Union territory level shall screen, scope and appraise projects or activities in Category 'A' and Category 'B' respectively. EAC and SEAC's shall meet at least once every month.

- (a) The composition of the EAC shall be as given in Appendix VI. The SEAC at the State or the Union territory level shall be constituted by the Central Government in consultation with the concerned State Government or the Union territory Administration with identical composition;
- (b) The Central Government may, with the prior concurrence of the concerned State Governments or the Union territory Administrations, constitutes one SEAC for more than one State or Union territory for reasons of administrative convenience and cost;
- (c) The EAC and SEAC shall be reconstituted after every three years;
- (d) The authorised members of the EAC and SEAC, concerned, may inspect any site(s) connected with the project or activity in respect of which the prior environmental clearance is sought, for the purposes of screening or scoping or appraisal, with prior notice of at least seven days to the applicant, who shall provide necessary facilities for the inspection;
- (e) The EAC and SEACs shall function on the principle of collective responsibility. The Chairperson shall endeavour to reach a consensus in each case, and if consensus cannot be reached, the view of the majority shall prevail.

6. Application for Prior Environmental Clearance (EC):-

An application seeking prior environmental clearance in all cases shall be made in the prescribed Form 1 annexed herewith and Supplementary Form 1A, if applicable, as given in Appendix II, after the identification of prospective site(s) for the project and/or activities to which the application relates, before commencing any construction activity, or preparation of land, at the site by the applicant. The applicant shall furnish, along with the application, a copy

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

of the pre-feasibility project report except that, in case of construction projects or activities (item 8 of the Schedule) in addition to Form 1 and the Supplementary Form 1A, a copy of the conceptual plan shall be provided, instead of the pre-feasibility report.

7. Stages in the Prior Environmental Clearance (EC) Process for New Projects:-

7(i) The environmental clearance process for new projects will comprise of a maximum of four stages, all of which may not apply to particular cases as set forth below in this notification. These four stages in sequential order are:-

- Stage (1) Screening (Only for Category 'B' projects and activities)
- Stage (2) Scoping
- Stage (3) Public Consultation
- Stage (4) Appraisal

I. Stage (1) - Screening:

In case of Category 'B' projects or activities, this stage will entail the scrutiny of an application seeking prior environmental clearance made in Form 1 by the concerned State level Expert Appraisal Committee (SEAC) for determining whether or not the project or activity requires further environmental studies for preparation of an Environmental Impact Assessment (EIA) for its appraisal prior to the grant of environmental clearance depending up on the nature and location specificity of the project . The projects requiring an Environmental Impact Assessment report shall be termed Category 'B1' and remaining projects shall be termed Category 'B2' and will not require an Environment Impact Assessment report. For categorization of projects into B1 or B2 except item 8 (b), the Ministry of Environment and Forests shall issue appropriate guidelines from time to time.

II. Stage (2) - Scoping:

(i) "Scoping": refers to the process by which the Expert Appraisal Committee in the case of Category 'A' projects or activities, and State level Expert Appraisal Committee in the case of Category 'B1' projects or activities, including applications for expansion and/or modernization and/or change in product mix of existing projects or activities, determine detailed and comprehensive Terms Of Reference (TOR) addressing all relevant environmental concerns for the preparation of an Environment Impact Assessment (EIA) Report in respect of the project or activity for which prior environmental clearance is sought. The Expert Appraisal Committee or State level Expert Appraisal Committee

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

concerned shall determine the Terms of Reference on the basis of the information furnished in the prescribed application Form 1/Form 1A including Terms of Reference proposed by the applicant, a site visit by a sub- group of Expert Appraisal Committee or State level Expert Appraisal Committee concerned only if considered necessary by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, Terms of Reference suggested by the applicant if furnished and other information that may be available with the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned. All projects and activities listed as Category 'B' in Item 8 of the Schedule (Construction/Township/Commercial Complexes /Housing) shall not require Scoping and will be appraised on the basis of Form 1/ Form 1A and the conceptual plan.

- (ii) The Terms of Reference (TOR) shall be conveyed to the applicant by the Expert Appraisal Committee or State Level Expert Appraisal Committee as concerned within sixty days of the receipt of Form 1. In the case of Category A Hydroelectric projects Item 1(c) (i) of the Schedule the Terms of Reference shall be conveyed along with the clearance for pre-construction activities .If the Terms of Reference are not finalized and conveyed to the applicant within sixty days of the receipt of Form 1, the Terms of Reference suggested by the applicant shall be deemed as the final Terms of Reference approved for the EIA studies. The approved Terms of Reference shall be displayed on the website of the Ministry of Environment and Forests and the concerned State Level Environment Impact Assessment Authority.
- (iii) Applications for prior environmental clearance may be rejected by the regulatory authority concerned on the recommendation of the EAC or SEAC concerned at this stage itself. In case of such rejection, the decision together with reasons for the same shall be communicated to the applicant in writing within sixty days of the receipt of the application.

III. **Stage (3) - Public Consultation:**

- (i) "Public Consultation" refers to the process by which the concerns of local affected persons and others who have plausible stake in the environmental impacts of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. All Category 'A' and Category B1 projects or activities shall undertake Public Consultation, except the following:-

(a) modernization of irrigation projects (item 1(c) (ii) of the Schedule).

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

- (b) all projects or activities located within industrial estates or parks (item 7(c) of the Schedule) approved by the concerned authorities, and which are not disallowed in such approvals.
 - (c) expansion of Roads and Highways (item 7 (f) of the Schedule) which do not involve any further acquisition of land.
- III “(cc) maintenance dredging provided the dredged material shall be disposed within port limits.”;
- III “(d) All Building or Construction projects or Area Development projects (which do not contain any category ‘A’ projects and activities) and Townships (item 8(a) and 8(b) in the Schedule to the notification).”
- e) all Category ‘B2’ projects and activities.
 - f) all projects or activities concerning national defence and security or involving other strategic considerations as determined by the Central Government.
- (ii) The Public Consultation shall ordinarily have two components comprising of:-
- (a) a public hearing at the site or in its close proximity- district wise, to be carried out in the manner prescribed in Appendix IV, for ascertaining concerns of local affected persons;
 - (b) obtain responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity.
- (iii) the public hearing at, or in close proximity to, the site(s) in all cases shall be conducted by the State Pollution Control Board (SPCB) or the Union territory Pollution Control Committee (UTPCC) concerned in the specified manner and forward the proceedings to the regulatory authority concerned within 45(forty five) of a request to the effect from the applicant.
- (iv) in case the State Pollution Control Board or the Union territory Pollution Control Committee concerned does not undertake and complete the public hearing within the specified period, and/or does not convey the proceedings of the public hearing within the prescribed period directly to the regulatory authority concerned as above, the regulatory

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authority shall engage another public agency or authority which is not subordinate to the regulatory authority, to complete the process within a further period of forty five days,.

- (v) If the public agency or authority nominated under the sub paragraph (iii) above reports to the regulatory authority concerned that owing to the local situation, it is not possible to conduct the public hearing in a manner which will enable the views of the concerned local persons to be freely expressed, it shall report the facts in detail to the concerned regulatory authority, which may, after due consideration of the report and other reliable information that it may have, decide that the public consultation in the case need not include the public hearing.
- (vi) For obtaining responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity, the concerned regulatory authority and the State Pollution Control Board (SPCB) or the Union territory Pollution Control Committee (UTPCC) shall invite responses from such concerned persons by placing on their website the Summary EIA report prepared in the format given in Appendix IIIA by the applicant along with a copy of the application in the prescribed form, within seven days of the receipt of a written request for arranging the public hearing. Confidential information including non-disclosable or legally privileged information involving Intellectual Property Right, source specified in the application shall not be placed on the web site. The regulatory authority concerned may also use other appropriate media for ensuring wide publicity about the project or activity. The regulatory authority shall, however, make available on a written request from any concerned person the Draft EIA report for inspection at a notified place during normal office hours till the date of the public hearing. All the responses received as part of this public consultation process shall be forwarded to the applicant through the quickest available means.
- (vii) After completion of the public consultation, the applicant shall address all the material environmental concerns expressed during this process, and make appropriate changes in the draft EIA and EMP. The final EIA report, so prepared, shall be submitted by the applicant to the concerned regulatory authority for appraisal. The applicant may alternatively submit a supplementary report to draft EIA and EMP addressing all the concerns expressed during the public consultation.

IV. Stage (4) - Appraisal:

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

- (i) Appraisal means the detailed scrutiny by the Expert Appraisal Committee or State Level Expert Appraisal Committee of the application and other documents like the Final EIA report, outcome of the public consultations including public hearing proceedings, submitted by the applicant to the regulatory authority concerned for grant of environmental clearance. This appraisal shall be made by Expert Appraisal Committee or State Level Expert Appraisal Committee concerned in a transparent manner in a proceeding to which the applicant shall be invited for furnishing necessary clarifications in person or through an authorized representative. On conclusion of this proceeding, the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall make categorical recommendations to the regulatory authority concerned either for grant of prior environmental clearance on stipulated terms and conditions, or rejection of the application for prior environmental clearance, together with reasons for the same.
- (ii) The appraisal of all projects or activities which are not required to undergo public consultation, or submit an Environment Impact Assessment report, shall be carried out on the basis of the prescribed application Form 1 and Form 1A as applicable, any other relevant validated information available and the site visit wherever the same is considered as necessary by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned.
- (iii) The appraisal of an application shall be completed by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned within sixty days of the receipt of the final Environment Impact Assessment report and other documents or the receipt of Form 1 and Form 1 A, where public consultation is not necessary and the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee shall be placed before the competent authority for a final decision within the next fifteen days .The prescribed procedure for appraisal is given in Appendix V ;

7(ii). Prior Environmental Clearance (EC) process for Expansion or Modernization or Change of product mix in existing projects:

All applications seeking prior environmental clearance for expansion with increase in the production capacity beyond the capacity for which prior environmental clearance has been granted under this notification or with increase in either lease area or production capacity in the case of mining projects or for the modernization of an existing unit with increase in

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

the total production capacity beyond the threshold limit prescribed in the Schedule to this notification through change in process and or technology or involving a change in the product –mix shall be made in Form I and they shall be considered by the concerned Expert Appraisal Committee or State Level Expert Appraisal Committee within sixty days, who will decide on the due diligence necessary including preparation of EIA and public consultations and the application shall be appraised accordingly for grant of environmental clearance.

8. Grant or Rejection of Prior Environmental Clearance (EC):

- (i) The regulatory authority shall consider the recommendations of the EAC or SEAC concerned and convey its decision to the applicant within forty five days of the receipt of the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned or in other words within one hundred and five days of the receipt of the final Environment Impact Assessment Report, and where Environment Impact Assessment is not required, within one hundred and five days of the receipt of the complete application with requisite documents, except as provided below.
- (ii) The regulatory authority shall normally accept the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned. In cases where it disagrees with the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, the regulatory authority shall request reconsideration by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned within forty five days of the receipt of the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned while stating the reasons for the disagreement. An intimation of this decision shall be simultaneously conveyed to the applicant. The Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, in turn, shall consider the observations of the regulatory authority and furnish its views on the same within a further period of sixty days. The decision of the regulatory authority after considering the views of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall be final and conveyed to the applicant by the regulatory authority concerned within the next thirty days.
- (iii) In the event that the decision of the regulatory authority is not communicated to the applicant within the period specified in sub-paragraphs (i) or (ii) above, as applicable, the

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

applicant may proceed as if the environment clearance sought for has been granted or denied by the regulatory authority in terms of the final recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned.

- (iv) On expiry of the period specified for decision by the regulatory authority under paragraph (i) and (ii) above, as applicable, the decision of the regulatory authority, and the final recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall be public documents.
- (v) Clearances from other regulatory bodies or authorities shall not be required prior to receipt of applications for prior environmental clearance of projects or activities, or screening, or scoping, or appraisal, or decision by the regulatory authority concerned, unless any of these is sequentially dependent on such clearance either due to a requirement of law, or for necessary technical reasons.
- (vi) Deliberate concealment and/or submission of false or misleading information or data which is material to screening or scoping or appraisal or decision on the application shall make the application liable for rejection, and cancellation of prior environmental clearance granted on that basis. Rejection of an application or cancellation of a prior environmental clearance already granted, on such ground, shall be decided by the regulatory authority, after giving a personal hearing to the applicant, and following the principles of natural justice.

9. Validity of Environmental Clearance (EC):

The "Validity of Environmental Clearance" is meant the period from which a prior environmental clearance is granted by the regulatory authority, or may be presumed by the applicant to have been granted under sub paragraph (iv) of paragraph 7 above, to the start of production operations by the project or activity, or completion of all construction operations in case of construction projects (item 8 of the Schedule), to which the application for prior environmental clearance refers. The prior environmental clearance granted for a project or activity shall be valid for a period of ten years in the case of River Valley projects (item 1(c) of the Schedule), project life as estimated by Expert Appraisal Committee or State Level Expert Appraisal Committee subject to a maximum of thirty years for mining projects and five years in the case of all other projects and activities. However, in the case of Area Development projects and Townships [item 8(b)], the validity

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

period shall be limited only to such activities as may be the responsibility of the applicant as a developer. This period of validity may be extended by the regulatory authority concerned by a maximum period of five years provided an application is made to the regulatory authority by the applicant within the validity period, together with an updated Form 1, and Supplementary Form 1A, for Construction projects or activities (item 8 of the Schedule). In this regard the regulatory authority may also consult the Expert Appraisal Committee or State Level Expert Appraisal Committee as the case may be.

10. Post Environmental Clearance Monitoring:

- ^{IV} (i)(a) In respect of Category 'A' project, it shall be mandatory for the project proponent to make public the environment clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the district or State where the project is located and in addition, this shall also be displayed in the project proponent's website permanently.
- (b) In respect of Category 'B' projects, irrespective of its clearance by MoEF / SEIAA, the project proponent shall prominently advertise in the newspapers indicating that the project has been accorded environment clearance and the details of the MoEF website where it is displayed.
- (c) The Ministry of Environment and Forests and the State/Union Territory Level Environmental Impact Assessment Authorities (SEIAAs), as the case may be, shall also place the environmental clearance in the public domain on Governmental portal.
- (d) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.”;
- ^{IV} (ii) It shall be mandatory for the project management to submit half-yearly compliance reports in respect of the stipulated prior environmental clearance terms and conditions in hard and soft copies to the regulatory authority concerned, on 1st June and 1st December of each calendar year.
- ^{IV} (iii) All such compliance reports submitted by the project management shall be public documents. Copies of the same shall be given to any person on application to the

concerned regulatory authority. The latest such compliance report shall also be displayed on the web site of the concerned regulatory authority.

11. Transferability of Environmental Clearance (EC):

A prior environmental clearance granted for a specific project or activity to an applicant may be transferred during its validity to another legal person entitled to undertake the project or activity on application by the transferor, or by the transferee with a written “no objection” by the transferor, to, and by the regulatory authority concerned, on the same terms and conditions under which the prior environmental clearance was initially granted, and for the same validity period. No reference to the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned is necessary in such cases.

12. Operation of EIA Notification, 1994, till disposal of pending cases:

From the date of final publication of this notification the Environment Impact Assessment (EIA) notification number S.O.60 (E) dated 27th January, 1994 is hereby superseded, except in suppression of the things done or omitted to be done before such suppression to the extent that in case of all or some types of applications made for prior environmental clearance and pending on the date of final publication of this notification, the Central Government may relax any one or all provisions of this notification except the list of the projects or activities requiring prior environmental clearance in Schedule I , or continue operation of some or all provisions of the said notification, for a period not exceeding one year from the date of issue of this notification.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

SCHEDULE

(See paragraph 2 and 7)

LIST OF PROJECTS OR ACTIVITIES REQUIRING PRIOR ENVIRONMENTAL CLEARANCE

Project or Activity		Category with threshold limit		Conditions if any
		A	B	
1		Mining, extraction of natural resources and power generation (for a specified production capacity)		
(1)	(2)	(3)	(4)	(5)
^v 1(a)	(i) Mining of minerals. (ii) Slurry pipelines (coal lignite and other ores) passing through national parks / sanctuaries / coral reefs, ecologically sensitive areas.	<p>≥ 50 ha. of mining lease area in respect of non-coal mine lease.</p> <p>> 150 ha of mining lease area in respect of coal mine lease.</p> <p>Asbestos mining irrespective of mining area</p> <p>All projects.</p>	<p><50 ha ≥ 5 ha .of mining lease area in respect of non-coal mine lease.</p> <p>≤ 150 ha ≥ 5 ha of mining lease area in respect of coal mine lease.</p>	<p>General Condition shall apply</p> <p>Note: Mineral prospecting is exempted.”;</p>
1(b)	Offshore and onshore oil and gas exploration, development & production	All projects		<p>Note</p> <p>Exploration Surveys (not involving drilling) are exempted provided the concession areas have got previous clearance for physical survey</p>
1(c)	River Valley projects	<p>(i) ≥ 50 MW hydroelectric power generation;</p> <p>(ii) ≥ 10,000 ha. of culturable command area</p>	<p>(i) < 50 MW ≥ 25 MW hydroelectric power generation;</p> <p>(ii) < 10,000 ha. of culturable command area</p>	<p>^v “General Condition shall apply. Note: Irrigation projects not involving submergence or inter-state domain shall be appraised by the SEIAA as Category ‘B’ Projects.”;</p>

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
1(d)	Thermal Power Plants	^v " ≥ 500 MW (coal / lignite / naphtha & gas based); ≥ 50 MW (Pet coke diesel and all other fuels including refinery residual oil waste except biomass); ≥ 20 MW (based on biomass or non hazardous municipal waste as fuel).";	< 500 MW (coal / lignite / naphtha & gas based); <50 MW ≥ 5MW (Pet coke, diesel and all other fuels including refinery residual oil waste except biomass); ≥ 20 MW > 15 MW (based on biomass or non hazardous municipal waste as fuel).";	^v "General Condition shall apply. Note: (i) Power plant up to 15 MW, based on biomass and using auxiliary fuel such as coal / lignite / petroleum products up to 15% are exempt. (ii) Power plant up to 15 MW, based on non-hazardous municipal waste and using auxiliary fuel such as coal / lignite / petroleum products up to 15% are exempt. (iii) Power plants using waste heat boiler without any auxiliary fuel are exempt.";
1(e)	Nuclear power projects and processing of nuclear fuel	All projects		
2		Primary Processing		
2(a)	Coal washeries	≥ 1 million ton/annum throughput of coal	<1million ton/annum throughput of coal	General Condition shall apply (If located within mining area the proposal shall be appraised together with the mining proposal)
2 (b)	Mineral beneficiation	≥ 0.1million ton/annum mineral throughput	< 0.1million ton/annum mineral throughput	General Condition shall apply (Mining proposal with Mineral beneficiation shall be appraised together for grant of clearance)

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

3				
Materials Production				
(1)	(2)	(3)	(4)	(5)
3(a)	Metallurgical industries (ferrous & non ferrous)	a) Primary metallurgical industry All projects b) Sponge iron manufacturing ≥ 200 TPD c) Secondary metallurgical processing industry All toxic and heavy metal producing units $\geq 20,000$ tonnes /annum	Sponge iron manufacturing <200TPD Secondary metallurgical processing industry i.) All toxic and heavy metal producing units <20,000 tonnes /annum ii.) All other non –toxic secondary metallurgical processing industries >5000 tonnes/annum	^v “General condition shall apply. Note: (i) The recycling industrial units registered under the HSM Rules, are exempted. (ii) In case of secondary metallurgical processing industrial units, those projects involving operation of furnaces only such as induction and electrical arc furnace, submerged arc furnace, and cupola with capacity more than 30,000 tonnes per annum (TPA) would require environmental clearance. (iii) Plant / units other than power plants (given against entry no. 1(d) of the schedule), based on municipal solid waste (non-hazardous) are exempted.”
3(b)	Cement plants	≥ 1.0 million tonnes/annum production capacity	<1.0 million tonnes/annum production capacity. All Stand alone grinding units	General Condition shall apply
4				
Materials Processing				
(1)	(2)	(3)	(4)	(5)
4(a)	Petroleum refining industry	All projects	-	-
4(b)	Coke oven plants	$\geq 2,50,000$ tonnes/annum	<2,50,000 & $\geq 25,000$ tonnes/annum	^v “General Condition shall apply.”
4(c)	Asbestos milling and asbestos based products	All projects	-	-

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
4(d)	Chlor-alkali industry	≥300 TPD production Capacity or a unit located out side the notified industrial area/ estate	^v “(i) All projects irrespective of the size, if located in a Notified Industrial Area/ Estate. (ii) <300 tonnes per day (TPD) and located outside a Notified Industrial Area/ Estate.”	^v “General as well as specific condition shall apply. No new Mercury Cell based plants will be permitted and existing units converting to membrane cell technology are exempted from this notification.”
4(e)	Soda ash Industry	All projects	-	-
4(f)	Leather/skin/hide processing industry	New projects outside the industrial area or expansion of existing units out side the industrial area	All new or expansion of projects located within a notified industrial area/ estate	^v “General as well as specific condition shall apply.”
5		Manufacturing / Fabrication		
5(a)	Chemical fertilizers	^v “All projects except Single Super Phosphate.”	^v “Single Super Phosphate.”	-
5(b)	Pesticides industry and pesticide specific intermediates (excluding formulations)	All units producing technical grade pesticides	-	-
5(c)	Petro-chemical complexes (industries based on processing of petroleum fractions & natural gas and/or reforming to aromatics)	All projects -	-	-
5(d)	Manmade fibers manufacturing	Rayon	Others	General Condition shall apply
5(e)	Petrochemical based processing (processes other than cracking & reformation and not covered under the complexes)	Located out side the notified industrial area/ estate -	Located in a notified industrial area/ estate	^v “General as well as specific condition shall apply.”

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
5(f)	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	Located out side the notified industrial area/ estate	Located in a notified industrial area/ estate	^v "General as well as specific condition shall apply."
5(g)	Distilleries	(i) All Molasses based distilleries (ii) All Cane juice/ non-molasses based distilleries ≥ 30 KLD	All Cane juice / non-molasses based distilleries - <30 KLD	General Condition shall apply
5(h)	Integrated paint industry	-	All projects	General Condition shall apply
5(i)	Pulp & paper industry excluding manufacturing of paper from waste paper and manufacture of paper from ready pulp with out bleaching	Pulp manufacturing and Pulp & Paper manufacturing industry	Paper manufacturing industry without pulp manufacturing	General Condition shall apply
5(j)	Sugar Industry	-	≥ 5000 tcd cane crushing capacity	General Condition shall apply
5(k)	^v Omitted			
6	Service Sectors			
6(a)	Oil & gas transportation pipe line (crude and refinery/ petrochemical products), passing through national parks / sanctuaries / coral reefs / ecologically sensitive areas including LNG Terminal	All projects		-

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
6(b)	Isolated storage & handling of hazardous chemicals (As per threshold planning quantity indicated in column 3 of schedule 2 & 3 of MSIHC Rules 1989 amended 2000)	-	All projects	General Condition shall apply
7		Physical Infrastructure including Environmental Services		
7(a)	Air ports	^v "All projects including airstrips, which are for commercial use."	-	^v "Note: Air strips, which do not involve bunkering/ refueling facility and or Air Traffic Control, are exempted."
7(b)	All ship breaking yards including ship breaking units	All projects	-	-
7©	Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes.	If at least one industry in the proposed industrial estate falls under the Category A, entire industrial area shall be treated as Category A, irrespective of the area. Industrial estates with area greater than 500 ha. and housing at least one Category B industry.	Industrial estates housing at least one Category B industry and area <500 ha. Industrial estates of area > 500 ha. and not housing any industry belonging to Category A or B.	^v "Genral as well as special conditions shall apply. Note: 1. Industrial Estate of area below 500 ha. and not housing any industry of Category 'A' or 'B' does not require clearance. 2. If the area is less than 500 ha. but contains building and construction projects > 20,000 Sq. mts. And or development area more than 50 ha it will be treated as activity listed at serial no. 8(a) or 8(b) in the Schedule, as the case may be."
7(d)	Common hazardous waste treatment, storage and disposal facilities (TSDFs)	All integrated facilities having incineration & landfill or incineration alone	All facilities having land fill only	General Condition shall apply

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(1)	(2)	(3)	(4)	(5)
7(e)	^v "Ports, harbours, break waters, dredging."	≥ 5 million TPA of cargo handling capacity (excluding fishing harbours)	< 5 million TPA of cargo handling capacity and/or ports/ harbours ≥10,000 TPA of fish handling capacity	^v "General Condition shall apply. Note: 1. Capital dredging inside and outside the ports or harbors and channels are included; 2. Maintenance dredging is exempt provided it formed part of the original proposal for which Environment Management Plan (EMP) was prepared and environmental clearance obtained."
7(f)	Highways	i) New National High ways; and ii) Expansion of National High ways greater than 30 KM, involving additional right of way greater than 20m involving land acquisition and passing through more than one State.	^v " i) All State Highway Project; and ii) State Highway expansion projects in hilly terrain (above 1,000 m AMSL) and or ecologically sensitive areas."	General Condition shall apply. Note: Highways include expressways."
7(g)	Aerial ropeways	^{v(xvi)(a)} "(i) All projects located at altitude of 1,000 mtr. And above. (ii) All projects located in notified ecologically sensitive areas."	^{v(xvi)(b)} "All projects except those covered in column (3)."	General Condition shall apply
7(h)	Common Effluent Treatment Plants (CETPs)		All projects	General Condition shall apply
7(i)	Common Municipal Solid Waste Management Facility (CMSWMF)		All projects	General Condition shall apply
8		Building /Construction projects/Area Development projects and Townships		
8(a)	Building and Construction projects		≥20000 sq.mtrs and <1,50,000 sq.mtrs. of built-up area#	#(built up area for covered construction; in the case of facilities open to the sky, it will be the activity area)
8(b)	Townships and Area Development projects.		Covering an area ≥ 50 ha and or built up area ≥1,50,000 sq .mtrs ++	++All projects under Item 8(b) shall be appraised as Category B1

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

Note:-

^{V(xvii)} **“General Condition (GC):**

Any project or activity specified in Category ‘B’ will be treated as Category A, if located in whole or in part within 10 km from the boundary of: (i) Protected Areas notified under the Wild Life (Protection) Act, 1972, (ii) Critically Polluted areas as identified by the Central Pollution Control Board from time to time, (iii) Eco-sensitive areas as notified under section 3 of the Environment (Protection) Act, 1986, such as, Mahabaleshwar Panchgani, Matheran, Pachmarhi, Dahanu, Doon Valley, and (iv) inter-State boundaries and international boundaries:

Provided that the requirement regarding distance of 10 km of the inter-State boundaries can be reduced or completely done away with by an agreement between the respective States or U.Ts sharing the common boundary in case the activity does not fall within 10 kilometres of the areas mentioned at item (i), (ii) and (iii) above.”

Specific Condition (SC):

If any Industrial Estate/Complex / Export processing Zones /Special Economic Zones/Biotech Parks / Leather Complex with homogeneous type of industries such as Items 4(d), 4(f), 5(e), 5(f), or those Industrial estates with pre –defined set of activities (not necessarily homogeneous, obtains prior environmental clearance, individual industries including proposed industrial housing within such estates /complexes will not be required to take prior environmental clearance, so long as the Terms and Conditions for the industrial estate/complex are complied with (Such estates/complexes must have a clearly identified management with the legal responsibility of ensuring adherence to the Terms and Conditions of prior environmental clearance, who may be held responsible for violation of the same throughout the life of the complex/estate).

[No. J-11013/56/2004-IA-II (I)]

(R.CHANDRAMOHAN)

JOINT SECRETARY TO THE GOVERNMENT OF INDIA

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

APPENDIX I
(See paragraph – 6)
FORM 1

VI(a) “(I) Basic Information

Serial Number	Item	Details
1.	Name of the project/s	
2.	S. No. in schedule	
3.	Proposed capacity/area/length/tonnage to be handled/command area/lease area/number of wells to be drilled	
4.	New/Expansion/Modernization	
5.	Existing Capacity/Area etc.	
6.	Category of Project i.e. ‘A’ or ‘B’	
7.	Does it attract the general condition? If Yes, please specify.	
8.	Does it attract the specific condition? If Yes, please specify.	
9.	Location	
	Plot/Survey/Khasra No.	
	Village	
	Tehsil	
	District	
	State	
10.	Nearest railway station/airport along with distance in kms.	
11.	Nearest Town, city, District Headquarters along with distance in kms.	
12.	Village Panchayats, Zilla Parishad, Municipal Corporation, Local body (complete postal addresses with telephone nos. to be given)	
13.	Name of the applicant	
14.	Registered Address	
15.	Address for correspondence:	
	Name	
	Designation (Owner/Partner/CEO)	
	Address	
	Pin Code	
	E-mail	
	Telephone No.	
	Fax No.	
16	Details of Alternative Sites examined, if any. Location of these sites should be shown on a topo sheet.	Village-District-State 1. 2. 3.
17.	Interlinked Projects	
18	Whether separate application of interlinked project has been submitted?	

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

19.	If yes, date of submission	
20.	If no, reason	
21.	Whether the proposal involves approval/ clearance under: If yes, details of the same and their status to be given. (a) The Forest (Conservation) Act, 1980 ? (b) The Wildlife (Protection) Act, 1972 ? (c) The C.R.Z. Notification, 1991 ?	
22.	Whether there is any Government Order/Policy relevant/ relating to the site ?	
23.	Forest land involved (hectares)	
24.	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up ? (a) Name of the Court. (b) Case No. (c) Orders/directions of the Court, if any and its relevance with the proposed project.	

(II) Activity

- 1. Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)**

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)		
1.2	Clearance of existing land, vegetation and buildings?		
1.3	Creation of new land uses?		
1.4	Pre-construction investigations e.g. bore houses, soil testing?		
1.5	Construction works?		
1.6	Demolition works?		
1.7	Temporary sites used for construction works or housing of construction workers?		
1.8	Above ground buildings, structures or earthworks including linear structures, cut And fill or excavations		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

1.9	Underground works including mining or tunneling?		
1.10	Reclamation works?		
1.11	Dredging?		
1.12	Offshore structures?		
1.13	Production and manufacturing processes?		
1.14	Facilities for storage of goods or materials?		
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?		
1.16	Facilities for long term housing of operational workers?		
1.17	New road, rail or sea traffic during construction or operation?		
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?		
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?		
1.20	New or diverted transmission lines or pipelines?		
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?		
1.22	Stream crossings?		
1.23	Abstraction or transfers of water from ground or surface waters?		
1.24	Changes in water bodies or the land surface affecting drainage or run-off?		
1.25	Transport of personnel or materials for construction, operation or decommissioning?		
1.26	Long-term dismantling or decommissioning or restoration works?		
1.27	Ongoing activity during decommissioning which could have an impact on the environment?		
1.28	Influx of people to an area in either temporarily or permanently?		
1.29	Introduction of alien species?		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

1.30	Loss of native species or genetic diversity?		
1.31	Any other actions?		

2. Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
2.1	Land especially undeveloped or agricultural land (ha)		
2.2	Water (expected source & competing users) unit: KLD		
2.3	Minerals (MT)		
2.4	Construction material – stone, aggregates, sand / soil (expected source – MT)		
2.5	Forests and timber (source – MT)		
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)		
2.7	Any other natural resources (use appropriate standard units)		

3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)		
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)		
3.3	Affect the welfare of people e.g. by changing living conditions?		
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,		
3.5	Any other causes		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

4. Production of solid wastes during construction or operation or decommissioning (MT/month)

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes		
4.2	Municipal waste (domestic and or commercial wastes)		
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)		
4.4	Other industrial process wastes		
4.5	Surplus product		
4.6	Sewage sludge or other sludge from effluent treatment.		
4.7	Construction or demolition wastes		
4.8	Redundant machinery or equipment		
4.9	Contaminated soils or other materials		
4.10	Agricultural wastes		
4.11	Other solid wastes		

5. Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources.		
5.2	Emissions from production processes		
5.3	Emissions from materials handling including storage or transport		
5.4	Emissions from construction activities including plant and equipment		
5.5	Dust or odours from handling of materials including construction materials, sewage and waste		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

5.6	Emissions from incineration of waste		
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)		
5.8	Emissions from any other sources		

6. Generation of Noise and Vibration, and Emissions of Light and Heat:

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers		
6.2	From industrial or similar processes		
6.3	From construction or demolition		
6.4	From blasting or piling		
6.5	From construction or operational traffic		
6.6	From lighting or cooling systems		
6.7	From any other sources		

7. Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials		
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)		
7.3	By deposition of pollutants emitted to air into the land or into water		
7.4	From any other sources		
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

8. Risk of accidents during construction or operation of the Project, which could affect human health or the environment

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances		
8.2	From any other causes		
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?		

9. Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
9.1	Lead to development of supporting. lities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: <ul style="list-style-type: none"> • Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.) • housing development • extractive industries • supply industries • other 		
9.2	Lead to after-use of the site, which could have an impact on the environment		
9.3	Set a precedent for later developments		
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(III) Environmental Sensitivity

S.No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value		
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests		
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, esting, foraging, resting, over wintering, migration		
4	Inland, coastal, marine or underground waters		
5	State, National boundaries		
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas		
7	Defence installations		
8	Densely populated or built-up area		
9	Areas occupied by sensitive man-made land uses (<i>hospitals, schools, places of worship, community facilities</i>)		
10	Areas containing important, high quality or scarce Resources (<i>ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals</i>)		
11	Areas already subjected to pollution or environmental damage. (<i>those where existing legal environmental standards are exceeded</i>)		
12	Areas susceptible to natural hazard which could cause the project to present environmental Problems (<i>earthquakes, subsidence, landslides, erosion, Flooding or extreme or adverse climatic conditions</i>)		

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(IV). Proposed Terms of Reference for EIA studies

^{VI(b)} “I hereby given undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance give, if any to the project will be revoked at our risk and cost.”

Date: _____

Place: _____

Signature of the applicant
With Name and Full Address
(Project Proponent/Authorised Signatory)

NOTE:

1. The projects involving clearance under Coastal Regulation Zone Notification, 1991 shall submit with the application a C.R.Z. map duly demarcated by one of the authorized agencies, showing the project activities, w.r.t. C.R.Z. (at the stage of TOR) and the recommendations of the State Coastal Zone Management Authority (at the stage of EC). Simultaneous action shall also be taken to obtain the requisite clearance under the provisions of the C.R.Z. Notification, 1991 for the activities to be located in the CRZ.
2. The projects to be located within 10 km of the National Prks, Sancturries, Biosphere Reserves, Migratory Corridors of Wile Animals, the project proponenet shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden thereon (at the stage of EC).”
3. All correspondence with the Ministry of Environment & Forests including aubmission of application for TOR/Environmental Clearance, subsequent clarifications, as may be required from time to time, participation in the EAC Meeting on behalf of the project proponenet shall be made by the authorized signatory only. The authorized signatory should also submit a document in support of his claim of being and authorized signatory for the specific project.”

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

APPENDIX II
(See paragraph 6)

FORM-1 A (only for construction projects listed under item 8 of the Schedule)

CHECK LIST OF ENVIRONMENTAL IMPACTS

(Project proponents are required to provide full information and wherever necessary attach explanatory notes with the Form and submit along with proposed environmental management plan & monitoring programme)

1. LAND ENVIRONMENT

(Attach panoramic view of the project site and the vicinity)

- 1.1. Will the existing landuse get significantly altered from the project that is not consistent with the surroundings? (Proposed landuse must conform to the approved Master Plan / Development Plan of the area. Change of landuse if any and the statutory approval from the competent authority be submitted). Attach Maps of (i) site location, (ii) surrounding features of the proposed site (within 500 meters) and (iii) the site (indicating levels & contours) to appropriate scales. If not available attach only conceptual plans.
- 1.2. List out all the major project requirements in terms of the land area, built up area, water consumption, power requirement, connectivity, community facilities, parking needs etc.
- 1.3. What are the likely impacts of the proposed activity on the existing facilities adjacent to the proposed site? (Such as open spaces, community facilities, details of the existing landuse, disturbance to the local ecology).
- 1.4. Will there be any significant land disturbance resulting in erosion, subsidence & instability? (Details of soil type, slope analysis, vulnerability to subsidence, seismicity etc may be given).
- 1.5. Will the proposal involve alteration of natural drainage systems? (Give details on a contour map showing the natural drainage near the proposed project site)
- 1.6. What are the quantities of earthwork involved in the construction activity-cutting, filling, reclamation etc. (Give details of the quantities of earthwork involved, transport of fill materials from outside the site etc.)

- 1.7. Give details regarding water supply, waste handling etc during the construction period.
- 1.8. Will the low lying areas & wetlands get altered? (Provide details of how low lying and wetlands are getting modified from the proposed activity)
- 1.9. Whether construction debris & waste during construction cause health hazard? (Give quantities of various types of wastes generated during construction including the construction labour and the means of disposal)

2. WATER ENVIRONMENT

- 2.1. Give the total quantity of water requirement for the proposed project with the breakup of requirements for various uses. How will the water requirement met? State the sources & quantities and furnish a water balance statement.
- 2.2. What is the capacity (dependable flow or yield) of the proposed source of water?
- 2.3. What is the quality of water required, in case, the supply is not from a municipal source? (Provide physical, chemical, biological characteristics with class of water quality)
- 2.4. How much of the water requirement can be met from the recycling of treated wastewater? (Give the details of quantities, sources and usage)
- 2.5. Will there be diversion of water from other users? (Please assess the impacts of the project on other existing uses and quantities of consumption)
- 2.6. What is the incremental pollution load from wastewater generated from the proposed activity? (Give details of the quantities and composition of wastewater generated from the proposed activity)
- 2.7. Give details of the water requirements met from water harvesting? Furnish details of the facilities created.
- 2.8. What would be the impact of the land use changes occurring due to the proposed project on the runoff characteristics (quantitative as well as qualitative) of the area in the post construction phase on a long term basis? Would it aggravate the problems of flooding or water logging in any way?

- 2.9. What are the impacts of the proposal on the ground water? (Will there be tapping of ground water; give the details of ground water table, recharging capacity, and approvals obtained from competent authority, if any)
- 2.10. What precautions/measures are taken to prevent the run-off from construction activities polluting land & aquifers? (Give details of quantities and the measures taken to avoid the adverse impacts)
- 2.11. How is the storm water from within the site managed?(State the provisions made to avoid flooding of the area, details of the drainage facilities provided along with a site layout indication contour levels)
- 2.12. Will the deployment of construction labourers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)
- 2.13. What on-site facilities are provided for the collection, treatment & safe disposal of sewage? (Give details of the quantities of wastewater generation, treatment capacities with technology & facilities for recycling and disposal)
- 2.14. Give details of dual plumbing system if treated waste used is used for flushing of toilets or any other use.

3. VEGETATION

- 3.1. Is there any threat of the project to the biodiversity? (Give a description of the local ecosystem with it's unique features, if any)
- 3.2. Will the construction involve extensive clearing or modification of vegetation? (Provide a detailed account of the trees & vegetation affected by the project)
- 3.3. What are the measures proposed to be taken to minimize the likely impacts on important site features (Give details of proposal for tree plantation, landscaping, creation of water bodies etc along with a layout plan to an appropriate scale)

4. FAUNA

- 4.1. Is there likely to be any displacement of fauna- both terrestrial and aquatic or creation of barriers for their movement? Provide the details.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

- 4.2. Any direct or indirect impacts on the avifauna of the area? Provide details.
- 4.3. Prescribe measures such as corridors, fish ladders etc to mitigate adverse impacts on fauna

5. AIR ENVIRONMENT

- 5.1. Will the project increase atmospheric concentration of gases & result in heat islands? (Give details of background air quality levels with predicted values based on dispersion models taking into account the increased traffic generation as a result of the proposed constructions)
- 5.2. What are the impacts on generation of dust, smoke, odorous fumes or other hazardous gases? Give details in relation to all the meteorological parameters.
- 5.3. Will the proposal create shortage of parking space for vehicles? Furnish details of the present level of transport infrastructure and measures proposed for improvement including the traffic management at the entry & exit to the project site.
- 5.4. Provide details of the movement patterns with internal roads, bicycle tracks, pedestrian pathways, footpaths etc., with areas under each category.
- 5.5. Will there be significant increase in traffic noise & vibrations? Give details of the sources and the measures proposed for mitigation of the above.
- 5.6. What will be the impact of DG sets & other equipment on noise levels & vibration in & ambient air quality around the project site? Provide details.

6. AESTHETICS

- 6.1. Will the proposed constructions in any way result in the obstruction of a view, scenic amenity or landscapes? Are these considerations taken into account by the proponents?
- 6.2. Will there be any adverse impacts from new constructions on the existing structures? What are the considerations taken into account?
- 6.3. Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.
- 6.4. Are there any anthropological or archaeological sites or artefacts nearby? State if any other significant features in the vicinity of the proposed site have been considered.

7. SOCIO-ECONOMIC ASPECTS

- 7.1. Will the proposal result in any changes to the demographic structure of local population? Provide the details.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

- 7.2. Give details of the existing social infrastructure around the proposed project.
- 7.3. Will the project cause adverse effects on local communities, disturbance to sacred sites or other cultural values? What are the safeguards proposed?

8. BUILDING MATERIALS

- 8.1. May involve the use of building materials with high-embodied energy. Are the construction materials produced with energy efficient processes? (Give details of energy conservation measures in the selection of building materials and their energy efficiency)
- 8.2. Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?
- 8.3. Are recycled materials used in roads and structures? State the extent of savings achieved?
- 8.4. Give details of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project.

9. ENERGY CONSERVATION

- 9.1. Give details of the power requirements, source of supply, backup source etc. What is the energy consumption assumed per square foot of built-up area? How have you tried to minimize energy consumption?
- 9.2. What type of, and capacity of, power back-up to you plan to provide?
- 9.3. What are the characteristics of the glass you plan to use? Provide specifications of its characteristics related to both short wave and long wave radiation?
- 9.4. What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project.
- 9.5. Does the layout of streets & buildings maximise the potential for solar energy devices? Have you considered the use of street lighting, emergency lighting and solar hot water systems for use in the building complex? Substantiate with details.
- 9.6. Is shading effectively used to reduce cooling/heating loads? What principles have been used to maximize the shading of Walls on the East and the West and the Roof? How much energy saving has been effected?
- 9.7. Do the structures use energy-efficient space conditioning, lighting and mechanical systems? Provide technical details. Provide details of the transformers and motor efficiencies, lighting intensity and air-conditioning load assumptions? Are you using CFC and HCFC free chillers? Provide specifications.
- 9.8. What are the likely effects of the building activity in altering the micro-climates? Provide a self assessment on the likely impacts of the proposed construction on

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

creation of heat island & inversion effects?

- 9.9. What are the thermal characteristics of the building envelope? (a) roof; (b) external walls; and (c) fenestration? Give details of the material used and the U-values or the R values of the individual components.
- 9.10. What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans.
- 9.11. If you are using glass as wall material provides details and specifications including emissivity and thermal characteristics.
- 9.12. What is the rate of air infiltration into the building? Provide details of how you are mitigating the effects of infiltration.
- 9.13. To what extent the non-conventional energy technologies are utilised in the overall energy consumption? Provide details of the renewable energy technologies used.

10. Environment Management Plan

The Environment Management Plan would consist of all mitigation measures for each item wise activity to be undertaken during the construction, operation and the entire life cycle to minimize adverse environmental impacts as a result of the activities of the project. It would also delineate the environmental monitoring plan for compliance of various environmental regulations. It will state the steps to be taken in case of emergency such as accidents at the site including fire.

APPENDIX III

(See paragraph 7

GENERIC STRUCTURE OF ENVIRONMENTAL IMPACT ASSESMENT DOCUMENT

S.NO	EIA STRUCTURE	CONTENTS
1.	Introduction	<ul style="list-style-type: none">• Purpose of the report• Identification of project & project proponent• Brief description of nature, size, location of the project and its importance to the country, region• Scope of the study – details of regulatory scoping carried out (As per Terms of Reference)
2.	Project Description	<ul style="list-style-type: none">• Condensed description of those aspects of the project (based on project feasibility study), likely to cause environmental effects. Details should be provided to give clear picture of the following:<ul style="list-style-type: none">• Type of project• Need for the project• Location (maps showing general location, specific location, project boundary & project site layout)• Size or magnitude of operation (incl. Associated activities required by or for the project)• Proposed schedule for approval and implementation• Technology and process description• Project description. Including drawings showing project layout, components of project etc. Schematic representations of the feasibility drawings which give information important for EIA purpose• Description of mitigation measures incorporated into the project to meet environmental standards, environmental operating conditions, or other EIA requirements (as required by the scope)• Assessment of New & untested technology for the risk of technological failure

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

3.	Description of the Environment	<ul style="list-style-type: none"> • Study area, period, components & methodology • Establishment of baseline for valued environmental components, as identified in the scope • Base maps of all environmental components
4.	Anticipated Environmental Impacts & Mitigation Measures	<ul style="list-style-type: none"> • Details of Investigated Environmental impacts due to project location, possible accidents, project design, project construction, regular operations, final decommissioning or rehabilitation of a completed project • Measures for minimizing and / or offsetting adverse impacts identified • Irreversible and Irretrievable commitments of environmental components • Assessment of significance of impacts (Criteria for determining significance, Assigning significance) • Mitigation measures
5.	Analysis of Alternatives (Technology & Site)	<ul style="list-style-type: none"> • In case, the scoping exercise results in need for alternatives: • Description of each alternative • Summary of adverse impacts of each alternative • Mitigation measures proposed for each alternative and • Selection of alternative
6.	Environmental Monitoring Program	<ul style="list-style-type: none"> • Technical aspects of monitoring the effectiveness of mitigation measures (incl. Measurement methodologies, frequency, location, data analysis, reporting schedules, emergency procedures, detailed budget & procurement schedules)
7.	Additional Studies	<ul style="list-style-type: none"> • Public Consultation • Risk assessment • Social Impact Assessment. R&R Action Plans
8.	Project Benefits	<ul style="list-style-type: none"> • Improvements in the physical infrastructure • Improvements in the social infrastructure

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

		<ul style="list-style-type: none"> • Employment potential –skilled; semi-skilled and unskilled • Other tangible benefits
9.	Environmental Cost Benefit Analysis	If recommended at the Scoping stage
10.	EMP	<ul style="list-style-type: none"> • Description of the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored, after approval of the EIA
11	Summary & Conclusion (This will constitute the summary of the EIA Report)	<ul style="list-style-type: none"> • Overall justification for implementation of the project • Explanation of how, adverse effects have been mitigated
12.	Disclosure of Consultants engaged	<ul style="list-style-type: none"> • The names of the Consultants engaged with their brief resume and nature of Consultancy rendered

APPENDIX III A

(See paragraph 7)

CONTENTS OF SUMMARY ENVIRONMENTAL IMPACT ASSESSMENT

The Summary EIA shall be a summary of the full EIA Report condensed to ten A-4 size pages at the maximum. It should necessarily cover in brief the following Chapters of the full EIA Report: -

1. Project Description
2. Description of the Environment
3. Anticipated Environmental impacts and mitigation measures
4. Environmental Monitoring Programme
5. Additional Studies
6. Project Benefits
7. Environment Management Plan

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

APPENDIX IV

(See paragraph 7)

PROCEDURE FOR CONDUCT OF PUBLIC HEARING

1.0 The Public Hearing shall be arranged in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site(s) or in its close proximity District -wise, by the concerned State Pollution Control Board (SPCB) or the Union Territory Pollution Control Committee (UTPCC).

2.0 The Process:

2.1 The Applicant shall make a request through a simple letter to the Member Secretary of the SPCB or Union Territory Pollution Control Committee, in whose jurisdiction the project is located, to arrange the public hearing within the prescribed statutory period. In case the project site is covering more than one District or State or Union Territory, the public hearing is mandated in each District, State or Union Territory in which the project is located and the applicant shall make separate requests to each concerned SPCB or UTPCC for holding the public hearing as per this procedure.

2.2 The Applicant shall enclose with the letter of request, at least 10 hard copies and an equivalent number of soft (electronic) copies of the draft EIA Report with the generic structure given in Appendix III including the Summary Environment Impact Assessment report in English and in the official language of the state/local language, prepared strictly in accordance with the Terms of Reference communicated after Scoping (Stage-2). Simultaneously the applicant shall arrange to forward copies, one hard and one soft, of the above draft EIA Report along with the Summary EIA report to the following authorities or offices, within whose jurisdiction the project will be located:

- (a) District Magistrate/District collector/Deputy commissioner/s
- (b) Zila Parishad or Municipal Corporation or Panchayats Union
- (c) District Industries Office
- (d) Urban Local Bodies (ULBs) / PRIs Concerned / Development authorities.
- (d) Concerned Regional Office of the Ministry of Environment and Forests

2.3 On receiving the draft Environmental Impact Assessment report, the abovementioned authorities except the Regional Office of MoEF, shall arrange to widely publicize it within their respective jurisdictions requesting the interested persons to send their comments to the concerned regulatory authorities. They shall also make available the draft EIA Report for inspection electronically or otherwise to the public during normal office hours till the Public Hearing is over.

2.4 The SPCB or UTPCC concerned shall also make similar arrangements for giving publicity about the project within the State/Union Territory and make available the Summary of the draft Environmental Impact Assessment report (Appendix III A) for

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

inspection in select offices or public libraries or any other suitable location etc. They shall also additionally make available a copy of the draft Environmental Impact Assessment report to the above five authorities/offices as given in para 2.2.

3.0 Notice of Public Hearing:

3.1 The Member-Secretary of the concerned SPCB or UTPCC shall finalize the date, time and exact venue for the conduct of public hearing within 7(seven) days of the date of receipt of the draft Environmental Impact Assessment report from the project proponent, and advertise the same in one major National Daily and one Regional vernacular Daily / Official State Language. A minimum notice period of 30(thirty) days shall be provided to the public for furnishing their responses;

3.2 The advertisement shall also inform the public about the places or offices where the public could access the draft Environmental Impact Assessment report and the Summary Environmental Impact Assessment report before the public hearing. In places where the newspapers do not reach, the Competent Authority should arrange to inform the local public about the public hearing by other means such as by way of beating of drums as well as advertisement / announcement on radio / television.

3.3 No postponement of the date, time, venue of the public hearing shall be undertaken, unless some untoward emergency situation occurs and then only on the recommendation of the concerned District Magistrate/District collector/Deputy Commissioner, the postponement shall be notified to the public through the same National and Regional vernacular dailies and also prominently displayed at all the identified offices by the concerned SPCB or Union Territory Pollution Control Committee;

3.4 In the above exceptional circumstances, fresh date, time and venue for the public consultation shall be decided by the Member – Secretary of the concerned SPCB or UTPCC only in consultation with the District Magistrate/District collector/Deputy Commissioner and notified afresh as per procedure under 3.1 above.

4.0 Supervision and Presiding over the Hearing:

4.1 The District Magistrate/District collector/Deputy Commissioner or his or her representative not below the rank of an Additional District Magistrate assisted by a representative of SPCB or UTPCC, shall Supervise and preside over the entire public hearing process.

5.0 Videography

5.1 The SPCB or UTPCC shall arrange to video film the entire proceedings. A copy of the videotape or a CD shall be enclosed with the public hearing proceedings while Forwarding it to the Regulatory Authority concerned.

6.0 Proceedings

6.1 The attendance of all those who are present at the venue shall be noted and annexed with the final proceedings.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

6.2 There shall be no quorum required for attendance for starting the proceedings.

6.3 A representative of the applicant shall initiate the proceedings with a presentation on the project and the Summary EIA report.

6.4 Persons present at the venue shall be granted the opportunity to seek information or clarifications on the project from the Applicant. The summary of the public hearing proceedings accurately reflecting all the views and concerns expressed shall be recorded by the representative of the SPCB or UTPCC and read over to the audience at the end of the proceedings explaining the contents in the local/vernacular language and the agreed minutes shall be signed by the District Magistrate/District collector/Deputy Commissioner or his or her representative on the same day and forwarded to the SPCB/UTPCC concerned.

6.5 A Statement of the issues raised by the public and the comments of the Applicant shall also be prepared in the local language or the Official State language, as the case may be, and in English and annexed to the proceedings:

6.6 The proceedings of the public hearing shall be conspicuously displayed at the office of the Panchyats within whose jurisdiction the project is located, office of the concerned Zila Parishad, District Magistrate/District collector/Deputy Commissioner, and the SPCB or UTPCC . The SPCB or UTPCC shall also display the proceedings on its website for general information. Comments, if any, on the proceedings which may be sent directly to the concerned regulatory authorities and the applicant concerned.

7.0 Time period for completion of public hearing

7.1 The public hearing shall be completed within a period of 45 (forty five) days from date of receipt of the request letter from the Applicant. Thereafter the SPCB or UTPCC concerned shall sent the public hearing proceedings to the concerned regulatory authority within 8(eight) days of the completion of the public hearing. Simultaneously, a copy will also be provided to the project proponent. The applicant may also directly forward a copy of the approved public hearing proceedings to the regulatory authority concerned along with the final Environmental Impact Assessment report or supplementary report to the draft EIA report prepared after the public hearing and public consultations incorporating the concerns expressed in the public hearing along with action plan and financial allocation, item-wise, to address those concerns.”.

7.2 If the SPCB or UTPCC fails to hold the public hearing within the stipulated 45(forty five) days, the Central Government in Ministry of Environment and Forests for Category ‘A’ project or activity and the State Government or Union Territory Administration for Category ‘B’ project or activity at the request of the SEIAA, shall engage any other agency or authority to complete the process, as per procedure laid down in this notification.

APPENDIX –V

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

(See paragraph 7)

PROCEDURE PRESCRIBED FOR APPRAISAL

1. The applicant shall apply to the concerned regulatory authority through a simple communication enclosing the following documents where public consultations are mandatory:
 - Final Environment Impact Assessment Report [20(twenty) hard copies and 1 (one) soft copy]
 - A copy of the video tape or CD of the public hearing proceedings
 - A copy of final layout plan (20 copies)
 - A copy of the project feasibility report (1 copy)
2. The Final EIA Report and the other relevant documents submitted by the applicant shall be scrutinized in office within 30 days from the date of its receipt by the concerned Regulatory Authority strictly with reference to the TOR and the inadequacies noted shall be communicated electronically or otherwise in a single set to the Members of the EAC /SEAC enclosing a copy each of the Final EIA Report including the public hearing proceedings and other public responses received along with a copy of Form -1or Form 1A and scheduled date of the EAC /SEAC meeting for considering the proposal.
3. Where a public consultation is not mandatory, the appraisal shall be made on the basis of the prescribed application Form 1 and EIA report, in the case of all projects and activities other than Item 8 of the Schedule. In the case of Item 8 of the Schedule, considering its unique project cycle, the EAC or SEAC concerned shall appraise all Category B projects or activities on the basis of Form 1, Form 1A and the conceptual plan and make recommendations on the project regarding grant of environmental clearance or otherwise and also stipulate the conditions for environmental clearance.”
4. Every application shall be placed before the EAC/SEAC and its appraisal completed within 60 days of its receipt with requisite documents / details in the prescribed manner.
5. The applicant shall be informed at least 15 (fifteen) days prior to the scheduled date of the EAC /SEAC meeting for considering the project proposal.
6. The minutes of the EAC /SEAC meeting shall be finalised within 5 working days of the meeting and displayed on the website of the concerned regulatory authority. In case the project or activity is recommended for grant of EC, then the minutes shall clearly list out the specific environmental safeguards and conditions. In case the recommendations are for rejection, the reasons for the same shall also be explicitly stated.

Note: The principal rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) vide notification number S.O. 1533 (E), dated 14th September, 2006 and amended vide S.O. 1737 (E), dated the 11th October, 2007.

APPENDIX VI

(See paragraph 5)

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

COMPOSITION OF THE SECTOR/ PROJECT SPECIFIC EXPERT APPRAISAL COMMITTEE (EAC) FOR CATEGORY A PROJECTS AND THE STATE/UT LEVEL EXPERT APPRAISAL COMMITTEES (SEACs) FOR CATEGORY B PROJECTS TO BE CONSTITUTED BY THE CENTRAL GOVERNMENT`

1. The Expert Appraisal Committees (EAC(s) and the State/UT Level Expert Appraisal Committees (SEACs) shall consist of only professionals and experts fulfilling the following eligibility criteria:

Professional: The person should have at least (i) 5 years of formal University training in the concerned discipline leading to a MA/MSc Degree, or (ii) in case of Engineering /Technology/Architecture disciplines, 4 years formal training in a professional training course together with prescribed practical training in the field leading to a B.Tech/B.E./B.Arch. Degree, or (iii) Other professional degree (e.g. Law) involving a total of 5 years of formal University training and prescribed practical training, or (iv) Prescribed apprenticeship/article ship and pass examinations conducted by the concerned professional association (e.g. Chartered Accountancy),or (v) a University degree , followed by 2 years of formal training in a University or Service Academy (e.g. MBA/IAS/IFS). In selecting the individual professionals, experience gained by them in their respective fields will be taken note of.

Expert: A professional fulfilling the above eligibility criteria with at least 15 years of relevant experience in the field, or with an advanced degree (e.g. Ph.D.) in a concerned field and at least 10 years of relevant experience.

Age: Below 70 years. However, in the event of the non-availability of /paucity of experts in a given field, the maximum age of a member of the Expert Appraisal Committee may be allowed up to 75 years

2. The Members of the EAC shall be Experts with the requisite expertise and experience in the following fields /disciplines. In the event that persons fulfilling the criteria of "Experts" are not available, Professionals in the same field with sufficient experience may be considered:

- **Environment Quality Experts:** Experts in measurement/monitoring, analysis and interpretation of data in relation to environmental quality
- **Sectoral Experts in Project Management:** Experts in Project Management or Management of Process/Operations/Facilities in the relevant sectors.
- **Environmental Impact Assessment Process Experts:** Experts in conducting and carrying out Environmental Impact Assessments (EIAs) and preparation of Environmental Management Plans (EMPs) and other Management plans and who have wide expertise and knowledge of predictive techniques and tools used in the EIA process
- **Risk Assessment Experts**
- **Life Science Experts in floral and faunal management**
- **Forestry and Wildlife Experts**

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b) , (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

• **Environmental Economics Expert with experience in project appraisal**

3. The Membership of the EAC shall not exceed 15 (fifteen) regular Members. However the Chairperson may co-opt an expert as a Member in a relevant field for a particular meeting of the Committee.

4. The Chairperson shall be an outstanding and experienced environmental policy expert or expert in management or public administration with wide experience in the relevant development sector.

5. The Chairperson shall nominate one of the Members as the Vice Chairperson who shall

preside over the EAC in the absence of the Chairman /Chairperson.

6. A representative of the Ministry of Environment and Forests shall assist the Committee as its Secretary.

7. The maximum tenure of a Member, including Chairperson, shall be for 2 (two) terms of 3 (three) years each.

8. The Chairman / Members may not be removed prior to expiry of the tenure without cause and proper enquiry.

I; II; III (i), (ii); IV (a), (b); V (i), (ii), (iii)(a), (b), (c), (iv), (v), (vi) (a), (b), (vii), (viii) (a), (b), (ix), (x), (xi), (xii) (a), (b), (xiii), (xiv) (a), (b), (xv) (a), (b), (xvi) (a), (b), (xvii); VI (a), (b); VII & VIII of the Notification, S.O. 3067(E) dated 01.12.2009 of the Ministry of Environment and Forests, (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii), No. 2002] New Delhi, Tuesday, November 1, 2009; an amendment to EC notification S.O.1533(E) dated 14.09.2006

GUIDELINES ON ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION & DEMOLITION (C & D) WASTES

**(Prepared in compliance of Rule 10 sub-rule 1(a) of C & D Waste
Management Rules, 2016)**



Illegal dumping causes loss of potential to reuse / recycle of C&D wastes

MARCH 2017



CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment, Forests & Climate Change)

GUIDELINES ON ENVIRONMENTAL MANAGEMENT OF C & D WASTES

(Prepared in compliance of Rule 10 sub-rule 1(a) of C & D Waste
Management Rules, 2016)

MARCH 2017



CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment, Forests & Climate Change)

एस.पी.एस. परिहार, भा.प्र.से.
अध्यक्ष

S.P.S. PARIHAR, I.A.S.
Chairman



केन्द्रीय प्रदूषण नियंत्रण बोर्ड
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
(भारत सरकार)

CENTRAL POLLUTION CONTROL BOARD
Ministry of Environment, Forest & Climate Change
(Government of India)

Foreword

The Swachh Bharat Mission (MoUD) envisages processing of 100% solid waste generated in cities / towns by 2nd October 2019 as a key objective, which includes Construction and Demolition (C&D) wastes.

In course of preparation of these Guidelines it was noted that there are uncertainties in estimating the quantum of C&D waste generation, this can be attributed to several reasons like different methods adopted to estimate quantum of C&D waste generated, varying pace of developmental activities in cities, re-development of cities due to rapid urbanisation wherein demolition activities become necessary. Literature survey also indicated that the quantum and composition of C&D waste is project specific. It is also learnt that in the past Guidelines on C&D wastes have been brought out by CPWD under Guidelines for Sustainable Habitat - PART IV: Guidelines on reuse and recycling of Construction and Demolition (C&D) Waste (March 2014)' and also by Building Materials and Technology Promotion Council (BMTPC) titled "Guidelines for utilization of C&D waste in construction of dwelling units and related infrastructure in housing schemes of the Government (year 2016)".

CPCB has brought '**Guidelines on Environmental Management of C & D Wastes**' in compliance of Rule 10 sub-rule 1(a) of the C&D Waste Management Rules, 2016 and has attempted to address the issues pertaining to abatement of adverse environmental impacts arising from C&D waste management activities. These issues were not discussed in the Guidelines prepared by CPWD & BMTPC.

The guidance from expert members of 'Committee for implementation of C&D Waste Management Rules 2016' and feedback on the draft Guidelines on the website of CPCB are acknowledged. Unlike other rules addressing various key urban wastes such as MSW, plastic wastes, BMW, the Construction and Demolition (C&D) Waste Management Rules, 2016 are NEW rules that were notified on 29th March, 2016 by MoEF&CC. These Guidelines are expected to be helpful to all stakeholders and to academic institutions in carrying out further research on the subject.

(S. P. SINGH PARIHAR)

March 2017



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‘Committee for implementation of C & D Waste Management Rules 2016’

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Central Road Research Institute (CSIR-CRRI)	Dr. Sudhir Mathur
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Municipal Corporation Delhi (MCD) - Urban Local Body	Pradeep Khandelwal
Building Materials & Technology Promotion Council (BMTPC)	J.K. Prasad
Infrastructure Leasing & Financial Services Ltd. (IL&FS) Environment	Arun Kumar Sharma
National Council for Cement and Building Materials (NCB) - Centre for Construction Development & Research	Amit Trivedi
Indian Road Congress (IRC)	D. Sam Singh Nayagam
Urban Pollution Control Division (UPCD), CPCB	Mita Sharma, Sct. ‘E’
Supported by UPCD Staff	K.N. Dash, Sct. ‘C’ Dr. Kanika Sharma, RA

Note: All photographs are taken from internet.

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SECTION I

Objective and Scope

1. Urban waste management

Safe and cost-effective management of solid wastes (SW) is a significant environmental challenge for modern society. Rapid urbanization is changing the nature of solid waste management from a low priority, localized issue to an all pervasive social and environmental problem with potential risks to public health and environment. Hence, inadequately managed waste disposal has the potential to affect the health and environment. Management of wastes needs to incorporate the principles of waste minimization and recycling and work towards an integrated processing & disposal facility such that it is both effective, sustainable and economically viable. In most urban wastes ex. Municipal Solid Waste (MSW), Biomedical Waste (BMW) or Construction & Demolition (C & D) Wastes - management of solid waste is required at all stages from waste generation to the final disposal with special attention on the SEGREGATION stage

A general approach to an integrated solid waste management plan would comprise of the following:

- i. understanding the various waste management practices
- ii. identifying waste management needs
- iii. setting targets (physical) for actions required
- iv. identifying budget requirements (financial targets)
- v. identifying the stakeholders & coordinating with to achieve the targets
- vi. arriving at a rational basis for setting up a waste processing / disposal facility
- vii. Select appropriate medium for mass awareness

2. Swachh Bharat Mission

The Swachh Bharat Mission (under MoUD) envisages processing of 100% solid waste generated in cities / towns by 2nd October, 2019 as a key objective, which includes Construction & Demolition wastes. Ministry of Urban Development (MoUD) vide its circular dated 28th June, 2012 stated all states to set up Construction & Demolition Waste recycling / processing facilities in all cities with population of over ONE million (10 laks).

3. C & D Waste Management Rules, 2016 - Notification

Unlike other rules addressing various key urban wastes such as MSW, plastic wastes, BMW, the Construction and Demolition (C & D) Waste Management Rules, 2016 are NEW rules that were notified on 29th March, 2016 by the Ministry of Environment, Forest and Climate Change (MoEF&CC).

4. C & D waste – definition, applicability and waste generating activities

As per Rule 3 (c) "construction and demolition waste" means *waste comprising of building materials, debris and rubble resulting from construction, re-modeling, repair and demolition of any civil structure.*

The rules shall apply to every waste resulting from construction, re-modeling, repair and demolition of any civil structure of individual or organization or authority who generates construction and demolition waste such as building materials, debris, rubble. Wastes like surplus and damaged products and materials arising in the course of construction work or used temporarily during the course of on-site activities come under C&D wastes.

Under Rule 3, the following definitions have been provided:

- a. Subrule (b) "**construction**" means the process of erecting of building or built facility or other structure, or building of infrastructure including alteration in these entities;
- b. Subrule (d) "**de-construction**" means a planned selective demolition in which salvage, re-use and recycling of the demolished structure is maximized;
- c. Subrule (e) "**demolition**" means breaking down or tearing down buildings and other structures either manually or using mechanical force (by various equipment) or by implosion using explosives.

Activities which generate C & D waste in cities / towns are mainly from:

- i. Demolition of existing, old dilapidated structures;
- ii. Renovation of existing buildings (residential or commercial);
- iii. Construction of new buildings (residential or commercial or hotel etc.);
- iv. Excavation/ reconstruction of asphalt/ concrete roads;
- v. Construction of new fly over bridges/ under bridges/ sub-ways etc.;

- vi. Renovation/ Installation of new water/ telephone/ internet/ sewer pipe lines etc.
- vii. Present collection and disposal system.

5. Objectives and scope of the Guidelines

Rule 10 sub-rule 1(a) of C & D Waste Management Rules, 2016 : Duties of the Central Pollution Control Board (CPCB) directs CPCB: to *‘prepare operational GUIDELINES related to environmental management of construction and demolition (C & D) waste management’.*

In complying with the above Rule, the Guidelines have been prepared to:

- a. promote an integrated approach, whereby environmental management of construction and demolition waste is given due consideration throughout the duration of the project;
- b. approach towards reduction of environmental impacts.

The guidelines recommends pollution mitigation measures in operation of C & D dump sites / waste processing facilities. Though guidelines focus mainly on facilities generating more than 20 tons or more in one day or 300 tons per project in a month of installed capacity (bulk generators) in cities / towns however, the mitigation measures suggested can be scaled accordingly after consultation with the concerned departments in the state government. The reference to ‘operators’ in these Guidelines imply operators of bulk C & D waste management / waste recycling / processing facilities.



Figure 1.1: Indiscriminate dumping of C & D wastes along roadsides

SECTION II

Quantum & Composition of C & D Waste Generation

1. Definition of C & D waste generator and bulk generators

As per Rule 3 (j) **“waste generator”** means *any person or association of persons or institution, residential and commercial establishments including Indian Railways, Airport, Port and Harbour and Defence establishments who undertakes construction of or demolition of any civil structure which generate construction and demolition waste.*

Under the Rules w.r.t. quantum of waste generation addresses those sources generating more than 20 tons or more in one day or 300 tons per project in a month of installed capacity (BULK C&D waste GENERATORS).

2. Uncertainty in quantum of generation of C & D wastes

During preparation of these Guidelines it was noted that there are uncertainties in the estimations of quantum of C & D waste generation, this can be attributed to several reasons like different methods adopted to estimate quantum of C & D waste generated, varying pace of developmental activities in cities, re-development of cities due to rapid urbanization wherein demolition activities become necessary. Though the quantum of C & D waste generation vary, however, it is estimated to account for approx. 25 - 30 percent of total solid waste generated. Some estimations of C & D wastes are provided below:

From MoUD:

- a. *10 MT -15 MT (MT – million tonnes) per year by MoUD (2000);*
- b. *Approximately 25-30 million tonnes of C & D wastes is generated annually in India of which 5% is processed*
- c. *The amount of C & D wastes in India has been estimated to be 10 - 12 million tonnes annually and the proportion of concrete estimated as 23 to 35% of total waste. Considering 30% percent of C & D wastes of 12 million tonnes as concrete, and 50% of the concrete as coarse aggregate, the total available recycled concrete aggregate (RCA) in India is of the order of 1.8 million tonnes annually.*

The quantum of generation of C & D waste estimates available from other sources are summarized below:

- 12 MT - 15 MT by TIFAC (2001);
- 10 MT -12 MT by MoEF (2010) and
- 12 MT by CPCB
- 165-175 MT per annum between 2005-2013 (BMTC)

Forecast estimates: Presently, C & D waste generation in India accounts upto **23.75 million tons** annually and these figures are likely to double fold upto **2016**. (Source: International Society of Waste Management, India).

Table 2.1: C & D waste generation in NINE cities

City	Area (Metropolitan region, km ²)	POPULATION (CENSUS 2011)	No. of Wards / Zones	ULB	C & D WASTE GENERATION (TONNES PER DAY)
Chennai	1,189	6,500,000	200/15	Chennai Municipal Corporation (As per discussions with IIT-Madras)	2,500
Coimbatore	-	2,618,940	100/5	Coimbatore City Municipal Corporation (CCMC, 2015)	92
Bengaluru*	-	8,443,675	198/5	Greater Bengaluru Municipal Corporation (BBMP)(TIFAC, 2001)*	875
Mumbai	4,355	12,442,373	24/6	Municipal Corporation of Greater Mumbai (www.mcgm.gov.in)	2,500
Ahmedabad	-	6,063,047	64/6	Ahmedabad Municipal Corporation (As per discussions with AMC officials)	700
Patna*	99.45	2,514,590	72/4	Patna Municipal Corporation (TIFAC, 2001)*	250
Jaipur*	-	3,471,847	91/8	Jaipur Municipal Corporation (TIFAC, 2001)*	200
Bhopal*	-	1,917,051	70/14	Bhopal Municipal Corporation (TIFAC, 2001)*	50
Kolkata	-	4,496,694	144/-	Kolkata Municipal Corporation (As per discussions with KMC)	1,600
*Due to unavailability of data for these cities, 25% of MSW was taken as C & D waste based on TIFAC, 2001 study; Ref. (a) A Baseline Study of the Automotive and Construction Sectors: GIZ, IFEU, TERI, VDI, Development Alternatives (DA) (b) Market study on C & D waste utilization in Ahmadabad: GIZ & DA.					

3. Estimation of C & D waste generation for India

Literature survey indicated that the composition of C & D waste varies and is particularly project specific. There are various methods employed to quantify the C & D waste generation at both regional and project levels.

Project level (India): Technology Information, Forecasting and Assessment Council's (TIFAC) has developed some estimations on C & D waste generation which recognizes that the generation is project specific as follows:

- a. Range 40-60 kg per sq.m of new construction,
- b. Range 40-50 kg per sq.m of building repair,
- c. Range 300-500 kg per sq.m for demolition of buildings.

From the above, it may be noted that the highest waste generation arises from demolition of buildings.

Regional level : C & D waste generation figures for any region fluctuate as it depends largely on the type & nature of construction / demolition activities of the project concerned. Various approaches for estimation of C & D waste generation in literature include the following:

- i. The following FIVE categories of existing C & D waste quantification methodologies are reported :
 - a. Site visit method
 - b. Waste generation rate method
 - c. Lifetime analysis method
 - d. Classification system accumulation method
 - e. Variables modelling method

(Ref. Quantifying Construction and Demolition Waste: An Analytical Review, Volume 34, Issue 9, September 2014, Pages 1683–1692, Elsevier Ltd.).

Approach to estimate C & D waste is through materials flow analysis is embedded in above methods.

- ii. Estimation of C & D waste generation based on per capita multipliers or waste generation rate model. (International J. Global Environmental Issues, Vol. 12, Nos. 2/3/4, 2012, Waste quantification models for estimation of construction and demolition waste generation: a review).

Table 2.2: C & D (%) waste - by activity in the United States
(Ref: BMTPC, 2016)

C & D waste type	Residential	Non residential	Total
<i>New Construction</i>	11%	6%	8%
<i>Renovation</i>	55%	36%	44%
<i>Demolition</i>	34%	58%	48%
<i>Total (%)</i>	100%	100%	100%

4. Composition of C & D waste is project specific

- a. The composition of C & D waste can vary depending on age of building being demolished / renovated or the type of buildings being constructed. As mentioned earlier, C & D waste generation figures for any region varies as it depends largely on the type and nature of construction / demolition project activities which may be regional / site / project specific.

Under Rule 4 sub-rule (3) the segregation by bulk C & D waste generators shall be done into four streams such as:

- i. Concrete
 - ii. Soil
 - iii. Steel, wood and plastics
 - iv. Bricks & mortar
- b. Demolition waste characteristics: In India, when old buildings are demolished the major demolition waste is soil, sand and gravel accounting for bricks (26%) & masonry (32%), Concretes (28%), metal (6%), wood (3%) others (5%). Bricks, tiles, woods and iron metal are sold for reuse / recycling (BMTPC).
- c. Excavations, concrete, masonry and wood together constitute over 90% of all C & D waste.
- d. The typical composition of Indian C & D waste:
The major constituents are concrete, soil, bricks, wood, asphalt and metal. Brick & masonry, soil, sand & gravel account for over 60% of total waste. (Source- Municipal Corporation of Delhi, Burari facility).

Table 2.3: Typical composition of Indian C & D waste
(TIFAC, 2001)

Material	Composition
Soil, Sand & Gravel	36%
Brick & Masonary	31%
Concrete	23%
Metals	5%
Bitumen	2%
Wood	2%
Others	1%



Figure 2.1: Indiscriminate dumping of C & D wastes along roadsides

SECTION III

Initiatives in Promoting C & D Waste Products by GoI

1. The Rules promote C & D waste utilization

The Construction and Demolition (C & D) Waste Management Rules, 2016 promotes C & D waste utilization.

Under Rule (6) under Duties of Local Authority, the following sub-rules states:

- i. sub-rule (9) 'shall device appropriate measures in consultation with expert institutions for management of construction and demolition waste generated including processing facility and for using the recycled products in the best possible manner';
- ii. sub-rule (10) 'shall create a sustained system of information, education and communication (IEC) for construction and demolition waste through collaboration with expert institutions and civil societies and also disseminate through their own website';
- iii. sub-rule (11) 'shall make provision for giving incentives for use of material made out of construction and demolition waste in the construction activity including in non-structural concrete, paving blocks, lower layers of road pavements, colony and rural roads'.

Under Rule (7) mentions the 'Criteria for storage, processing or recycling facilities for construction and demolition (C & D) waste and application of construction and demolition waste and its products'.

Under **Schedule I** (Rule (7) (1)): 'Construction and demolition waste shall be utilized in sanitary landfill for municipal solid waste of the city or region as mentioned under Schedule I'.

- a. The Rule (7) sub-rule (3) gives Application of materials made from construction and demolition waste in operation of sanitary landfill shall be as per the criteria given in **Schedule II**.
- b. The Rule (9) sub-rule (4) mentions that the 'Procurement of materials made from construction and demolition waste shall be made mandatory to a certain percentage (say 10-20%) in municipal and Government contracts subject to strict quality control'.
- c. Rule (11) under Duties of Bureau of Indian Standards (**BIS**) and Indian Roads Congress (**IRC**) 'The Bureau of Indian Standards and Indian Roads Congress shall be responsible for preparation of code of

practices and standards for use of recycled materials and products of construction and demolition waste in respect of construction activities and the role of Indian Road Congress shall be specific to the standards and practices pertaining to construction of roads’.

2. Type of C & D wastes products proposed under Rules

The C & D wastes products suggested under the Construction and Demolition (C & D) Waste Management Rules, 2016 are as follows:

- i. Under Rule (6) under Duties of Local Authority : sub-rule (11) ‘shall make provision for giving incentives for use of material made out of construction and demolition waste in the construction activity including in non-structural concrete, paving blocks, lower layers of road pavements, colony and rural roads’.
- ii. Under **Schedule I** (Rule (7) (1)): ‘Construction and demolition waste shall be utilized in sanitary landfill for municipal solid waste of the city or region as mentioned under Schedule I’.
- iii. The Rule (7) sub-rule (3) gives Application of materials made from construction and demolition waste in operation of sanitary landfill shall be as per the criteria given in **Schedule II**.

3. Thrust areas in C & D waste management – National Building Code (NBC)

Some key thrust areas regarding C & D waste reuse / recycling:

- a. *Establish utilization of C & D wastes in concrete and concrete based products by preparing standards.*
- b. Quality control and certification.
- c. *Need for popularizing products from C & D waste.*
- d. R&D activities on continuous basis in tandem with manufacturing industry and users.
- e. *Achieving environment protection through C & D waste utilization.*
- f. Optimizing utilization pattern of traditional materials by interfacing the same with supplementary materials.

4. Initiatives to promote recycling of C & D waste in India

India has provisions for the protection and improvement of the environment in its constitution. *“The demand for aggregates in 2007 has seen an increase by five percent, to over 21 billion tonnes, the largest being in developing countries for example India”*. (Study by Asian Institute of Technology (AIT), Thailand for some Asian countries included India, report released in May 2008). Construction accounts for nearly 65 per cent of the total investment in infrastructure and the trend is increasing, hence it is more important to know how to effectively manage C & D waste w.r.t. reuse & recycle. Some key initiatives on C & D waste management in India is given below :

- a. Ministry of Urban Development (**MoUD**) : Ministry of Urban Development vide circular dated June 28, 2012, directed States to set-up such facilities in all cities with a population of over 10 lakhs (one million plus cities) to establish environment friendly C & D recycling facilities (reference base being the first C & D waste processing facility commissioned in Delhi in Burari model). The MoUD report ‘Technical Aspects of Processing and Treatment of Municipal Solid Waste’, Swach Bharat Mission (MoUD, 2016) also recognises the need for C & D waste management (Page 227).
- b. Ministry of Environment, Forest & Climate Change (**MoEF&CC**): Environmental considerations have been integrated into all levels and in National Environment Policy of 2006, incorporation of the concept of 3Rs, is reflected in all the notified waste management rules (MSW, plastic, BMW, HW, e-wastes). A Report of the Committee to ‘Evolve Road Map on Management of Wastes in India (2010)’ highlights C & D problems, it recognised the utility of the waste and also acknowledged lack of data on the waste generation. The C & D Waste Management Rules, 2016 were notified by MoEF&CC vide notification no. G.S.R. 317(E) dated 29th March, 2016.
- c. Bureau of Indian Standards (**BIS**) : Under the Construction and Demolition (C & D) Waste Management Rules, 2016 Rule (11) under Duties of Bureau of Indian Standards (**BIS**) and Indian Roads Congress (**IRC**), *‘The Bureau of Indian Standards and Indian Roads Congress shall be responsible for preparation of code of*

practices and standards for use of recycled materials and products of construction and demolition waste in respect of construction activities.

Role of Standards (BIS) in Utilization of C & D Wastes:

- i. It is the basis for acceptance
- ii. Wider use by increasing confidence in users consumers
- iii. Transfer of technology
- iv. Scope for review / amendment / revision / withdrawal
- v. Techno-legal - Part of regulatory documents
- vi. Techno-financial - Part of financing projects
- vii. Basis for training / capacity building and R&D

IS 383 : 2016 Indian Standard COARSE AND FINE AGGREGATE FOR CONCRETE – SPECIFICATION (Third Revision) - Scope: This standard covers the requirements for aggregates, crushed or uncrushed, derived from natural sources, such as river terraces and riverbeds, glacial deposits, rocks, boulders and gravels, and manufactured aggregates produced from other than natural sources, for use in the production of concrete for normal structural purposes including mass concrete works.

These manufactured aggregates are of two types namely:

- i. Recycled Aggregate (RA) — It is made from C & D waste which may comprise concrete, brick, tiles, stone, etc.
- ii. Recycled Concrete Aggregate (RCA) – It is derived from concrete after requisite processing.

BIS IS: 383 is the principal driver, the standard for coarse and fine aggregates for use in concrete was revised in January, 2016, permitting use of recycled aggregates up to 25% in plain concrete, 20% in reinforced concrete of M-25 or lower grade and up to 100% in lean concretes of grade less than M-15.

Table 3.1: IS 383 : 2016 Indian Standard COARSE AND FINE AGGREGATE FOR CONCRETE – SPECIFICATION (Third Revision)

C & D waste BIS IS: 383	Plain Concrete	Reinforced Concrete	Lean Concrete (< M15 grade)	Extent of Utilization
Recycled Concrete Aggregate (RCA)	25%	20% (only upto M25 grade)	100%	as Coarse Aggregate
Recycled Aggregate (RA)	nil	nil	100%	as Coarse Aggregate
Recycled Concrete Aggregate (RCA)	25%	20% (only upto M25 grade)	100%	as Fine Aggregate

National Building Code (NBC- CED 46) of India 2005 : Part 11 of NBC 2005 on 'Approach to Sustainability'(Chapter 11), states that :

- i. Recycled Coarse Aggregate may be used in concrete for bulk fills, bank protection, base/fill of drainage structures, pavements, sidewalks, kerbs and gutters etc.
- ii. Up to 30 percent of natural crushed coarse aggregate can be replaced by the recycled concrete aggregate
- iii. This percentage can be increased up to 50 percent for pavements and other areas which are under pure compression specific to the standards and practices pertaining to construction of roads.'

d. Building Material & Technology Promoting Council (**BMTPC**):

The demand of building materials for 2021-22 has been reckoned by Building Materials and Technology Promotion Council (BMTPC) as cement 380 million tonnes, steel 50 million tonnes, bricks 600 billion numbers, aggregate 400 million cubic meters and timber 40 million cubic meters. Data show that there is a considerable amount of shortage of conventional and traditional building materials in India. BMTPC in 2016 released "Guidelines for utilization of Construction & Demolition waste in construction of dwelling units and related infrastructure in housing schemes of the Government".

e. Central Public Works Division (**CPWD**): The "Guidelines for *Sustainable Habitat* (March 2014)" are based on reports of National Mission on 'Sustainable Habitat' by the Ministry of Urban Development (MoUD) and draft code on "Approach to Sustainability" as part of National Building Code (NBC 2005). The PART IV of the Guidelines for 'Sustainable Habitat' discusses 'Guidelines on reuse and recycling of Construction and Demolition (C & D) waste'. The guidelines on Construction and Demolition (C & D) waste addressed the building industry activity.

f. **CPWD & NBCC**

Approximately 25-30 million tonnes of C & D wastes is generated annually in India of which 5% is processed. To address utilization of C & D wastes, the Central Public Works Department (CPWD) and National Building Construction Company (NBCC) have recommended use of recycled portions of C & D wastes in their construction activities or if the

same is available within 100 km from construction site. Reference was made to the BIS 383 : 2016 standards.

g. Indian Road Congress (**IRC**) :

Under the Construction and Demolition (C & D) Waste Management Rules, 2016, Rule 11 indicates the role of Indian Roads Congress (**IRC**) w.r.t. preparation of code of practices / standards for use of recycled materials and products of construction and demolition waste in respect of road works.

5. Roadmap for C & D waste management - TIMELINES & TARGETS

In MOEF Performance Audit was conducted during July 2007 to December 2007 through document analysis, collection of responses to questionnaires, physical collection and testing of samples. Records and documents relating to the issue in the Performance Audit were examined and a key observation was:

‘MoEF, in consultation with the states, should prepare an action plan for the reduction, reuse and recycling of waste with clearly defined numerical targets as well as timelines for the achievement of targets’.

The following targets / timelines to be considered in C & D waste management, however in some cases the concerned dealing departments may revise them in consultation with experts and project proponents as construction and demolition waste management is project specific.

A. C & D waste management - identification of bulk generators

Under C & D Waste Management Rules, 2016, projects which generate more than 20 tons or more in one day or 300 tons per project in a month are referred to as bulk C & D waste generators.

B. Roadmap for C & D waste management - Population of cities

Under C & D Waste Management Rules 2016, the targets for commissioning C&D processing facilities are based on population as given below:

- i. Cities with population of one million and above
- ii. Cities with population of 0.5 –one million
- iii. Cities with population of less than 0.5 million

C. Roadmap for C & D waste management - TIMELINES

The TIMELINES for achievement of targets: The roadmap for implementation of Construction and Demolition (C & D) Waste

Management Rules, 2016 is under Schedule III [See Rule 13] and reproduced below.

Schedule III [See Rule 13]

Table 3.2: Timeframe for Planning and Implementation

S. No	Compliance Criteria	Cities with population of >=one million	Cities with population of 0.5-01 million	Cities with population of < 0.5 million
1.	Formulation of policy by State Government	12 months	12 months	12 months
2.	Identification of sites for collection & processing facility	18 months	18 months	18 months
3.	Commissioning and implementation of the facility	18 months	24 months	36 months
4.	Monitoring by SPCBs	3 times a year / in 4 months	2 times a year / once in 6 months	2 times a year / once in 6 months

D. Mandate for Utilization of C & D waste products - Numerical targets

- i. Under C & D Waste Management Rules, 2016, the Rule (9) sub-rule (4) mentions that the 'Procurement of materials made from construction and demolition waste shall be made mandatory to a certain percentage (say 10-20%) in municipal and Government contracts subject to strict quality control.'
- ii. Incentivisation recommended under BMTPC Guidelines: (i) All Government constructions may be mandated to use at least 20 per cent of recycled C & D waste products. (ii) The tipping fee for delivery of C & D waste to the recycling plant, terms & conditions of civic body with the concessionaire may be designed to keep the price of C & D waste recycled products about 20 per cent lower than the corresponding conventional products.

E. Incentivize On-site utilization of C & D wastes – numerical targets for C & D Plans

- i. To address utilization of C & D wastes the Central Public Works Department (CPWD) and National Building Construction Company (NBCC) have recommended use of recycled portions of C & D wastes in their construction activities or if the same is available within 100 km from construction site. Reference was made to the

- BIS 383 : 2016 standards similar (or more stringent targets) to be proposed in other projects of both government and private sectors.
- ii. BMTPC guidelines : All renovation projects involving demolition, even in private sector, may be mandated to use at least 20 per cent of recycled C & D waste products.
- iii. Under the C & D Waste Management Rules 2016 ‘*Exemption from the compliance of norms (Schedule I (14)), the following are exempted from the norms of pollution from **dust and noise** as mentioned above:*
- *For construction work, where at least 80 percent construction and demolition waste is recycled or*
 - *Reused in-situ and sufficient buffer area is available to protect the surrounding habitation from any adverse impact.*

iv. Mandate use of C & D waste products

BMTPC Guidelines: As and when C & D waste recycling plant is commissioned at a city, it may be made mandatory for all construction activities to use a specified percentage of building construction materials manufactured from recycled debris.

However, as C & D waste generation is project specific, the State departments may propose practical and achievable reuse / recycle targets in consultation with project proponents.

F. Criteria for setting up C & D waste processing facilities – BMTPC Guidelines

Building Materials and Technology Promotion Council (BMTPC) in year 2016 released “**Guidelines for utilization of C & D waste in construction of dwelling units and related infrastructure in housing schemes of the Government**”. Regarding criteria for setting up C & D waste processing facilities it was recommended that the Civic bodies wherein current waste generation > than 2000 tpd, to set up more than one plant for recycling of C & D waste.



Figure 3.1: Indiscriminate dumping of C & D wastes along roadsides

SECTION IV C & D Waste Processing

1. Hierarchy in waste management

According to United Nations Environment Programme (UNEP), waste management includes both, the components of prevention and disposal of waste. The waste management hierarchy can be traced back to the 1970s, when the environment movement started to criticize the practice of disposal-based waste management. It argued 'waste' that is made up of different materials should be treated differently as suggested:

- a. Reduce its production
- b. Explore its reuse and recycle potential
- c. Final disposal

The same is echoed in India's waste management handling Rules either directly or indirectly and it includes C & D wastes.

Table 4.1: Waste management as per Hazardous Waste and Solid Waste Rules

HW Rules, 2016 (Rule 4)	Solid Wastes Rules, 2016 (Rule 3)
<p>Hierarchy in waste management w.r.t. Responsibilities of the occupier for <u>management of hazardous and other wastes</u>-</p> <p>For the management of hazardous and other wastes, an occupier shall follow the following SIX steps, namely:-</p> <ol style="list-style-type: none"> i. Prevention; ii. Minimization; iii. Reuse, iv. Recycling; v. Recovery, utilization including co-processing; vi. Safe disposal. 	<p>Definition #57 "waste hierarchy" means the priority order in which the solid waste should be managed by giving emphasis to prevention, reduction, reuse, recycling, recovery and disposal, with prevention being the most preferred option and the <u>disposal at the landfill being the least</u>;</p>

According to this hierarchy, the priority of any country should be to extract the maximum practical benefits from products and to prevent and minimize the waste that is generated. Prevention is the most desirable waste management option as it eliminates the need for handling, transporting, recycling or disposal of waste. It provides the highest level of environmental protection by optimizing the use of resources and by removing a potential source of pollution. Reducing waste includes any process or activity that avoids, reduces or eliminates waste at its source or results in reuse or recycling. The conventional method of waste disposal desirably is to engineered sanitary landfill. Regarding C & D waste, prevention at source (encourage on – site management) is the desirable approach, since this reduces the quantum of waste to be transported.

2. Importance of recycling C & D Wastes

- a. Re-use and recycling ‘wastes’ has been promoted in all the waste rules and the importance of these principles applies to C&D waste also.
- b. Two significant forecasts :
 - i. It has been estimated that ‘*by 2013, 20 million square meters of office space will be completed in India. Half of the demand will come from the **metro-cities**. With the increasing demand for built spaces and scarcity of land, a trend of re-development projects is expected. With increased urbanization and increased housing demands, there will be a shortage of aggregates to the extent of 55,000 million cu.m in housing sector, where as the road sector requires an additional 750 million cu.m. of aggregates. This emphasizes the need of C & D waste management in India. The cost of construction materials is increasing enormously. In India, the cost of cement during 1995 was Rs. 125/kg and in 2012 the price increased to Rs. 330/bag. In case of bricks, the price was Rs. 0.66 per brick in 1995 and the present rate is Rs. 6 per brick in 2012. With the environmental hazards caused by excessive and illegal extraction of river sand, the mining of river sand was banned since April 1, 2012’ (Ref. Report (May 2008) report on practices in C & D waste management in some Asian (includes India) by AIT Thailand).*
 - ii. *The amount of C & D wastes in India has been estimated to be 10 - 12 million tonnes annually and the proportion of concrete estimated as 23 to 35% of total waste. Considering 30 % percent of C & D wastes of 12 million tonnes as concrete, and 50 % of the concrete as coarse aggregate, the total*

available recycled concrete aggregate (RCA) in India is of the order of 1.8 million tonnes annually. (CPWD)

The forecasts of shortage of aggregates in construction works opens up scope for recycling / processing of C&D wastes.

- c. Recycling of C & D waste is important as it helps to reduce the dependence on natural resources and eliminates adverse environmental impacts ex. Mining activities, which are energy intensive and highly polluting.
- d. The Hon'ble Court's intervention on the controversy over sand mining in some states focused the need to explore options for recycle, reuse and substitute naturally sourced building material (example sand) hence the spotlight on C & D waste management.
- e. When opportunities for reuse or salvage are exhausted, recycling is the next level. Recycling of C & D wastes has the additional advantage of controlling the quantum of C & D waste destined for disposal at landfills besides reducing transportation costs.
- f. C & D waste materials that can be salvaged for reuse include acoustical ceiling tiles, asphalt, asphalt shingles, carpets, concrete, drywall, fluorescent lights, land clearing debris (vegetation, stumpage, dirt), metals and metal alloys, structural steel, plastic film (sheeting, packaging), glass, wood etc. Besides appliances, bathroom fixtures, bricks, blocks, masonry stone, structural steel, cabinets, carpeting, ceiling tiles, timber and timber based boards, door and window frames and shutters, flooring tiles, stone tiles/platforms, insulation, landscaping materials, lighting fixtures, metal framing including for partitions and ceiling, panelling, pipes, antique moldings, accessories and hardware of furniture, PVC water tanks, roofing sheets used for garages, outdoor areas, fabric of tensile structures etc.
- g. C & D and other inert waste may be utilized for making bricks, pavement blocks, construction materials such as aggregates etc. , there are plants of various capacities in that make bricks, paver blocks, aggregates, etc out of such waste material.

See **ANNEXURE II**: Potential uses of C & D wastes

3. 'Sustainable Model' on C & D waste management

The key components of a 'Sustainable Model' on Construction and Demolition (C & D) Waste Management Rules, 2016 can include the following:

- i. Practical estimation of C & D waste generation
- ii. Identified sites and timely acquisition of land for development of integrated C & D processing facilities with necessary approval from local administration / civic bodies
- iii. Specifications / standards for recycled C & D waste products for quality acceptance
- iv. List out and mandate use of recycled products from C & D wastes
- v. Penalty - Landfill levy
- vi. Map water bodies in a city / region – encroachment of water bodies in cities for generating 'land' is a common practice observed in several cities
- vii. Research on economically viable C & D recycling options
- viii. Awareness campaign – tools for sensitization of general public

Refer **ANNEXURE III**: Global practices of utilization of C & D wastes.



Figure 4.1: Photographs of Construction & Demolition waste processing facility

SECTION V

Existing Guidelines on C & D Waste Management

1. GUIDELINES w.r.t. Building Sector - Building Materials and Technology Promotion Council (BMTPC)

The forecast regarding the demand of building materials for 2021-22 has been reckoned by Building Materials and Technology Promotion Council (BMTPC) which are as follows: 'cement 380 million tonnes, steel 50 million tonnes, bricks 600 billion numbers, aggregate 400 million cubic meters and timber 40 million cubic meters. Data show that there is a considerable shortage of availability of conventional and traditional building materials in India.' BMTPC in year 2016 released "**Guidelines for utilization of C & D waste in construction of dwelling units and related infrastructure in housing schemes of the Government**". The Guidelines pertain to building industry, salient features are given below:

- i. The BMTPC Guidelines acknowledges the importance of Schedule III on time - frame for planning and Implementation [See Rule 13] in the *C & D Waste Management Rules 2016 notified by MoEF&CC vide G.S.R. no. 317(E) dated 29th March, 2016*
- ii. Cities with population > one million : MoUD vide its circular dated 28th June, 2012 states all states to set up C & D waste recycling facilities in all cities with population of over 1 million.
- iii. Direction to Bulk generators : The agencies that generate C & D waste in bulk quantity to deliver the C & D debris at the recycling plant
- iv. Concession to bulk generators : The terms and conditions with the concessionaire and the fee levied on bulk producer of C & D waste are made available at a price at least 20% lower than corresponding materials from natural resources.
- v. Criteria for setting up C & D waste processing facilities : The Civic bodies wherein current waste generation > than 2000 TPD, to set up more than one plant for recycling of C & D waste.
- vi. Cities of population < one million : Sensitization and facilitation for re-use and recycling of C & D waste may also be taken up in cities of population less than 1 million to encourage such initiative.

- vii. Non-bulk generators : Collection points be provided so that small quantity generator of C & D waste is not required to transport the debris to a distance more than 2.5 to 3.0 km.
- viii. C & D Collection centers : to be notified wherein small quantity generators of C & D waste can deliver the C & D debris. The system and arrangements for collection and supply of C & D waste to recycling plants may be worked out and defined in an unambiguous manner.
- ix. Mandate use of C & D waste products :
 - a. Mandate use of C & D waste products: As and when C & D waste recycling plant is commissioned at a city, it may be made mandatory for all construction activities to use a specified percentage of building construction materials manufactured from recycled debris.
 - b. Incentivize utilization of recycled C & D waste products: (i) All Government constructions may be mandated to use at least 20 per cent of recycled C & D waste products. (ii) All renovation projects involving demolition, even in private sector, may be mandated to use at least 20 per cent of recycled C & D waste products. (iii) The tipping fee for delivery of C & D waste to the recycling plant, terms & conditions of civic body with the concessionaire may be designed to keep the price of C & D waste recycled products about 20 per cent lower than the corresponding conventional products.
- x. Guidelines also proposes MANAGEMENT PLAN and MARKETING PLAN.
- xi. Annexure-I of BMTPC Guidelines : provides copy of Construction and Demolition Waste Management Rules, 2016, Gazette of India, Part-II, Section-3, Sub-section (ii)], Ministry of Environment, Forest and Climate Change.

2. GUIDELINES *w.r.t.* Building Sector - Central Public Works Department (CPWD)

CPWD's Guidelines for Sustainable Habitat (March, 2014): The Guidelines are based on reports of National Mission on Sustainable Habitat by Ministry of Urban Development (MoUD) and draft code on "*Approach to Sustainability*" as part of National Building Code (NBC 2005).

The above CPWD Guidelines have FOUR parts:

- a. Guidelines on Architectural Design and Layout.
- b. CPWD Sustainability index and Guidelines for materials.

c. Guidelines for selection of equipment for Electrical and Mechanical Services for sustainable buildings.

d. PART IV : Guidelines on reuse and recycling of Construction and Demolition (C & D) Waste

(Ref. http://cpwd.gov.in/Publication/Guideleines_Sustainable_Habitat.pdf)

3. GUIDELINES *w.r.t.* ROAD Sector

Under the Construction and Demolition (C & D) Waste Management Rules, 2016 Rule (11) under Duties of Indian Roads Congress (**IRC**) ‘The role of Indian Road Congress shall be specific to the standards and practices pertaining to construction of roads.’

As per literature surveys the urban waste that has been used significantly in road construction are ‘plastic wastes’. There is scant documentation regarding ‘authorised’ utilization of construction and demolition (C & D) waste in ROAD works, though it is being used in filling low lying areas.

Case studies :

Construction of Rural Roads using C & D Waste Materials in Thanjavur, TN : Project includes addition of C & D waste in the sub-base layer of the road structure, the conventional laterite layer can be further strengthened – the quantity of utilization of laterite is reduced and thus leads to cost reduction in road laying (rural roads).

4. Need for inclusion of abatement of adverse environmental impacts in C & D waste management GUIDELINES

An overview of the available Guidelines on construction and demolition (C & D) waste:

- i. The Building Materials and Technology Promotion Council (BMTPC) in 2016 released “**Guidelines for utilization of C & D waste in construction of dwelling units and related infrastructure in housing schemes of the Government**”. The construction and demolition (C & D) waste guidelines pertain to building industry.
- ii. The Central Public Works Department (CPWD), the PART IV: **Guidelines on reuse and recycling of construction and demolition (C & D) waste** is available in CPWD’s Guidelines for Sustainable Habitat (March 2014) – also address the building sector.

- iii. Road sector: There is not much documentation regarding 'authorised utilisation' of construction and demolition (C & D) waste in ROAD works, though it is being used in road works.
- iv. The 1st initiative by an ULB to address C & D wastes was done in September 2005, the Municipal Corporation of Greater Mumbai issued the Demolition and De-silting Waste (Management and Disposal) Guidelines.
- v. GUIDELINES on **Environmental Management** of C & D wastes :
'The waste generation from construction should not only be minimized, but should also minimize the hazardous effect from the generated wastes'.
(Source : CPWD Guidelines on C & D wastes)

CPCB '**Guidelines on Environmental Management of C & D Wastes**' in compliance of Rule 10 sub-rule 1(a) of the C & D Waste Management Rules, 2016 and has attempted to address the issues pertaining to abatement of adverse environmental impacts arising from C & D waste management activities. These issues were not discussed in the Guidelines prepared by CPWD & BMTPC.



Figure 5.1: Loss of C & D wastes - can be processed for reuse / recycle

SECTION VI

Introduction to Guidelines on Environmental Management of C & D Wastes

1. Environmental degradation due to indiscriminate disposal of C & D wastes in cities

As per C & D Waste Rules (Rule 4 sub-rule (4)) there *should be no littering or deposition of construction and demolition waste so as to prevent obstruction to the traffic or the public or drains*. Instances of environmental degradation caused in cities due to indiscriminate disposal of C & D waste are listed below:

- i. Indiscriminate dumping of C & D wastes is a visually annoying and conveys poor enforcement of C & D waste in a city.
- ii. Due to lack of options for dumping in designated sites, low lying areas or abandoned quarries, vacant plots or sometimes even the outskirts of the city often become targets for dumping debris from the construction and demolition (C & D) of a city.
- iii. Often C & D is dumped on roadsides quietly by C & D waste generators.
- iv. Private contractors remove waste to privately owned, low-lying land for a price, or more commonly, dump it in an un-authorized manner along roads or other public land.
- v. C & D debris is being indiscriminately disposed along river banks or dumped in drains (nallahs) which hamper flow thereby encourage mosquitoes breeding due stagnant sewage / water or cause floods.
- vi. Cases often reported are C & D wastes are used to illegally fill up water bodies and wetlands around urban centres for 'creating land' for real estate development.
- vii. As C & D waste forms a part of solid waste gets disposed in landfills, as this is the cheapest option of disposal of C & D waste.
- viii. C & D waste from individual households finds its way into nearby municipal bins and waste storage depots making the municipal waste heavy, thereby affecting efficiencies of waste management treatment options ex. composting or energy recovery.

2. Need for environmental management of pollutants highlighted under C & D Waste Management Rules

In the Construction and Demolition Waste Management Rules, 2016 under **Schedule I** *Criteria for Site Selection for Storage and Processing or Recycling Facilities for construction and demolition waste* [See Rule 7(1)] in the Table 6.1 the following environmental conditions have been listed:

Table 6.1: Environmental conditions for C & D waste processing facility

Sl. as per Schedule I	Recommendation on environmental issues
(7)	Processing or recycling site shall be fenced or hedged and provided with proper gate to monitor incoming vehicles or other modes of transportation.
(8)	The approach and or internal roads shall be concreted or paved so as to avoid generation of dust particles due to vehicular movement and shall be so designed to ensure free movement of vehicles and other machinery.
(9)	Provisions of weigh bridge to measure quantity of waste brought at landfill site, fire protection equipment and other facilities as may be required shall be provided.
(10)	Utilities such as drinking water and sanitary facilities (preferably washing/bathing facilities for workers) and lighting arrangements for easy landfill operations during night hours shall be provided and Safety provisions including health inspections of workers at landfill sites shall be carried out made.
(11)	In order to prevent pollution from processing or recycling operations, the following provisions shall be made, namely: <ul style="list-style-type: none"> (a) Provision of storm water drains to prevent stagnation of surface water; (b) Provision of paved or concreted surface in selected areas in the processing or recycling facility for <u>minimizing DUST</u> and damage to the site. (c) <u>Prevention of NOISE pollution</u> from processing and recycling plant: (d) provision for treatment of effluent if any, to meet the discharge norms as per Environment (Protection) Rules, 1986.
(12)	Work Zone air quality at the Processing or Recycling site and ambient air quality at the vicinity shall be monitored.
(13)	The measurement of ambient noise shall be done at the interface of the facility with the surrounding area, i.e., at plant boundary.

As per C & D Waste Rules (Rule 4 sub-rule (4)), there should be no littering or deposition of construction and demolition waste so as to prevent obstruction to the traffic or the public or drains.

Under the C & D waste Rules 2016 '*Exemption from the compliance of norms (Schedule I (14))*', there are exemptions from the norms of pollution from **dust and noise**:

From the above it can be noted that C & D waste management / activities are dusty. The key pollutants that impact environment are **DUST & NOISE** besides other issues.

3. Effective C & D Waste Management – Opportunities for resource conservation & employment generation

Some key benefits of efficient recycling and reusing of C & D waste are listed below:

- i. Reduces the pressure for utilization of new construction materials / need for further mining operations. Mining activity if not properly monitored degrades the environment
- ii. Reduction of demand for energy and water in manufacture of building materials from mined / natural resources (thereby reducing environmental impacts arising from mining, manufacturing and transportation)
- iii. Reduces quantum of transportation and disposal of C & D wastes to be handled when on-site reuse / recycle is encouraged.
- iv. Proper segregation of C & D waste avoids mixing with bio-degradable waste destined for MSW treatment facilities / landfills.
- v. Promotes options for reuse / recycle of products manufactured from C & D waste.
- vi. Roadsides and vacant plots could be freed from debris dumps thereby giving cities a better facelift.
- vii. Creates employment generation and market :
C & D waste management activities (segregation, reuse & recycling being labour intensive activities, generate employment opportunities. The manufacturing & sale of recycled products creates a market this further opens further job opportunities.

4. Major operations in C & D processing plant

Major operations in a recycling plant are sorting, crushing, classification/sieving and washing. Sorting can either be done manually or using advanced devices. Before feeding the material into the crusher, a grizzly can be used to ensure the maximum feeding size of debris for the respective crusher. Generally, jaw crushers or horizontal impact crushers are used to crush the debris. Size classification is performed using appropriate screens of required sizes. Washing is done to separate fine particles (silt and clay particles) and this operation can be done combined with size classification. Sorted aggregates of specific sizes are stored separately. Noise is generated from equipment, though operations generate both noise & dust (Content taken from : Ref. Study by IIT Madras on C & D waste Management for Chennai).

5. Overview of Construction & Demolition activities

Table 6.2: An overview of Construction & Demolition activities

Features	Construction activity	Demolition activity	Remarks
Activity awarded by	Mainly by : Development Authority / Housing Board / Slum Clearance Board / Private company		All factors depend on the size of the project
Activity executed by	Mainly outsourced to private contractors. Most local bodies have empanelled contractors for executing demolition activities.		
Key activity	Preparation of : concrete mixture (RMC) and concrete slabs	Removable of recyclable components done mostly manually Activity mostly mechanized to save time & reduce manual intervention	Mechanization of activities is being employed for expediency & reduce manual intervention /
Nature of activity	Manual & mechanized	Manual & mechanized	
Quantum of waste generation per sqm	Low	Very high	
Fees / Rates for lifting wastes	<u>Demolition</u> : Rates for lifting demolition waste are fixed per cub.m or cubic feet by the concerned department after assessing the salvageable wastes ;		Main Pollutants : NOISE & DUST generation
Common equipment deployed at site	Movement of construction material – RMC, bricks, slabs , metal frames by pulley system or cranes	concrete breaker machines , JCBs, earth movers, pneumatic breakers	
Wastes that can be salvaged (Re-usable / Recyclable wastes	<u>Construction</u> : Wastes also include surplus and damaged products and materials arising in the course of construction work or used temporarily during the course of on-site activities. <u>Demolition</u> : Refer Annexure II		

6. GUIDELINES on Environmental Management of C & D Waste Management in India

The four common environmental impacts from an activity that may affect its surroundings are:

- (a) Dust
- (b) Noise
- (c) Smoke
- (d) Odour (fugitive emission)

In case of C & D waste management, the key parameters which impact environment are **DUST & NOISE**.

The draft “*Guidelines on Environmental Management of C & D Waste Management in India (2017)*” has been prepared by CPCB in compliance of under *Duties of the Central Pollution Control Board under Rule 10 sub-rule 1(a)* of Construction and Demolition (C & D) Waste Management Rules, 2016 states ‘prepare operational_GUIDELINES related to environmental management of construction and demolition waste management’. Part II is in compliance of the above-mentioned rule.

CPCB constituted an expert Committee to advise it on matters pertaining to Implementation of C & D Waste Management Rules, 2016, the first task addressed by the Committee to guide in preparation of the abovementioned Guidelines.



Figure 6.1:
Indiscriminate dumping of C & D waste results in choking drains

SECTION VII

Guidelines on Environmental Management of C & D Wastes – Noise Management

1. Public complaints on NOISE generation

- a. Construction & demolition activities often generate noise / vibration which lead to complaints from the public despite the limited time frame over which it takes place. Complaints typically arise when the community has no clear understanding of the extent or duration of the activities. The above underscores the need for identification and assessment of noise generating activities. A timely assessment can aid operators / contractors to change the schedule of activities to reduce noise before the construction / demolition activities and during the process.
- b. Unacceptable noise is a nuisance and activities associated in C & D waste processing activity are associated with perceptible noise increases.
- c. Noise from a C & D waste management facility is considered an environmental nuisance if the construction / demolition activity is conducted outside the stipulated hours of operation or on holidays.
- d. Some health problems caused due to excessive exposure to undesirable noise levels include :
 - i. Sleep problems, insomnia & fatigue.
 - ii. Fall in speech communication, disturbance and diminished concentration thus adversely affecting job performance efficiency.
 - iii. Psychological disturbance including impaired hearing.

2. Restrictions on noise from construction equipment - Noise Pollution (Regulation and Control) Rules, 2000

- i. The above Rules highlights various sources of noise that impact ambient noise levels in public places ex. industrial activity, construction activity, fire crackers, sound producing instruments, generator sets, loud speakers, public address systems, music systems, vehicular horns and other mechanical devices.
- ii. *An area comprising not less than 100 metres around hospitals, educational institutions and courts may be declared as silence area / zone for the purpose of these rules (Rule 3(5)).*

- iii. Rule 5A (3), Rule 7(1) and Rule 8 (1) (a) (ii) provides restrictions on noise from construction equipment.

3. Guidelines for NOISE mitigation in C & D operations

Key noise generating sources in C & D waste management activities are:

- a. Machinery deployed in construction / demolition activities
- b. Operation of Gensets (Noisy)
- c. Vehicle movement

a. Noise abatement - Machinery deployed in construction / demolition activities

The guidelines to reduce noise levels:

- i. Define Construction / demolition periods / time / duration:
Construction / demolition activities are restricted as per Noise (Regulation & Control) Rules 2000: Daytime: 6 am to 10 pm;
- ii. Days operations are permissible : Days of the week propose - Monday to Saturday. Permissible days of operation to be determined as per feasibility by concerned department of the State Govt.
- iii. Night ban: No C & D activity shall be undertaken within the premise.
Rule 5A under Noise (Regulation & Control) Rules 2000 : Restrictions on the use of horns, sound emitting construction equipments and bursting of fire crackers:- sub rule (3) Sound emitting construction equipments shall not be used or operated during night time in residential areas and silence zones.
- iv. Define permissible noise levels under Noise (Regulation & Control) Rules 2000 at the boundary of the facility / operations: The ambient air quality standards in respect of noise for different areas / zones are specified in the Schedule to the rules. The State Government shall categorize the areas into industrial, commercial, residential or silence areas / zones for the purpose of implementation of noise standards for different areas. All development authorities, local bodies and other concerned authorities while planning developmental activity or carrying out functions relating to town and country planning shall take into consideration all aspects of noise pollution as a parameter of quality of life to avoid noise menace and to achieve the objective of maintaining the ambient air quality standards in respect of noise. The noise levels in

any area / zone shall not exceed the ambient air quality standards in respect of noise as specified in the Schedule.

The ambient noise levels as per CPCB's noise monitoring in many cities have exceeded the area zone norms due to 'mixed' land-use (non-compatible landuse), rapid urbanisation, increased vehicular movement due to which there is significant background noise. As C & D waste management requires deployment of heavy machinery there will be significant noise generation. As C & D waste management (includes recycling) demonstrates nature of 'industrial' activity, the concerned authority may stipulate noise limits in the range applicable to industry area zone under the Noise (Regulation & Control) Rules, 2000.

SCHEDULE

(See rule 3(1) and 4(1))

**Table 7.1: Ambient Air Quality Standards in respect of Noise
Noise (Regulation & Control) Rules 2000**

Area Code and Category of Area / Zone	Day Time Limits in dB(A) Leq*
(A) Industrial area	75
(B) Commercial area	65
(C) Residential area	55
The above measurements are measured as LAeq which is the equivalent continuous (energy average) level (A-weighted).	

b. Noise abatement - Genset noise

Refer CPCB weblink on Genset standards: <http://cpcb.nic.in/Generator.php>

c. Noise abatement - due to vehicle movement

Due to vehicular traffic and material transportation within applied area. Abatement due to transport activities arising due to vehicles movement (operation of vehicles within, entering or leaving the site):

- i. Regular checking and maintenance of vehicles should be ensured

- ii. For long distance transportation overhaul routes to be judiciously selected
- iii. No parking outside the plant premise
- iv. Earmarked areas for parking vehicles within premise
- v. Smooth movement of incoming & out going vehicles / trucks
- vi. Roads within premise tarred
- vii. Minimum use of horns
- viii. Operational Weigh bridge

d. Noise abatement measures - Other areas

There will be noise due to heavy earth moving machinery / crushing etc – depends to the extent of mechanization & machinery being deployed. Machinery deployed in construction / demolition activities:

The dominant source of noise from most construction equipment is the engine (usually diesel based) without sufficient muffling (acoustic provision).

- i. Noise control: To control the noise regular preventative maintenance of equipment to be carried out. regular and proper maintenance of noise generating machineries to avoid noise increase.
- ii. Periodical monitoring of noise will be done to adopt corrective actions wherever needed.
- iii. Ear plugs to be made available to workers during the operational hours.
- iv. Besides the operators prepare Noise Mitigation Plan (NMP) which addresses: management and mitigation strategies to prevent an environmental nuisance caused by construction / demolition / recycling activities impacting ambient noise levels.
- v. Besides operators prepare Noise Mitigation Plan (NMP) which addresses: management and mitigation strategies to prevent an environmental nuisance caused by construction / demolition / recycling activities impacting ambient noise levels.
- vi. Other initiatives include
 - Maintain records of equipment / machinery maintenance
 - Maintain records of monitored noise levels
 - maintain records of complaints on noise
 - Comply with Consent conditions issued by State Pollution Control Boards / PCCs and concerned authority

- vii. Plantation activities: Plantation reduces propagation of dust and noise.



Figure 7.1: Dumping of C & D wastes clogs drains in cities

SECTION VIII

Guidelines on Environmental Management of C & D Wastes – Dust Management

1. DUST – environmental pollutant in C & D waste operations

The importance of controlling dust / fine particles from construction and demolition activities are:

- a. Dust emissions arising from C & D activities are an environmental nuisance both within the site and beyond the plant site / boundary.
- b. Dusts from various C & D activities release wide range of particle sizes and material types and can cause both serious health problems ranging from eye irritation, nose, mouth and respiratory system.

The larger heavier particles settle out of the air quickly and are hazard to the operators of plant and equipment and those in the immediate vicinity. The smaller particles (usually invisible) are transported further in the air and can cause health hazards beyond plant premise (several kms away).

2. Guidelines for DUST mitigation in C & D operations

C & D debris management / processing activities are dusty, major dust generating sources are:

- i. Loading & unloading activities: wastes & processed C & D products
- ii. Incoming / outgoing vehicles
- iii. due to machinery used in handling C & D waste operations

a. Dust abatement - Dust from loading / unloading operations

- i. Areas to be earmarked for delivery / deposition of C & D wastes
- ii. A sheet cover over the debris : over designated transport vehicles at waste processing sites
- iii. Sign boards to be displayed indicating do's & don'ts
- iv. Dust (fugitive emissions suppression systems in place) : Water sprinklers to be sprayed at all unloading points.
- v. For containing fugitive emissions (dust) also refer CPCB's report :
Inventorization of Railway Sidings and Guidelines for their Environment Management (regarding loading / unloading activities)

Weblink:

http://cpcb.nic.in/upload/NewItems/NewItem_216_Report_Invent_RailwaySidings.pdf

b. Dust abatement - due to vehicle movement

Transport movement:

Dust abatement due to transport activities arising due to vehicles movement (operation of vehicles within, entering or leaving the site) can also include the following:

- i. Monitor movement of vehicles (incoming / outgoing) carrying C & D wastes or processed C & D waste products only
- ii. Transportation of C & D wastes should be done in covered vehicles to prevent fugitive dust emission.
- iii. Regular checking and maintenance of vehicles should be ensured (valid PUC)
- iv. For long distance, transportation routes of C & D wastes to be selected after discussion with local authorities
- v. Earmark areas for parking vehicles
- vi. Smooth movement of incoming & out going vehicles / trucks
- vii. Roads within premise tarred
- viii. Weigh bridge (to be operational)
- ix. Dust suppression systems in place (fugitive emissions): Dust from roads , regular water sprinkling on haul road will suppress the dust.

c. Dust abatement – due to machinery used in C & D operations

The C & D operations include: crushing / hammering etc from machineries deployed at site causing dust emissions from process equipment. Use of water sprinklers is a good practice to suppress dust emission, similar practice is adopted in stone crushing operations (refer Environmental Protection Rules 1986, Schedule I Standards for emissions & discharge of environmental pollutants Sl#31 Stone crushers.)

d. Compliance of National Ambient Air Quality Standards (NAAQS)

Vide Notification dated 18th November, 2009 the National Ambient Air Quality Standards (NAAQS) were revised, the standards w.r.t. particulate matter need to be complied with at the outer boundary of the facility.

3. Other dust abatement measures and safety issues

i. Water requirement

- a. Water will be required for dust suppression, for plantation and for drinking & domestic purpose.
- b. No fresh water requirement shall be for dust suppression

ii. Use of 'treated waste water' (preferably) in sprinklers for dust suppression

- a. As ambient air quality standards need to be complied, any manmade intervention (like dust generating activities in C & D waste management) need adopt necessary dust suppression measures ex. Use of water sprinklers using treated waste water (controlling the dust particles in the air is as important as minimizing water usage) . Site operators need to demonstrate both (a) control of 'visible' dust in particular besides (b) fine dust from activities within their premises.
- b. Treated waste water (sprinklers) to be used for washings / unloading areas / roads to suppress dust
- c. Import wherever feasible treated waste water from other STPs for dust suppression / sprinklers

iii. Waste water management

- a. Adopt ZERO effluent discharge system
- b. All wash down of vehicles and equipment to be done in designated areas and wash water be treated for reuse within plant for suppression of dust.

iv. Residual waste disposal

Solid waste generation / management in C & D waste operations - residues (C & D waste processing facility) to be sent to nearest landfill in consultation with concerned authorities

v. Diesel use

Diesel use in equipment / gensets / vehicle movement generate emissions : Necessary pollution control measures to be adopted to reduce emissions

vi. Plantation / greenery (use of local species / plants with low water uptake)

- a. Grow trees at the periphery - The plantation minimizes propagation of noise and also arrests dust

b. To add to aesthetics within plant : maintain water fountains , water bodies , landscaped areas wherever possible

c. plantation helps to reduce fugitive of emission and noise control

Under **Schedule I** Criteria for Site Selection for Storage and Processing or Recycling Facilities for construction and demolition Waste [See Rule 7(1)] : Sl#15 : A vegetative boundary shall be made around processing or recycling plant or site to strengthen the buffer zone.

vii. Emergency facilities : Equipment & Facilities: • Mobiles • Fire fighting equipment's • Emergency medical assistance

viii. Protective gear i.e. for dust and noise , goggles, helmet, face shield, hand gloves. First aid facilities to be in place

ix. Training / Awareness program : Training at all levels to staff on the following:

a. Knowledge of machineries being used • Procedure for reporting emergencies • location and use of fire fighting equipment • knowledge of alarm system • Training in first aid

b. Environmental head to be aware of need for proper maintenance and operation of equipment / machineries etc and conduct environmental awareness / safety program to the workers, supervisory staff and contract workers periodically



Figure 8.1: Continuous dumping of C & D wastes encroach on city ponds / lakes

Table 8.1: National Ambient Air Quality Standards (NAAQS) –
[NAAQS Notification dated 18th November, 2009]

S. No	Pollutants	Time Weighted Average	Concentration in Ambient Air		Methods of Measurement
			Industrial, Residential, Rural and other Areas	Ecologically Sensitive Area (notified by Central Government)	
1	Sulphur Dioxide (SO ₂), µg/m ³	Annual*	50	20	1. Improved West and Gaeke 2. Ultraviolet Fluorescence
		24 Hours**	80	80	
2	Nitrogen Dioxide (NO ₂), µg/m ³	Annual*	40	30	1. Modified Jacob & Hochheiser (Na-Arsenite) 2. Chemiluminescence
		24 Hours**	80	80	
3	Particulate Matter (Size <10µm) or PM ₁₀ µg/m ³	Annual*	60	60	1. Gravimetric 2. TOEM 3. Beta attenuation
		24 Hours**	100	100	
4	Particulate Matter (Size <2.5 µm) or PM _{2.5} µg/m ³	Annual*	40	40	1. Gravimetric 2. TOEM 3. Beta attenuation
		24 Hours**	60	60	
5	Ozone (O ₃), µg/m ³	8 hours**	100	100	1. UV photometric 2. Chemi-luminescence 3. Chemical Method
		1 hours**	180	180	
6	Lead (Pb), µg/m ³	Annual*	0.50	0.50	1. AAS/ICP Method after sampling using EPM 2000 or equivalent filter paper 2. ED-XRF using Teflon filter
		24 Hour**	1.0	1.0	
7	Carbon Monoxide (CO), mg/m ³	8 Hours**	02	02	Non dispersive Infra Red (NDIR) Spectroscopy
		1 Hour**	04	04	
8	Ammonia (NH ₃), µg/m ³	Annual*	100	100	1. Chemi-luminescence 2. Indophenol blue method
		24 Hour**	400	400	
9	Benzene (C ₆ H ₆), µg/m ³	Annual*	05	05	1. Gas chromatography based continuous analyzer 2. Adsorption and Desorption followed by GC analysis
10	Benzo(a)Pyrene (BaP)-particulate phase only, ng/m ³	Annual*	01	01	Solvent extraction followed by HPLC/GC analysis
11	Arsenic (As), ng/m ³	Annual*	06	06	AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni), ng/m ³	Annual*	20	20	AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform interval.

** 24 hourly 08 hourly or 01 hourly monitored values, as applicable shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

NOTE: Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.

SECTION IX

Guidelines on Environmental Management of C & D Wastes – Other Issues

1. Importance of processing C & D Wastes - Centralized Vs De-centralized

- a. SOLID WASTE (SW) RULES, 2016
 - i. Under SOLID WASTE (SW) RULES 2016, Rule 3 subrule 35. (Rule 3) "**processing**" of waste means *any scientific process by which situ solid waste is handled for the purpose of reuse, recycling or transformation into new products;*
 - ii. Recognizing the major constraint in identifying land in cities for 'centralized' waste processing the **SW Rules 2016** has defined 'de-centralized' processing of solid wastes, under Rule 3 subrule 15. "**Decentralized processing**" means *establishment of dispersed facilities for maximizing the processing of biodegradable waste and recovery of recyclables closest to the **source** of generation so as to minimize transportation of waste for processing or disposal.*
- b. Application of Centralized Vs De-centralized processing of C & D wastes
The above application is also being adopted in C & D waste recycling as given below:
Non-bulk generators : *Collection points be provided so that small quantity generator of C & D waste is not required to transport the debris to a distance more than 2.5 to 3.0 km (Source : BMTPC Guidelines)*
- c. To address utilization of C & D wastes the Central Public Works Department (CPWD) and National Building Construction Company (NBCC) to use recycled portions of C & D wastes in their construction activities (on-site use) or if the same is available within 100 km from construction site. (Ref. Vide MoUD Circular dated 23.03.2016 directing State Works Dept to issue directions on use of C & D wastes as it is mandatory for use in CPWD & NBCC works)
- d. Decentralized of C & D waste may be inferred as 'on-site' Management of C & D wastes while centralized refers to the existing 'stand alone' C & D waste processing facility ex. facility of IL&FS in Burari, North Delhi.

2. Options in C & D waste management - Centralized Vs De-centralized processing / recycling facilities

As major components of Construction and Demolition (C & D) Wastes have the potential to be reused or recycled most of the city ULBs are gearing to set up integrated facilities of Construction and Demolition (C & D) waste collection and recycling facilities. Profitable use of recycled C & D waste minimizes the cost of managing such waste and requirement for valuable landfill space, besides giving employment opportunities to unemployed youth. It will also save on mining of natural resources and reduce transportation costs.

Three general ways to reuse C & D waste material in a building:

- a) reuse the structure (corresponding to renovation and design for adaptability)
- b) reuse the elements (corresponding to re-development) and
- c) recycle the material (corresponding to re-processing or re-cycling)

The three possible options that can be explored in C & D waste recycling (AIT study - 2008)

- a) Mobile C & D waste recycling
- b) Semi-Mobile C & D waste recycling
- c) Stationary plant C & D waste recycling

A brief of the three options are given below:

- a. In the **Mobile** C & D waste recycling plant (in-situ facility – example of de-centralized operations) , the material is crushed and screened and ferrous impurities are separated through magnetic separation. The plant is transported to the demolition site itself and is suited to process only non-contaminated concrete or masonry waste.
- b. In the **semi-mobile** C & D waste recycling plant (example of de-centralized operations) , removal of contaminants is carried out manually and the end product is also screened. Magnetic separation for removal of ferrous material is carried out. End product quality is better than that of a Mobile unit. These plants are not capable to process a of mixed demolition waste containing matter like metal, wood, plastic, etc.
- c. **Stationary C & D waste recycling plant plants** (example of centralized operations) are equipped for carrying out crushing, screening as well as purification to separate the contaminants ex. the 1st C & D waste processing facility commissioned in Delhi in Burari and operated by IL&FS.

Options a & b options (example of de-centralized operations) are often found to be practical for on-site operations as LAND availability and transportation in cities are MAJOR constraints besides public resistance to establishing C & D waste processing facilities (stationary or centralized C & D waste recycling facility).

3. Guidelines on Setback distances (or buffer zone distance)

In view of the above discussion on the application of Centralized Vs De-centralized processing of C & D wastes there needs to be a practical approach in applying setback distances. The purpose of a buffer zone is to minimize the potential environmental impacts from the operation of a construction and demolition debris management & disposal activities. The Table 9.1 summarizes conditions under TWO waste rules - regarding 'buffer zone distance' and the importance of assessment on a case to case basis as the sites are regional specific

- a. Construction & Demolition (C & D) Waste Management Rules, 2016
- b. Solid Waste (MSW matter) Management Rules, 2016

Table 9.1: Buffer area provisions under TWO Waste Management Rules

Under C & D Waste Management Rules, 2016	Under Solid Waste (MSW matter) Management Rules, 2016
<p>(a) Under Schedule I Criteria for Site Selection for Storage and Processing or Recycling Facilities for construction and demolition Waste [See Rule 7(1)]</p> <ul style="list-style-type: none"> • Sl(6) A buffer zone of no development shall be maintained around solid waste processing and disposal facility, exceeding 20 tons or more in one day or 300 tons per project in a month of installed capacity. This will be maintained within the total area of the C & D waste processing. <i>The buffer zone shall be prescribed on case to case basis by the local authority in consultation with concerned State Pollution Control Board.</i> • Sl (14) The following projects shall be <u>exempted</u> from the norms of pollution from dust and noise as mentioned above: (a) For construction work, where <u>at least 80 percent</u> construction and demolition waste is recycled or reused <u>in-situ</u> and (b) sufficient buffer area is available to protect the surrounding habitation from any adverse impact. • (15) A vegetative boundary shall be made around Processing or Recycling plant or site to strengthen the buffer zone. 	<p>(a) Rule 3 <u>Definitions</u> , Sub-rule 7 : “buffer zone” means zone of no development to be maintained around solid waste processing and disposal facility, exceeding 5 TPD of installed capacity. This will be maintained within total and area allotted for the solid waste processing and disposal facility.</p> <p>(b) Rule 11. <u>Duties of the Secretary-in-charge, Urban Development in the States and Union territories.-</u></p> <ul style="list-style-type: none"> • Sub rule (j) facilitate establishment of <u>common</u> regional sanitary land fill for a group of cities and towns falling within a distance of <u>50 km (or more)</u> from the regional facility on a cost sharing basis and ensure professional management of such sanitary landfills; a. Sub rule (l) <u>notify buffer zone</u> for the solid waste processing and disposal facilities of <u>more than five tons per day</u> in consultation with the State Pollution Control Board; and <p>(c) Rule 14. <u>Duties of Central Pollution Control Board.-</u>The Central Pollution Control Board shall sub-rule (h) publish guidelines for maintaining buffer zone restricting any residential, commercial or any other construction activity from the outer boundary of the waste processing and disposal facilities for different sizes of facilities handling <u>more than five tons per day</u> of solid waste;</p> <p>(d) Under SCHEDULE I [see rule 15 (w),(zi), 16 (1) (b) (e), 16 (4)] Specifications for Sanitary Landfills (A) Criteria for site selection.-</p> <p>Sl (ix) A buffer zone of no development shall be maintained around solid waste processing and disposal facility, exceeding <u>five Tonnes per day</u> of installed capacity. This will be maintained within the total area of the solid waste processing and disposal facility. The buffer zone shall be prescribed on case to case basis by the local body in consultation with concerned State Pollution Control Board.</p>

Buffer zone area around C & D waste processing facility:

- a. The Environmental Protection Authority (EPA) guidance recommends separation distances between industrial activities and sensitive land uses. These buffers aim to protect sensitive land uses from unacceptable impacts on health and amenity that may result from industrial activities, emissions and infrastructure. The document, titled **Guidance for the Assessment of Environmental Factors, Separation Distances between Industrial and Sensitive Land Uses**, No. 3, EPA, June 2005 (web link http://www.epa.wa.gov.au/docs/1840_GS3.pdf) recommends a separation distance of **1000m** between premises that crush or screen C & D waste. *It is important to note that the separation distance is not intended to represent an absolute separation distance and does not replace the need to demonstrate best practice in the prevention and minimization of emissions at prescribed premises. It is however, a useful tool to factor into impact assessments.*
- b. It is widely recognized due to rapid urbanization maintaining 1000m separation distance due to mixed land-uses (non-compatible landuse) is a major challenge for establishing C & D waste processing facility. Siting needs to ensure that both , the demand of the recycled products and processing C&D wastes sustainable and economically viable.
- c. Separation distances are necessary in order to minimize potential environmental conflicts between non-compatible land uses particularly due to rapid urbanization witnessed across the cities wherein the number of cities entering the million plus population bracket is on a steady rise in our country. Besides adopting noise and dust control abatement measures , the following distance restrictions be considered w.r.t. setback distances from the outer boundary of the such C & D facilities wherein it not be located within the following receptor setback distances:
 - i. 200 metres from any Industrial/Commercial land use property /
 - ii. 100 m from bank or high water mark of any watercourse or wetland / pond / lake
 - iii. 150 metres of the right-of-way boundary of a public highway;
 - iv. 50 metres from any other adjacent property;
 - v. The Coastal Regulation Zone (CRZ) notified under the Gazette of India, Extraordinary, Part-II, Section 3, Sub-section (ii) of dated the 6th January, 2011) COASTAL REGULATION ZONE Notification Ministry of

Environment & Forests (Department of Environment, Forests and Wildlife). Prohibited activities under the CRZ Notification are include – *‘Dumping of city or town wastes including construction debris, industrial solid wastes, fly ash for the purpose of land filling and the like and the concerned authority shall implement schemes for phasing out any existing practice, if any, shall be phased out within a period of one year from date of commencement of this notification.’*

- vi. Location of sites within the flood plains - Due rapid urbanisation across the country in the last two decades , the relevant data of past 50 years may be used to justify establishing a C & D waste processing site
- vii. Any **other Notifications** under Central/ State Governments;
 - Notified Areas- Reserved Forests, Nature Protection, Sanctuary, Wild life Sanctuary, Eco-sensitive zones, Historical Monuments, places of tourist interest, etc.
 - State Policy / Plan
 - Master Plan of Development Authorities

Under the C & D waste management rules the threshold processing facility has been defined as ‘exceeding 20 tons or more in one day or 300 tons per project in a Month of installed capacity’ – (bulk C & D waste generator). As impacts are location specific , the above setback distances may be revised by the concerned local authority in consultation with SPCBs / PCCs.

Under **Schedule I** of the Rules Criteria for Site Selection for Storage and Processing or Recycling Facilities for construction and demolition Waste [See Rule 7(1)] at Sl#6 : The buffer zone shall be prescribed on case to case basis by the local authority in consultation with concerned State Pollution Control Board.

- d. Other environmental factors that be considered are :
 - i. Site within compatible land uses
 - ii. provide all weather access roads
 - iii. providing access to a year round suitable cover to the C & D waste material
 - iv. no water collection within premises during rains / washings

- v. providing controlled access to the site
- vi. providing a appropriate fencing and sign board outside at site (do's /don'ts)

4. Inspection of C & D waste load

C & D waste processing facility shall inspect each waste load before unloading debris and shall accept only C & D Debris - no industrial waste shall be accepted at the C & D facility unless otherwise approval received from concerned authority. No untreated industrial effluent / wastes are to be accepted at the facility.

5. C & D waste processing facility – ‘ORANGE’ category activity

Consent to establish under section 21 of Air (Prevention & Control of Pollution) Act 1981 and under section 25/26 of Water (Prevention & Control of Pollution) 1974 has been treated as an **ORANGE** category project by Delhi Pollution Control Committee (DPCC) under the Product / activity : Processing / recycling of construction & demolition waste debris (malba) to IL&FS, the operator that established the 1st C & D waste processing facility in Delhi. The categorization as ORANGE be considered by all SPCBs/PCCs to ensure harmonization when dealing with C & D processing activity. In Office Memorandum (OM) vide letter dated June 10, 2014 MoEF&CC on - Applicability of EIA 2006 Notification as amended from time to time for *standalone Construction & Demolition Waste processing facility* – the notification & CC mentions that this activity does not attract the provisions of the EIA 2006 Notification. However, the said activity will be governed by the consent mechanism under Air (Prevention & Control of Pollution) Act 1981 and under Water (Prevention & Control of Pollution) 1974.

6. GOOD PRACTICEs proposed: Constraints Vs opportunities in establishing C & D waste management facilities

Though city residents & NGOs have come forward to support waste management (ex. MSW) initiatives by ULBs however when it comes to identification of land / acquisition of land for WASTE MANAGEMENT, project proponents face severe public protests. A number of civic bodies in various cities have initiated the process of establishing C & D waste processing facilities in cities. Key requirements include appropriate site location, availability of necessary land , road infrastructure besides provision of weigh-

bridge , storage area etc. In most of the cities C & D wastes are being dumped haphazardly in low lying or sometimes reaching landfills.

Some constraints Vs opportunities in establishing C & D waste management facilities w.r.t. adopting and listed below:

a) C & D waste management facilities w.r.t. population :

Under C & D Waste management Rules 2016, Schedule III [See Rule 13] provides the Timeframe for Planning and Implementation of the rules based on population as follows :

- Cities with population of \geq one million
- Cities with population of 0.5 - 01 million
- Cities with population of $<$ 0.5 million

Ministry of Urban Development vide circular dated June 28, 2012, directed States to set-up such facilities in all cities with a population of over 10 lakh. (One million plus cities) to establish environment friendly C & D recycling facilities. Refer **ANNEXURE I** Initiatives C & D waste management in 69 cities.

b) Quantification of C & D waste generation / processing is Region - specific:

Local bodies need to ascertain the quantum of C & D waste generation and its potential utilization taking into account the existing development / infrastructure projects and proposed regional plans w.r.t. compatible landuses in consultation with SPCBs/PCCs also. Referral documents for assessment of quantum of C & D waste generated / processed and the necessary land requirement in a region can be studied in the following documents under the C & D Waste Management Rules, 2016:

- under [Rule (7)(2)] : The operator of the facility as specified shall apply in **Form I** for authorization from State Pollution Control Board or Pollution Control Committee.
- under [Rule (8)(2)]: State Pollution Control Board or Pollution Control Committee shall grant 'authorization' to construction and demolition waste processing facility in **Form-III** as specified under these rules after examining the application received in **Form I**;
- under [Rule (7)(3)] : The operator of the facility shall submit the annual report to the State Pollution Control Board in **Form II**.

- iv. under [Rule (8)(3)] : Annual Report to be submitted by the State Pollution Control Board / Committees in **Form – IV** to CPCB.
- c) Land acquisition :
Generally LAND disposal is 1st resort in waste management - Land disposal of solid wastes has been the oldest practice. Disposal of wastes by landfilling or uncontrolled dumping of commingled (mixed) wastes has been observed in many cities. Under SOLID WASTE RULES, 2016 Rule #3 subrule definition #57 - “**waste hierarchy**” it mentions that *prevention of waste should be the most preferred option and the disposal at the landfill being the least.* However in general ‘land disposal’ is 1st resort in waste management in several cities. The ‘landfill’ as a facility / destination for urban wastes is being gradually revised since availability of suitable land in cities is a major challenge besides the awareness of recyclability ‘waste’ has been growing over the years. The ULBs are recognizing the importance of ‘integrated’ waste management i.e. processing cum disposal of wastes.
- d) Using closed / capped landfills in cities – Land availability option
In cities where landfills have been capped and have complied with necessary closure conditions, the land can be leased for installation of C & D waste processing facility.
- e) Bulk generators
Under the C & D Waste Rules w.r.t. quantum of waste generation addresses those sources generating more than **20 tonnes** or more in one day or **300 tonnes** per project in a month of installed capacity.
Criteria for setting up C & D waste processing facilities (BMTPC Guidelines) : The Civic bodies wherein current waste generation **> 2000 TPD**, to set up more than one plant for recycling of C & D waste.
- f) Non-bulk C & D waste generators
The BMTPC Guidelines has suggested the following:
i. Non-bulk generators: *Collection points be provided so that small quantity generator of C & D waste is not required to transport the debris to a distance more than 2.5 to 3.0 km*

- ii. C & D Collection Centers: *to be notified wherein small quantity generators of C & D waste can deliver the C & D debris. The system and arrangements for collection and supply of C & D waste to recycling plants may be worked out and defined in an unambiguous manner.*
As 'waste' generation is location / region specific the local bodies to identify sites for receiving / processing intermittent non-bulk C & D wastes.
- g) Practice waste minimization 1st & waste disposal to be last option
 - i. Management of C & D waste should reflect the waste management hierarchy - waste prevention and minimization being the first priority succeeded by reuse and recycling. Waste prevention should be noted at all stages of project duration, waste disposal to be last option.
 - ii. Sorting and processing C & D waste at the source is a GOOD PRACTICE. The C & D waste may be segregated into following categories:
 - for structures for buildings
 - for use in road works
 - building parts that could be salvaged
 - iii. Another level of segregation can be done among materials such as plastic, cables, glass, wood and plaster board.
 - iv. Some strategies for use of recycled C & D wastes include
 - (a) To source the recycled concrete aggregates from sites being re-developed for use in the same site (on-site).
 - (b) For a given structure, only one type of manufactured coarse aggregate and one type of manufactured fine aggregate to be used.
 - v. Road projects : Utilization of bitumen and asphalt (C&D wastes) can be recycled in roads projects in consultation with concerned agencies.
 - vi. Besides cost savings, use of on-site crushers (mobile / semi mobile) to produce such aggregates can reduce the transportation impacts of a project associated with the removal of C & D waste from site and the transportation of quarried aggregates.
 - vii. During site clearance / re-modelling / renovation / re-development works, there are opportunities for beneficial re-use and re-cycling of the demolition materials. The subsequent use of recycled materials in

reconstruction works also reduces the quantities of waste which would need to be disposed in landfill sites.

- viii. Excavated spoil/topsoil can be carefully set aside and also be used creatively in the landscaping or for construction of embankments and screening / noise abatement berms in civil engineering projects.

h) Encourage C & D waste processing/ reuse

India's first plant (stationary) for recycling of C & D waste was commissioned during 2009 at 10 acre site at Burari, Jahangirpuri in North Delhi by Infrastructure Leasing & Financial Services (IL&FS) under an agreement with North Delhi Municipal Corporation. A 'fixed' recycling plant (centralized facility) requires higher volumes of demolition waste to justify high investment in complex, screening and separation systems, which are necessary to process mixed demolition waste. It has to be located in a place, where large volume of waste is easily transported and there is a market for recycled products.

Full advantage to be taken of all opportunities for the reuse of construction materials. Explore utilization of material generated for reuse on site or salvaged for subsequent reuse to the greatest extent possible, disposal should be considered as a last resort. Need to maximise the efficient use/reuse of materials. Encourage setting up C & D waste recycling facilities on-site ex. Operate mobile or semi mobile C & D waste processing plants, this will reduce volume of waste to be transported.

i) Hazardous wastes / toxic wastes streams

Hazardous wastes / toxic wastes streams should be kept separately from other wastes to avoid further contamination, their disposal to be done in consultation with SPCBs/PCCs under HW Management Rules 2016. Examples of C & D waste that are classified as hazardous include lead, tars, adhesives, sealants, asbestos. The concerned authorities shall examine the DEMOLITION PLAN submitted by the applicant to assess if there are any HW streams.

j) Market for utilization of C & D waste products

The capital investments involved in equipment and facilities required for recycling the materials is significant, unless the market for use recycled aggregate is developed, economic viability of C & D waste processing facilities would be a challenge.

k) Mandate utilization of C & D waste products in Govt & private projects

The building construction products manufactured from C & D wastes have been reported to satisfactorily meet necessary requirements of compressive strength and water absorption. The end products such as kerb stones, paving blocks of different shape, size and colour, hollow and solid blocks, manufactured sand etc. have been tested in laboratories and found to be satisfactory. Use of fine aggregates and coarse aggregates manufactured by recycling of C & D waste has also been validated scientifically for part replacement of natural aggregates

The Rule (9) sub-rule (4) mentions that the *‘Procurement of materials made from construction and demolition waste shall be made mandatory to a certain percentage (say 10-20%) in municipal and Government contracts subject to strict quality control.’* Private developers to be also encouraged to mandate a percentage for procurement of materials made from construction and demolition waste subject to strict quality control.

- i. Efficient building ratings like GRIHA, LEED etc. can explore factoring the utilization of C & D wastes in their computations
- ii. Since CPWD, BIS and NBCC promote :
 - Maximum of 20% replacement of aggregates in RCC with RCA (recycled concrete aggregates)
 - 100% replacement of aggregates with RCA in light or non-load bearing lean concreteNeed to incentivize use of C & D waste products in both - structural and non-structural applications.
- iii. Cost savings up to 15% can be observed for finished products such as paving blocks made from recycled aggregates (Ref. Market study on C & D waste utilization in Ahmadabad. : GIZ & Development Alternatives (DA).

l) Architectural initiatives

Though there may be several such instances however two examples are highlighted wherein creativity has been used to reuse C & D waste in buildings ex.

- a. A school building in Rajkot, designed by Ahmedabad-based architect Surya Kakani, has been built from the debris of the Bhuj earthquake.
- b. The Institute of Rural Research and Development (IRRAD) building in Gurgaon has innovatively recycled and utilised its own construction waste in the building.

m) Drainage

As per C & D Waste Rules (Rule 4 sub-rule (4)) there should be no littering or deposition of construction and demolition waste so as to prevent obstruction to the traffic or the public or drains. A proper drainage plan ensures planned disposal of water during rains / floods. Rivers to be protected from littering or deposition of construction and demolition waste to prevent obstruction to river flow.

Case study : Flood in Mega city - Mumbai ((Ref. Mumbai Marooned: An Enquiry into Mumbai Floods 2005) July 26, 2005 has gone down as a day no Mumbaikar will forget. A record 994 mm (37.2 inches) of rain within 24 hours (75% of the downpour – 709 mm — fell in a five-hour period between 2.30 pm and 7.30 pm), widespread flooding and the loss of lives and property, the virtual shutdown of the city for two days (more in some areas)..... At least one-third of the surface area of the city is believed to have been flooded.

On issues on pertaining to waste management the following were the observations:

- i. *According to official BMC figures, Mumbai generates about 7,800 tonnes of solid waste daily. However, this figure is probably significantly inflated by the contractor lobby. NGOs working in the field of solid waste management state that no one seems to have an accurate figure of the amount of solid wastes generated in Mumbai. (page 30).*
- ii. *Construction debris, silt etc forms a substantial part (2,000 tonnes per day according to the BMC) of waste. This debris is also used to illegally fill low-lying land and mangroves. Construction debris such*

as concrete, cement and brick rubble can be used as road base and crushed and re-used to cast concrete blocks etc. These practices are legally mandated and in place in many developed countries. The recycling of construction debris should be legally mandated in Mumbai, and if necessary the required infrastructure (crushers etc) can be set up by tapping funds from the construction lobby (page 70).

- iii. 'Dumping of waste (solid or effluent) in rivers and nallahs must be punishable by a fine and/ or imprisonment. Within a year, the BMC should provide adequate waste disposal facilities to these areas or relocate those it cannot provide services to (page 75).*
- iv. Un-authorized construction on open Nallas and alongside Nallas and drains has narrowed the width of the drains thus reducing their clearing capacity; Drain choking incidents were reported at 14 places.*

(Ref. Mumbai Marooned: An Enquiry into Mumbai Floods 2005).

n) Equipment deployment:

Different types of sorting devices and screens are used for separating contaminants from end-product and grading the recycled product in various grain sizes. Vibrating screens, star screens or disc-separators are used for removal of impurities. Other existing equipment include jaw crushers and impact crushers etc are used to suit the requirements of recycling and processing of C & D waste.

o) Green belt plantation

Green belt has been recognized as an effective shield to abate pollution mainly activities generating DUST. The report 'Guidelines for Developing Greenbelts' (CPCB March 2000) is a referral document to identify native species w.r.t. climatic zones. The criteria for selection for development of Green Belt include:

- i. The plant species should be fast growing & native to the region
- ii. They should have thick canopy cover preferably perennial.

p) Enforcement

Though stringent laws are being formulated by the civic bodies their enforcement however needs to be further strengthened Roads sides, vacant plots and river banks could be freed from debris dumps and drains freed from clogging if C & D waste is properly disposed /managed.

q) Training programs - Awareness of recycling C & D wastes

The BMTPC Guidelines highlights that for cities of population < one million : *Sensitization and facilitation for re-use and recycling of C & D waste may also be taken up in cities of population less than 1 million to encourage such initiative.*

SPCBs / PCCs and ULBs to conduct sensitization training programs highlighting good practices and economic viability of establishing C & D waste recycling operations that are being implemented in various cities across the country.

7. C & D waste management - case study DELHI

Delhi government advisory C & D waste utilization

The Delhi government has issued an advisory on the use of products made out of recycled C & D waste by the Public Works Department (PWD). All Delhi government agencies will be required to incorporate a clause in their tenders that mandates use of a minimum of 2 per cent recycled products from construction waste in all future contracts for building works and 10 per cent recycled products for road works. (CSE August 26, 2015)

All C & D plants coming up under the Public Private Partnership (PPP) model. Key features are given below:

- i. Delhi generates approximately 3000 MT of C & D waste per day as per IL&FS
- ii. Country's 1st C & D processing facility – Civic body: North Delhi Municipal Corporation (NMC); City – DELHI; Brief highlights: Site is at Burari, Jahangirpuri in North Delhi in collaboration with MCD developed by private operator IL&FS Environmental Infrastructure & Services Ltd (IEISL) to demonstrate the potential of a scientifically managed process in collection and recycling of C & D waste in Delhi of capacity 500 TPD.

- Plant commissioned during 2009 on a 10 acre site at Burari, Jahangirpuri in North Delhi.
- iii. **Delhi East Kidwai Nagar, New Delhi** : 2nd C & D facility set up by private operator M/s Enzyme India Pvt. Ltd. in year 2014 on PPP model with 100% by back by NBCC with a capacity of 150 TPD
 - iv. **Delhi -Shashtri Park, New Delhi** : C & D plant in Delhi at Shastri Park in East Delhi at 2.5 acre site by private operator IL&FS, The facility will get mixed C & D waste from 15 designated sites of East Delhi.
 - v. Civic body South Delhi Municipal Corporation (SDMC): The proposed plant at Ghumanhera in West Delhi will have a capacity to process some 500 tonnes of C & D waste per day.
 - vi. Public Works Department (PWD): proposes to set up THREE C & D debris recycling plants in Delhi, each of installed capacity of 150 TPD. Two plots of two acres each identified at Tikri Kalan, Libaspur and near Nizamuddin Bridge, another plant being proposed at Kapashera.
 - vii. C & D charges :
 - a. EDMC: There is a challan of up to Rs. 5,000/- for dumping waste illegally.
 - b. SDMC: imposition processing fee of Rs 205 per MT at time of sanctioning building plan and Rs 225 per MT for lifting waste. The transportation charges would be increased by 10% every two year.

8. Initiatives in C & D waste management in 69 cities

Based on literature survey the data on C & D waste management initiatives taken by some urban local bodies in some major cities have been compiled in **ANNEXURE I**: Based on literature survey , the annexure shows initiatives in C & D waste management in 69 cities, the data demonstrates that cities are recognizing the importance of processing C & D wastes hence many cities have stipulated collection charges and introduced penalties for illegal disposal.

Salient features of Enforcement as derived from Annexure I is summarized:

- a. C & D waste processing facilities are being established on PPP mode (private operators).
- b. Land acquisition for C & D waste processing

Most of the cities are either in the final stages of acquiring site for establishing C & D waste processing site or have identified alternate sites which need to be evaluated for be economic sustainability.

c. Intermediate collection points – Some ULBs have declared designated sites for dumping C & D debris.

d. Public services :

- i. Many ULBs have announced Helpline toll free number for citizens for reporting illegal dumping of C & D waste provided
- ii. Complaints by email: ex Chandigarh - Citizen can also be emailed at *bi_mcc@chdut.nic.in*. MCC has vouched that *malba* will be collected within 48 hours of the complaint.
- iii. Timing for C & D (*malba*) collection - Collection of *malba/ C & D waste* between 9 am and 5 pm. (Chandigarh)
- iv. Call centre number 040-21111111 and 'My GHMC App' (Greater Hyderabad)

e. C & D waste lifting charges :

Different criteria have been used to setting fees for lifting C & D wastes ex.

- i. 0.5 to 0.75 tonnes - Rs. 500/- ; between 0.75 tonnes to 1.50 tonnes - Rs. 1,000/- ; between 1.50 tonnes to 3 tonnes – Rs 2,000 ; between 3 to 6 tonnes - Rs. 4,000/-
- ii. For a structure > 80 sq m area Rs. 50/- per month ; Rs. 100/- charged for 120 sq. metre. Beyond 120 sq. metre, Rs. 200/- ; Stacking of construction/ demolition debris Rs. 1500/- per tractor trip Rs. 3000/- per truck trip
- iii. To collect a quantity of *malba* between less than 25 cubic feet (cu ft) - Rs. 50 ;for > 25 cu ft Rs. 2 per cu ft extra is charged.
- iv. GHMC user fee Rs 360 per tonne (Greater Hyderabad).

f. Penalty range:

- i. Dumping of *malba* in front of houses, parks or at any other public space has been banned and any violation has a penalty of Rs. 500. (Chandigarh)
- ii. A fine of Rs. 1,000 will be levied on those mixing construction debris with wet waste
- iii. The civic body (PMC) has put a ban on dumping waste in open spaces, riverbeds, canals and quarries. Imposition fine of Rs 25,000 on such illegal dumping (Pune MC).
- iv. The Corporation imposes a fine of Rs. 2000/- . (Chennai)
- v. Penalty for not removing C & D waste , fine of Rs. 5000/- per tonne (Thiruvanthapuram).

- vi. **Penalty:** For not delivering Construction and Demolition waste in a segregated manner as specified there is a fine of Rs. 1000/- & For dumping of construction and demolition waste in non-designated areas there is a fine of Rs 5000/-. (Shillong)
- vii. **Penalty:** Violating norms while transporting construction debris , penalty Rs 5,000 (Ghaziabad)
- viii. **Penalty:** Construction debris dumping on road, public places and open places = Rs. 1000/-.(Amravati)
- ix. **Penalty:** Failure in lifting C & D Waste (at least one truck load) from designated location OR Failure in transportation of C & D Waste to the processing facility per instance processing facility per instance OR Failure to lift claimed C & D Waste from the generator within 48 hrs. per instance – fine Rs 2000 ; Failure to lift C & D Waste dumped on roadside within 24 hrs. per instance – fine . Rs. 1000/- ; Non-performance of any other obligation under the Agreement for a continuous period of 7 (seven) days fine Rs. 10000/-. (Vijayawada)
- x. **Penalty:** for of C & D wastes ; fine ranging from Rs. 100/- to Rs. 500/- (Surat)

Timelines for implementation of C&D Waste Rules 2016

Schedule III [See Rule 13] Timeframe for Planning and Implementation

Compliance Criteria	Cities with population of >=one million	Cities with population of 0.5-01 million	Cities with population of < 0.5 million
Formulation of policy by State Government	12 months	12 months	12 months
Identification of sites for collection & processing facility	18 months	18 months	18 months
Commissioning and implementation of the facility	18 months	24 months	36 months
Monitoring by SPCBs	3 times a year / in 4 months	2 times a year / once in 6 months	2 times a year / Once in 6 months



Figure 9.1: Loss of C & D wastes implies “loss of opportunities to reuse / recycle”

References:

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5. Detailed Project Report for Construction and Demolition Waste Management in Chennai City (IIT Madras November 2015)
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ANNEXURE I : Initiatives in C & D waste management in 69 cities

Sl.	State	City	Status of C & D waste processing / disposal facility
1.	Tamil Nadu	Coimbatore	<u>Civic body</u> - Coimbatore City Municipal Corporation (CCMC) estimates that of the 850 TPD wastes generated about 150 TPD is construction debris. CCMC has proposed a processing plant of capacity 100 TPD
2.	Tamil Nadu	Madurai	<u>Civic body</u> - Madurai city corporation has earmarked places four locations for disposal C & D wastes : <ul style="list-style-type: none"> • at Vilankudi old dumping yard at ward 1 for zone 1 • at Masthanpatti (Palathottam) at ward 29 for zone 2 • at Gatelock Road at ward 71 for zone 3 and • at Vellaikal dumping yard at ward 94 for zone 4. Earlier C & D waste was being dumped along the river at Thirumalairayar Padithurai on south bank and Mathichiyam on the north bank.
3.	Maharashtra	Nagpur	<u>Civic body</u> : Nagpur Municipal Corporation (NMC) lifts, transports and dumps construction and demolition material at Bhandewadi dump yard engaging services of private operator m/s Kanak Resources Management Ltd.
4.	Maharashtra	Nashik	<u>Civic body</u> : NMC has identified sites for dumping C & D debris. Inert processing unit of capacity 50 TPD established
5.	Gujarat	Ahmedabad	<u>Civic body</u> : Ahmadabad Municipal Corporation (AMC) m/s DNP Infrastructure Pvt. Ltd. has been awarded operations of a 300 TPD C & D waste processing plant 5 acres of land
6.	Madhya Pradesh	Indore	<u>Civic body</u> : Indore Municipal Corporation (IMC) : 75 TPD C & D waste processing facility on four acres of land in Devguradia region
7.	Madhya Pradesh	Ujjain	C & D wastes dumped at MR-V Agar Road trenching ground located about 4 km from the city.
8.	Orissa	Bhubaneswar	<u>Civic body</u> : <u>Bhubaneswar Municipal Corporation</u> (BMC) proposes to set up a C & D waste <u>processing plant</u> on public-private-partnership mode. The civic body has identified two sites for dumping of waste - Patia and Kargil Basti. <u>C & D charges</u> : For a structure > 80 sq m area Rs. 50/- per month ; Rs. 100/- charged for 120 sq. metre. Beyond 120 sq. metre, Rs. 200/- ; Stacking of construction/ demolition debris Rs. 1500/- per tractor trip Rs. 3000/- per truck trip <u>Disposal</u> : Regional Landfill of non bio-degradable and inert material site at Brajrajnagar/ Jharsuguda.

9.	Tamil Nadu	Salem	<ul style="list-style-type: none"> Large quantity non-hazardous waste (e.g. C & D waste / flyash) disposed is being off in monofills (i.e. receiving one type of waste). The City Municipal Corporation has appointed a Bangalore-based private consultant to prepare a project report for the integrated solid waste management scheme.
10.	Tamil Nadu	Thanjavur	<p>Construction of Rural Roads using C & D Waste Materials: By addition of C & D waste materials in the sub-base layer of the road structure, the conventional laterite layer of rural road formation can be further strengthened; quantity of utilization of laterite is reduced and thus leads to cost reduction in road laying.</p> <ul style="list-style-type: none"> Dumpsite near STP site - Thepperaumanallur.
11.	Tamil Nadu	Vellore	- Total (MSW + C & D)
12.	Kerala	Kochi	- Total (MSW + C & D)
13.	Maharashtra	Sholapur	- Total (MSW + C & D)
14.	Maharashtra	Aurangabad	-
15.	Maharashtra	Mumbai – (Kalyan-Dombiwali)	As of 2014, Mumbai generates over 10,000 metric tonnes of waste per day - 8,000 metric tonnes of MSW and 2,000 metric tonnes of debris.
16.	Maharashtra	Thane	-
17.	Punjab	Chandigarh	<p><u>Civic body</u> : Municipal Corporation Chandigarh (MCC), MCC has also identified 18 low-lying areas for dumping of debris. Facility – MSW facility in Dadu Majra , after compressing waste it is then covered with a layer of C & D about 2 feet thick.</p> <p><u>C & D charge</u> - Collection of <i>malba</i>/ C & D waste between 9 am and 5 pm. MCC has fixed amounts for <i>malba</i> collection.</p> <p>To collect a quantity of <i>malba</i> between less than 25 cubic feet (cu ft) - Rs. 50 ;for > 25 cu ft Rs. 2 per cu ft extra is charged.</p> <p>The rate at which MCC is charging to the residents, is hardly one third of the total cost incurred by the municipality. But the municipality does not mind spending this amount, as its aim is to make citizens conscious of cleanliness and contribute towards keeping their city clean.</p> <p><u>Penalty</u>: Dumping of <i>malba</i> in front of houses, parks or at any other public space has been banned and any violation has a penalty of Rs. 500.</p>

			Mobile helpline number MCC provide number 3274154 to book complaint for <i>malba</i> removal. Complaints can also be emailed at <i>bi_mcc@chdut.nic.in</i> . MCC has vouched that <i>malba</i> will be collected within 48 hours of the complaint.
18.	Rajasthan	Jaipur	The state government proposes set up C & D Waste Processing Plants in 29 cities including state capital, Jaipur. In Jaipur a private company proposes to set up recycling facility capacity 300 TPD on 6 acres of land near the existing dumping stations.
19.	Uttar Pradesh	Lucknow	Disposal of C & D waste and inert material used as covering material in Telibagh Bhatha Maidan area.
20.	Karnataka	Bengaluru	<u>Civic body</u> : Bruhat Bengaluru Mahanagara Palike (BBMP) - The BBMP proposes to put up the C & D waste processing facilities in PPP mode in three abandoned quarry areas in Kannur, Mallasandra and Anjanapura , each with capacity to process 750 TPD he facility to BBMP. <u>Penalty</u> : A fine of Rs. 1,000 will be levied on those mixing construction debris with wet waste
21.	Maharashtra	Pune	<u>Civic body</u> : PMC : The C & D waste in Pune constitutes 40% of MSW in Pune. District administration has allocated 2 acres of land at Wagholi for C & D waste processing. <u>Penalty</u> : The civic body (PMC) has put a ban on dumping waste in open spaces, riverbeds, canals and quarries. Imposition fine of Rs 25,000 on such illegal dumping.
22.	Madhya Pradesh	Bhopal	-
23.	Telangana	Hyderabad	<u>Civic body</u> : The transport wing deploys for Greater Hyderabad Municipal Corporation (GHMC) vehicles for collection and transportation of C & D waste from bulk generators. Proposed disposal sites - setting up of a decentralised C & D waste plants at four identified locations, Fathullaguda, Jeedimetla, Kothwalguda and Mallapur. <u>C & D charge</u> - GHMC user fee Rs 360 per ton. Public service : call centre number 040-21111111 and 'My GHMC App'.
24.	Tamil Nadu	Chennai	<u>Disposal</u> : <ul style="list-style-type: none"> • According to Chennai Corporation- East, there is one dumping yard present in each of the 15 zones of the city. • There are two dumping sites in Chennai Perungudi and Kodungaiyur where, a large amount of C & D waste is being dumped. • Cooum, Adyar, Buckingham Canal and Pallikaranai marshland are popular sites where construction debris is dumped illegally.

			<ul style="list-style-type: none"> • <u>C & D waste disposal designated areas</u> : Sathangadu (Tiruvottiyur), CPCL junction (Manali), GNT Road Sembiam Sengundram Road (Madhavaram), Kodungaiyur (Tondiarpet), Moolakothalam crematorium (Royapuram), Otteri disposal yard (Thiru Vi Ka Nagar), Devi Karumariamman Nagar crematorium (Ambattur), 1st Avenue of Gajalakshmi Colony (Anna Nagar), Karaneeswarar Pagoda Street Recycling Plant (Teynampet), Anna Avenue (Kodambakkam), Ramavaram Bharathi Road (Valasaravakkam), MGR Nagar recycling plant (Alandur), Near Kotturpuram Railway Station (Adyar), Perungudi dumpyard (Perungudi) and Gangai Amman Koil Street Extension in Karapakkam (Sholinganallur). . • <u>Penalty</u>: The Corporation imposes a fine of Rs. 2000/-.
25.	Kerala	Thiruvananthapuram	<u>Penalty</u> : For not removing C & D waste , fine of Rs. 5000/- per tonne.
26.	Bihar	Patna	<u>Civic body</u> : Patna Municipal Corporation (PMC) - Site at Bairia , area of 80 acres approx. under PMC has been used for open dumping for last 2-4 years. Waste collected from across the 72 wards,as well as part of the waste collected from the three ULBs of Danapur, Phulwari and Khagaul is presently reaching the designated dump site at village Bairia on the Gaya road
27.	West Bengal	Kolkata	C & D wastes recycled in road construction in Kolkata: The recycling process is best suited to roads with light traffic.
28.	Assam	Guwahati	-
29.	Meghalaya	Shillong	<u>Disposal</u> : proposed use at landfill site at Mawiong to cover as a layer (earth) for covering compacted garbage. <u>Penalty</u> : For not delivering Construction and Demolition waste in a segregated manner as specified there is a fine of Rs. 1000/- & For dumping of construction and demolition waste in non-designated areas there is a fine of Rs 5000/-.
30.	Maharashtra	Mumbai	In September 2005, the Municipal Corporation of Greater Mumbai issued the Demolition and Desilting Waste (Management and Disposal) Guidelines but due to lack of enforcement, demolition debris still ended up in dumping grounds. The Youth for Unity and Voluntary Action (YUVA) and City Industrial Development Corporation (CIDCO then came up with a <u>decentralized</u> solution for recycling debris into

			construction material such as bricks and interlocking pavers. <u>Penalty:</u> For not delivering Construction and Demolition waste in a segregated manner as specified there is a fine of Rs. 1000/-
31.	Jammu & Kashmir	Srinagar	Srinagar Municipal Corporation has one dumping site at Syedpora Achan spread over 540 kanals of land
32.	Punjab	Ludhiana	-
33.	Punjab	Amritsar	Propose to use C & D waste in making roads.
34.	Haryana	Faridabad (M.Corp.)	Propose to set up C & D waste recycling facility near Kachra Chowk on the Gurgaon-Faridabad Road
35.	Himachal Pradesh	Shimla	C [^] D waste recycling plant proposed in Darni ka Bagicha area.
36.	Rajasthan	Jodhpur	The existing trenching site is located at Dabi Road Nanta nearly 10-15 km from the city having area of 52.28 ha, there is a dumping site at Keru (15 km away from the city Jodhpur). <u>Penalty:</u> Selling of segregated/ un segregated waste and Usable/recyclable items from the MSW - Upto Rs 25,000/- per incident ; Waste found on road side/ on road Rs .500/- per incident
37.	Uttarakhand	Dehradun	<u>Civic body</u> - Dehradun Nagar Nigam (DNN) The existing SW disposal site is located at Dateda Lakhond on Sahashradhara Road , distance of 7 km from the town.
38.	Uttar Pradesh	Ghaziabad	Density of construction waste in MSW samples = 1663.47 Kg/cu m <u>Penalty:</u> Violating norms while transporting construction debris , penalty Rs 5,000
39.	Uttar Pradesh	Agra	-
40.	Uttar Pradesh	Meerut	<u>Recycle of C & D waste</u> - Left over cement and mortars, cement concrete blocks, aggregate, sand and other inorganic material is recycled and reused as Granular Sub Base (GSB) layer of pavement. Earth rendered surplus from the excavation is utilized in the embankment works.
41.	Uttar Pradesh	Allahabad	<u>Recycle C & D wastes</u> - bricks of C & D in road works & river banks works
42.	Maharashtra	Amravati	<u>Penalty:</u> Construction debris dumping on road, public places and open places = Rs. 1000/-.
43.	Andhra Pradesh	Greater Visakhapatnum Municipal Corporation	<u>Civic body GVMC</u> - C & D waste processing unit at Visakhapatnam under PPP model. The state government has accorded permission to the Swachha Andhra Corporation to float Request for Proposal for 80 TPD capacity recycling plant near Kapuluppada.

		(GVMC)	
44.	Andhra Pradesh	Vijaywada	<p>Unauthorised disposal of C & D debris on Bandar Canal bund near Krishna Lanka , Kanaka Durga Varadhi and Eluru canal near Sitaramaraju bridge C & D waste processing unit at Vijaywada under PPP model.</p> <p><u>Penalty:</u> Failure in lifting C & D Waste (at least one truck load) from designated location OR Failure in transportation of C & D Waste to the processing facility per instance processing facility per instance OR Failure to lift claimed C & D Waste from the generator within 48 hrs. per instance – fine Rs 2000 ; Failure to lift C & D Waste dumped on roadside within 24 hrs. per instance – fine . Rs. 1000/- ; Non-performance of any other obligation under the Agreement for a continuous period of 7 (seven) days fine Rs. 10000/-.</p>
45.	Kerala	Kozhikode	Civic body - Municipal Corporation Kozhikode , propose to set up facility under PPP mode
46.	Kerala	Thrissur	-
47.	Kerala	Malappuram	-
48.	Kerala	Kannur	-
49.	Kerala	Kollam	Kollam MC has a disposal site (4 ha) at Kureepuzha 6 Km from the city centre functioning since 2002. Civic body- Kollam
50.	Tamil Nadu	Tiruchirappalli	Civic body - Trichy Corporation passed a resolution to control the indiscriminate dumping of C & D wastes on roads, riverbanks, canals and ponds. The corporation plans to utilize the C & D wastes in brick-making, with the technical support from IIT –Chennai
51.	West Bengal	Asansol	Civic body – AMC , two waste disposal sites under the AMC at Kalipahari (27 acres) and other at Samdihi, Burnpur (area 03 acres) – mainly MSW , operator M/s. GEPIL
52.	Jharkhand	Jamshedpur	Jamshedpur proposes to recycle a major part of its solid waste. Delhi-based consultant m/s Tetra Tech India Private Ltd to install a integrated solid waste management = compost plant + a sanitary landfill (disposal facility for inert wastes) + C & D waste processing facility to produce eco-friendly bricks. Site – at Khairbani on the city’s outskirts.
53.	Jharkhand	Dhanbad	<u>Penalty:</u> Dhanbad Municipal Corporation has decided to impose a fine of Rs 1,000 per day with immediate effect on citizens found guilty of dumping C & D wastes on public roads or dustbins.
54.	Jharkhand	Ranchi	Recycle C & D waste: Brick making is used in processing C & D wastes

55.	Chhattisgarh	Raipur	C & D waste segregated & sold balance used for filling low lying areas.
56.	Assam	Dispur	Most of the C & D debris used for the filling of low areas. Government has allotted a landfill site of 40 acres at Baragaon, 20 km away from Guwahati for composting MSW 100 TDP and dumping of C & D waste
57.	Mizoram	Aizwal	<u>Civic body</u> - Aizwal Municipal Corporation (AMC) has identified four low lying locations to dump the C & D wastes to develop flat land.
58.	Nagaland	Kohima	<u>Civic body</u> - KMC ; disposal site about 8 Kms away from the city on NH- 39 for MSW
59.	Maharashtra	Vasai Vihar City	<u>Civic body</u> -Vasai Virar Municipal Corporation (VVMC)
60.	Gujarat	Gandinagar	Civic body –GMC ; C & D waste is transported by private contractors waste to privately owned low-lying land at a price
61.	Gujarat	Surat	For C & D the civic body has allotted 12,000 sq.m. land at Kosad for dumping. Helpline – toll -free number '1800-212-2829' for collection of C & D wastes. Penalty: for of C & D wastes ; fine ranging from Rs. 100/- to Rs. 500/-
62.	Gujarat	Vadodara	-
63.	Gujarat	Rajkot	<u>Civic body</u> -RMC taken initiative to collect and dispose C & D waste separately and setup a C & D processing facility of 100 TPD
64.	Madhya Pradesh	Jabalpur	Civic body - Municipal Corporation Jabalpur on PPP mode
65.	Madhya Pradesh	Gwalior	Disposal site - Kedarpur.

ANNEXURE II: POTENTIAL USES OF C & D WASTES

C & D waste	Potential use of C & D wastes
Concrete	<p>The utilization of recycled aggregate is particularly very promising as 75 per cent of concrete is made of aggregates.</p> <p><u>Opportunity:</u> The enormous quantities of demolished concrete can easily be recycled as aggregate and used in concrete. Research & Development activities have been taken up all over the world for proving its feasibility, economic viability and cost effectiveness.</p> <p>Work on recycled concrete has been carried out at few places in India by CBRI and CRRI, but waste and quality of raw material produced being site specific, tremendous inputs are necessary if recycled material has to be used in construction for producing high grade concrete.</p>
Bricks	<p>If deconstructed properly, bricks can be reused after removal of mortar. Broken bricks can be used for refilling or for manufacturing debris paver blocks or debris blocks.</p>
Stone	<p>Stone can be reused for plinth formation, masonry construction, landscape purpose, ledges, platforms, window sills, coping etc. depending upon the form of available stones.</p>
Timber	<p>Timber elements from deconstructed building may have aesthetic and antique value.</p> <p><u>Opportunity :</u> Whole timber arising from construction and demolition works can be utilized easily and directly for reused in other construction projects after cleaning, de-nailing and sizing.</p>
Plywood and other timber based boards	<p>Plywood and other timber based boards can be either reused for interior works in new construction or it can be recycled for manufacturing of timber based boards.</p>
Gypsum	<p>In India, over 10 about of waste gypsum such as phosphor-gypsum, fluoro-gypsum etc., are being generated annually.</p> <p><u>Opportunity :</u> Plaster developed from this waste gypsum has showed improved engineering properties without any harmful effect. Phosphor-gypsum and lime sludge can be recycled for manufacture of Portland cement, masonry cement, sand lime bricks, partition walls, flooring tiles, blocks, gypsum plaster, fibrous gypsum boards, and super-sulphate cement.</p>
Metals & metal alloys-	<p>Ferrous Metals are the most profitable and recyclable material. Scrap steel is almost totally recycled and allowed repeated recycling. Structural steel can be reused as well as 100% steel can be recycled to avoid wastage at construction site.</p>

	<p><u>Advantage</u> : Generally sold to a scrap metal dealer at a specified price. Metals like scrap iron can be mixed with the virgin metal in the foundry. In India more than 80% scrap arising is recycled.</p>
Non ferrous metal	<p>The main non ferrous metal collected from construction and demolition sites are aluminium, copper, lead and zinc .</p> <p><u>Opportunity</u> : In India aluminium and copper are recycled and are valuable resources</p>
Debris	<p>Construction debris can be recycled to manufacture paver blocks which can be used in light traffic areas and masonry blocks. Other uses of processed debris include use in lean concrete for leveling purpose, as mortar for masonry, as bedding mortar for pavement tiles and used for land filling materials is comparable with new materials.</p> <p><u>Opportunity</u>: Market potential on an average in Pune city estimates about 40 crores of bricks in a year.</p>
Composite materials	<p>The plastic wastes are best for recycling if these materials are collected separately and cleaned. Recycling is difficult if plastic wastes are mixed with other plastics or contaminants. Plastic may be recycled and used in products specifically designed for the utilization of recycled plastic, such as street furniture, roof and floor, PVC window noise barrier, cable ducting, panel.</p> <p><u>Constraint</u>: The third largest consumer of composite materials is <u>construction sector</u>, automobile and aeronautics being first two largest consumers. Composite materials like thermoplastics are not only using non-renewable resources, they are non-biodegradable products. Thermoplastics (Polycarbonate, polyethylene, polypropylene, PVC etc.) can be recycled, but recycling involves high costs, whereas thermosets (Epoxy adhesives) are difficult to recycle. The lack of adequate markets, high recycling cost, and lower quality of the recyclates are the major commercialization barriers in recycling of composite materials. PVC-U sourced mostly from window and door fabricators is being recycled into wiring accessories and cable management systems including skirting and trunking. Composite materials can be down-cycled.</p>
<p>Ref : https://www.researchgate.net/publication/256677141_construction_and_demolition_waste_management_with_reference_to_case_study_of_Pune</p>	

ANNEXURE III: GLOBAL PRACTICES OF UTILIZATION OF C & D WASTES (Ref. BMTPC Guidelines)

City / country	C & D Waste utilization
Ontario, Canada	A target fixed to divert 50% of the C & D waste from landfills by 2000 using 1987 waste production levels as baseline.
Alberta, western province of Canada.	Re-use/recycling of C & D began in late 2008.
Nova Scotia, Canadian Province	Halifax Regional Municipality is (2011) diverting more than 80% of C & D waste from storage in landfill to reuse and recycling.
Netherlands, Sweden, Denmark, Austria, France and Switzerland	recycle 80 to 90% of their C & D waste.
Tokyo	Enforced the construction waste recycling law in 2002. The current rate of recycling of waste concrete is more than 99% (Source: Tokyo Metro Waste Management web site).
In Australia - cities of Sydney and Melbourne.	The reuse and recycling is more than 80%
UK	The Olympic Stadium in London used 30% recycled concrete in its construction. United Kingdom regulations explicitly permit use of recycled and manufactured aggregates in non structural framework without any discrimination in relation to aggregate from natural resources. 28% of aggregates used in UK are recycled C & D waste aggregate.
USA, cities like New York.	<ul style="list-style-type: none"> • Have no place for landfill for disposal of C & D waste, as was practiced a decade ago. • does not have any C & D waste disposal facility, it exports C & D waste to neighbouring states by paying a tax Construction sites use C & D waste in renovations or new construction
California , USA	Reusing / recycling about 60% of C & D waste.
Portland, Oregon USA	More than 2/3 rd of C & D waste is getting recycled / reprocessed.
Minnesota, USA	About 70% of demolition debris and 60% construction waste are being salvaged, recycled and reprocessed.
Singapore	Reusing / recycling 980% C & D waste (land constrained area).
Indonesia and Malaysia	Reusing / recycling about 50 to 60% of C & D waste.
Portugal	reuse/recycling of C & D waste is less than 40%
Hong Kong	C & D waste utilization is 60%.
Korea	Effective cycling rate is 36 per cent, with a target of increasing this to 45 per cent by 2016.

ANNEXURE IV

Criteria for site selection of C & D waste processing facility (SCHEDULE I)

(Note: numerals in brackets as per Notification of C & D waste Rules 2016)

- i. (4) The processing or recycling shall be large enough to last for 20-25 years (project based on-site recycling facilities).
- ii. (5) The processing or recycling site shall be away from habitation clusters, forest areas, water bodies, monuments, National Parks, Wetlands and places of important cultural, historical or religious interest.
- iii. (6) A buffer zone of no development shall be maintained around solid waste processing and disposal facility, 20 tons or more in one day or 300 tons per project in a month of installed capacity. This will be maintained within the total area of the solid waste processing and disposal facility. The buffer zone shall be prescribed on case to case basis by the local authority in consultation with concerned State Pollution Control Board.
- iv. (7) Processing or recycling site shall be fenced or hedged and provided with proper gate to monitor incoming vehicles or other modes of transportation.
- v. (8) The approach and or internal roads shall be concreted or paved so as to avoid generation of dust particles due to vehicular movement and shall be so designed to ensure free movement of vehicles and other machinery.
- vi. (9) Provisions of weigh bridge to measure quantity of waste brought at landfill site, fire protection equipment and other facilities as may be required shall be provided.
- vii. (10) Utilities such as drinking water and sanitary facilities (preferably washing/bathing facilities for workers) and lighting arrangements for easy landfill operations during night hours shall be provided and Safety provisions including health inspections of workers at landfill sites shall be carried out made.
- viii. (11) In order to prevent pollution from processing or recycling operations, the following provisions shall be made, namely:
 - a. Provision of storm water drains to prevent stagnation of surface water;
 - b. Provision of paved or concreted surface in selected areas in the processing or recycling facility for minimizing dust and damage to the site.
 - c. Prevention of noise pollution from processing and recycling plant.
 - d. Provision for treatment of effluent if any, to meet the discharge norms as per Environment (Protection) Rules, 1986.
- ix. (15) A vegetative boundary shall be made around Processing or Recycling plant or site.



Central Pollution Control Board

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Website : <http://cpcb.nic.in/>

कार्यालय परियोजना अभियन्ता (जन स्वास्थ्य)

खण्ड - द्वितीय, सैक्टर-39, नौएडा ।

पत्र संख्या: नौएडा/प0अ0 (जन स्वा0)-11/2019/ 677

दिनांक 11/9/18

M/s Ramky Enviro Engineers Ltd.
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विषय:- नौएडा क्षेत्र में C&D Waste हेतु प्लांट लगाने के सम्बन्ध में ।

संदर्भ:- अनुबंध सं0 85/SPE(PH-1)/2018-19 दिनांक 05.03.19

कृपया अवगत कराना है कि आपके द्वारा नौएडा C&D Waste का निस्तारण 300 TDP capacity का प्लांट लगाकर 15 वर्षों तक किया जाना है जिस हेतु उच्च स्तर से आवश्यक स्वीकृति प्राप्त कर सैक्टर - 80 के गूखण्ड सं0 सी - 48 के भाग में से 5.00 एकड़ भूमि अस्थायी तौर पर 15 वर्षों के लिये अनुबंध की शर्तों के अनुसार आपको भूमि आवंटित की गई है । संलग्न मानचित्र के अनुसार उपरोक्त स्थल पर अनुबंध की शर्तों के अनुरूप आवश्यक कार्यवाही अतिलम्ब करने का कष्ट करें ।

(आर0के0 शर्मा)
परियोजना अभियन्ता
(जन स्वास्थ्य)-द्वितीय
नौएडा ।

प्रतिलिपि:-

1. निजि सचिव मुख्य कार्यपालक अधिकारी महोदय के अवलोकनार्थ ।
2. विशेष कार्याधिकारी (टी) महोदय को सादर सूचनार्थ ।
3. वरिष्ठ परियोजना अभियन्ता (जन स्वास्थ्य) को सादर सूचनार्थ ।
4. परियोजना अभियन्ता (जन स्वास्थ्य)-I को सूचनार्थ ।
5. M/s Ramky Enviro Engineers Ltd. को उनके सैक्टर - 33 स्थित स्थल कार्यालय पर निर्गत कराने हेतु ।
6. लेखाकार को सूचनार्थ एवं आवश्यक कार्यवाही हेतु ।

2/8

11.9.18
परियोजना अभियन्ता
(जन स्वास्थ्य)-द्वितीय
नौएडा ।

नवीन औखला औद्योगिक विकास प्राधिकरण
मुख्य प्रशासनिक भवन,
सेक्टर-6, नोएडा, जिला गौतमबुद्ध नगर-201301

Noida

NEW OKHLA INDUSTRIAL DEVELOPMENT AUTHORITY
Main Administrative Building,
Sector-6, Noida, Distt. Gautam Budh Nagar-201301

Handwritten signature and date: 23/9/19

No. Noida/SPE(PH)/2019/1182
Dt. 03/9/19

To,
The Regional Officer,
UP Pollution Control Board,
Sector-1,
Noida

Subject: Re-Submission of Site Selection Criteria In Compliance with Construction and Demolition Debris Management Rules, 2016.

Sir,

In compliance with the aforesaid rules, please find our status against each criteria as under:

Sr.	Condition	Compliance Status
1.	The concerned department in the State Government dealing with land shall be responsible for providing suitable sites for setting up of the storage, processing and recycling facilities for construction and demolition and hand over the sites to the concerned local authority for development, operation and maintenance, which shall ultimately be given to the operators by Competent Authority and wherever above Authority is not available, shall lie with the concerned local authority.	Compliance ensured
2.	The Local authority shall co-ordinate (in consultation with Department of Urban Development of the State or the Union territory) with the concerned organizations for giving necessary approvals and clearances to the operators.	Compliance ensured
3.	Construction and demolition waste shall be utilized in sanitary landfill for municipal solid waste of the city or region as mentioned at Schedule-I of these rule. Residues from construction and demolition waste processing or recycling industries shall be land filled in the sanitary landfill for solid waste.	Compliance ensured
4.	The processing or recycling shall be large enough to last for 20-25 years (project based on-site recycling facilities).	Compliance ensured
5.	The processing or recycling site shall be away from habitation clusters, forest areas, water bodies, monuments, National Parks, Wetlands and places of important cultural, historical or religious interest.	Compliance ensured. Site layout plan with aerial distance of is attached herewith as Annexure-1, which clearly indicates that no such habitation cluster, forest areas, water bodies, monuments, National Parks, Wetlands and place of cultural, historical or religious interest exist within 200mtrs periphery of the proposed C&D processing facility.

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6.	A buffer zone of no development shall be maintained around solid waste processing and disposal facility, exceeding five Tonnes per day of installed capacity. This will be maintained within the total area of the solid waste processing and disposal facility. The buffer zone shall be prescribed on case to case basis by the local authority in consultation with concerned State Pollution Control Board.	The buffer zone with 200mtrs shall be placed at Site. Compliance thus ensured.
7.	Processing or recycling site shall be fenced or hedged and provided with proper gate to monitor incoming vehicles or other modes of transportation.	Compliance shall be ensured as already it has been placed as standard condition in their contract agreement.
8.	The approach and or internal roads shall be concreted or paved so as to avoid generation of dust particles due to vehicular movement and shall be so designed to ensure free movement of vehicles and other machinery.	Compliance ensured. Internal roads are contract obligations of the contractor, which shall also be ensured by the contractor, before commencing the facility operation.
9.	Provisions of weigh bridge to measure quantity of waste brought at landfill site, fire protection equipment and other facilities as may be required shall be provided.	Shall be ensured by the contractor.
10.	Utilities such as drinking water and sanitary facilities (preferably washing/bathing facilities for workers) and lighting arrangements for easy landfill operations during night hours shall be provided and Safety provisions including health inspections of workers at landfill sites shall be carried out made.	Shall be ensured by the contractor.
11.	In order to prevent pollution from processing or recycling operations, the following provisions shall be made, namely: a) Provision of storm water drains to prevent stagnation of surface water; b) Provision of paved or concreted surface in selected areas in the processing or recycling c) Facility for minimizing dust and damage to the site. d) Prevention of noise pollution from processing and recycling plant: e) Provision for treatment of effluent if any, to meet the discharge norms as per Environment (Protection) Rules, 1986.	It is all under contract obligation of contractor, so it shall be ensured.
12.	Work Zone air quality at the Processing or Recycling site and ambient air quality at the vicinity shall be monitored.	Compliance shall be ensured effectively.
13.	The measurement of ambient noise shall be done at the interface of the facility with the surrounding area, i.e., at plant boundary.	Compliance shall be ensured.

14.	The following projects shall be exempted from the norms of pollution from dust and noise as mentioned above, For construction work, where at least 80 percent construction and demolition waste is recycled or reused in-situ and sufficient buffer area is available to protect the surrounding habitation from any adverse impact.	Compliance shall be ensured. Further informed that the facility is based on wet processing, thus dust emission shall be least and will not have any adverse impact on surrounding habitant or environment.
15.	A vegetative boundary shall be made around Processing or Recycling plant or site to strengthen the buffer zone.	Compliance shall be ensured as 30% of the processing facility shall be declared as green belt.

The site map of the proposed area is provided in the Annexure 1

In light of the above, we request you to kindly release the consent to operate at the earliest to M/s. **Ramky Reclamation & Recycling Limited** so that they may immediately start setting the processing facility and contribute to make the Noida a Swachh City.

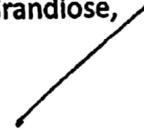
Thanking you,


SC Mishra
SPE (PH), Noida

(Annexure-1, attached)

CC:

- 1) PS to CEO, Noida for kind information please.
- 2) Managing Director, Ramky Reclamation & Recycling Limited, 13th Floor, Ramky Grandiose, Ramky Towers Gachibowli Hyderabad
- 3) Safe file


SPE (PH), Noida

Layout Plan of C&D Proposed Facility at Sector-80 Noida



Nearst Upcoming Industry Building

Sector-80B

Sector-80

Road with 30Mtr width (200Mtr)

Entrance

Proposed Power House

Green Cover

Vacant Fields

Vacant Plots

Green Cover

C&D Storage Area 12000m²

C&D Storage Section

Processing Area 8000m²

Proposed C&D Plant Facility (Wet Processing)

Total C&D Processing & Storage Site Area 12000m²

Green Cover (40Mtr)

Road under Construction 45Mtr width

Vacant Fields

Green Cover

Sector-113 UNITECH Proposed Residential Society (In construction)

Road with 45Mtr width

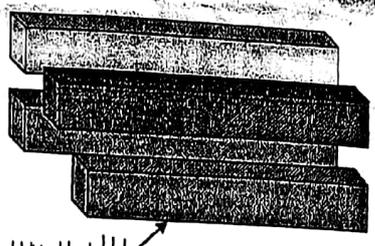
(225 Mtr)

Road with 45Mtr width

Vacant Fields

Green Cover

Gaur Sport Tower



Green Cover

SL-188

UTTAR PRADESH POLLUTION CONTROL BOARD

Validity Period :03/10/2019 To 02/10/2021

Ref No. - 66883/UPPCB/Noida(UPPCBRO)/CTE/NOIDA/2019

Dated:- 03/10/2019

To,

Shri SATYANARAYANA ADAMALA
M/s Construction and Demolition Waste Management Facility
Plot No. C-48, Sector 80, NOIDA, GAUTAM BUDH NAGAR, 201301
NOIDA

Sub : Consent to Establish for New Unit/Expansion/Diversification under the provisions of Water (Prevention and control of pollution) Act, 1974 as amended and Air (Prevention and control of Pollution) Act, 1981 as amended.

Please refer to your Application Form No.- 6019886 dated - 17/09/2019, After examining the application with respect to pollution angle, Consent to Establish (CTE) is granted subject to the compliance of following conditions :

1. Consent to Establish is being issued for following specific details :

A- Site along with geo-coordinates :

B- Main Raw Material :

Main Raw Material Details		
Name of Raw Material	Raw Material Unit Name	Raw Material Quantity
Construction and Demolition Waste	Metric Tonnes/Day	1800

C- Product with capacity :

Product Detail	
Name of Product	Product Quantity
Sand	2400
Green Products like Paver Blocks, Tiles etc.	6000
Aggregate	7200

D- By-Product if any with capacity :

By Product Detail			
Name of By Product	Unit Name	Licence Product Capacity	Install Product Capacity
Soil	Metric Tonnes/Day		2400

2. Water Requirement (in KLD) and its Source :

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Source of Water Details		
Source Type	Name of Source	Quantity (KL/D)
Other	Recycled Water from Sewage Treatment Plant (or supply of New Okhla Industrial Development Authority)	60.0

3. Quantity of effluent (In KLD) :

Effluent Details	
Source Consumption	Quantity (KL/D)
Domestic	3.0
Process	45.0
Others(Plantation)	9.0
aaa	3.0

4. Fuel used in the equipment/machinery Name and Quantity (per day) :

Fuel Consumption Details		
Fuel	Consumption(tpd/kld)	Use

5. For any change in above mentioned parameters, it will be mandatory to obtain Consent to Establish again. No further expansion or modification in the plant shall be carried out without prior approval of U.P. Pollution Control Board.

For any change in above mentioned parameters, it will be mandatory to obtain Consent to Establish again. No further expansion or modification in the plant shall be carried out without prior approval of U.P. Pollution Control Board.

2. You are directed to furnish the progress of Establishment of plant and machinery, green belt, Effluent Treatment Plant and Air pollution control devices, by 10th day of completion of subsequent quarter in the Board.

3. Copy of the work order/purchase order, regarding instruction and supply of proposed Effluent Treatment Plant/Sewerage Treatment Plant /Air Pollution control System shall be submitted by the industry till 02/10/2021 to the Board.

4. Industry will not start its operation, unless CTO is obtained under water (Prevention and control of Pollution) Act, 1974 and Air (Prevention and control of Pollution) Act, 1981 from the Board.

5. It is mandatory to submit Air and Water consent Application, complete in all respect, four months before start of operation, to the U.P. Pollution Control Board.

6. Legal action under water (Prevention and control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 may be initiated against the industry With out any prior information, in case of non compliance of above conditions.

Specific Conditions:

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1. This Consent is valid for the Establishment of 300 MTD C & D Waste utilization/processing facility.
2. This CTE is valid only if the Industry uses only P.N.G. as fuel as per direction issued by Central Pollution Control Board, Delhi u/s 18(1b) of Air (Prevention & Control of Pollution) Act, 1981 vide letter no. B-29012/IPCI-VI/2019-20/3660 dated 02-07-2019. This order has been published in Dainik Jagran & Times of India on dated 31-07-2019 by Member Secretary, U.P. Pollution Control Board.
3. This Consent to Establish will be VOID if there is any change in above mentioned address or product.
4. The industry can only manufacture products, at the rate of production as mentioned in consent order. In case of any change in production capacity, process, raw materials use etc. the industry will have to intimate the Board. For any enhancement of the above, fresh Consent to Establish has to be obtained from U.P. State Pollution Control Board.
5. Industry shall comply with various Waste Management Rules as notified by MoEF & CC i.e. Plastic Waste Management Rules, 2016, Solid Waste Management Rules, 2016, Hazardous and Other Wastes (Management and Transboundary) Rules, 2016, E-waste (Management) Rules, 2016, Construction and Demolition Waste Management Rules, 2016(as applicable).
6. Industry will apply total Wet process as per proposal.
7. Unloading of C & D Waste should be carried out in a covered shed and water must be sprinkled over waste before unloading.
8. Industry shall ensure adequate plantation and green belt within its premises. Green cover shall be in compliance of approved map from concerned Authority.
9. Industry shall ensure that industrial effluent is discharged from approved outlet and only after treatment in effluent treatment plant (as per proposal).
10. Under the Noise Pollution (Regulation and Control) Rule 2000, the industry shall take adequate measures for control of noise from its own sources within the premises so as to maintain ambient air quality standards in respect of noise to less than 75 dB(A) during day time and 70 dB(A).
11. Industry shall abide by directions given by Hon'ble Supreme Court, High Court, National Green Tribunal, Central Pollution Control Board and Uttar Pradesh Pollution Control Board for protection and safeguard of environment from time to time.
12. Prior to abstraction, industry shall obtain a No Objection Certificate from Central Ground Water Authority for abstraction of ground water.
13. The industry shall provide adequate arrangement for fighting the accidental leakages/discharge of any air pollutant/gas/liquid from the vessel, machinery etc. which are likely to cause fire hazard including environmental pollution.
14. The industry shall adhere to general standards terms and conditions of Water/Air Acts and compliance of Environment standards as per Environment (protection) Act 1986.
15. For the control of dust pollution due to movement of vehicles inside the plant premises regular water sprinkling should be done.
16. Transportation of C & D Waste the trucks should be covered with tarpaulin.
17. Pollution control certificates of the transportation vehicles should be checked regularly.
18. C & D waste should be transported through the roads as suggested by Noida Authority.
19. The vehicles parking place should be demarcated in the premises.
20. Internal road within the plant shall be concreted or paved so as to avoid generation of dust particles due to vehicular movement.
21. Regular water sprinkling should be done on loose soil to avoid dust generation.
22. Buffer zone of 200 mtr. around the plant will be established as per proposal given with application by noida authority.
23. The green belt of 10 to 15 mtr. width will be established around the plant.
24. Wind breaking wall of appropriate height would be established.
25. Waste oil generated from DG sets would be disposed through TSDF
26. ETP of 60 KLD capacity will be established and the treated effluent will be recycled into process.
27. Effluent will not be discharged outside the premises.
28. Industry shall submit first compliance report with respect to conditions imposed within 30 days of issue of this permission.
29. The plant will be established as per guide line of C & D Waste Management rules, 2016 and guidelines on Environment Management of C & D Waste March, 2017.
30. In case of violation of above mentioned conditions or any public complaint the consent shall be withdrawn.

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Please note that consent to Establish will be revoked, in case of, non compliance of any of the above mentioned conditions. Board reserves its right for amendment or cancellation of any of the conditions specified above. Industry is directed to submit its first compliance report regarding above mentioned specific and general conditions till 03/11/2019 in this office. Ensure to submit the regular compliance report otherwise this Consent to Establish will be revoked.

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**REGIONAL OFFICER
NOIDA**

Dated:- 03/10/2019

Copy To -

CHIEF ENVIRONMENTAL OFFICER (CIRCLE-1), U.P. POLLUTION CONTROL BOARD,
LUCKNOW.

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**REGIONAL OFFICER
NOIDA**



उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड, नोएडा, गौतमबुद्ध नगर

मैसर्स कन्स्ट्रक्शन व डिमोलिशन वेस्ट मैनेजमेन्ट फैसिलिटी, सी-48, सेक्टर-80, नोएडा, गौतमबुद्ध नगर के स्थापना पूर्व सहमति आवेदन के संबंध में विवरण व निरीक्षण आख्या।

1	उद्योग का नाम व स्थल का पूरा पता	मैसर्स कन्स्ट्रक्शन व डिमोलिशन वेस्ट मैनेजमेन्ट फैसिलिटी, सी-48, सेक्टर-80, नोएडा, गौतमबुद्ध नगर
2	निरीक्षण की तिथि	01.10.2019
3	नई इकाई/कार्यरत इकाई विस्तारीकरण डायवर्सिफिकेशन/शिपिंग	नई इकाई
4	उद्योग की श्रेणी (लाल/नारंगी/हरी/सफेद)	नारंगी
5	उद्योग की प्रकृति	कन्स्ट्रक्शन व डिमोलिशन वेस्ट मैनेजमेन्ट फैसिलिटी
6	प्रस्तावित स्थल	सी-48, सेक्टर-80, नोएडा, गौतमबुद्ध नगर
7	निकटतम आबादी की दूरी	उद्योग नोएडा अथारिटी द्वारा विकसित औद्योगिक क्षेत्र के अन्तर्गत प्रस्तावित है।
8	मुख्य उत्पादन (मात्रा सहित)	सैंड, पेंवर ब्लाक्स, टाइल्स आदि
	सह उत्पादन (मात्रा सहित)	कोई नहीं।
9	मुख्य कच्चे माल का विवरण (मात्रा सहित)	कन्स्ट्रक्शन व डिमोलिशन वेस्ट-300 मीटन/दिन
10	उत्पादन विधि	सेग्रिगेशन, क्रशिंग, स्क्रीनिंग, वाशिंग, ब्लाक मैनुफैक्चरिंग
11	जल स्रोत	नोएडा अथारिटी से सप्लाई-60.0 किलोलीटर/दिन
12	जल प्रदूषण का स्रोत	घरेलू प्रयोजन में 3.0 किलोलीटर/दिन तथा औद्योगिक प्रयोजन में 57.0 किलोलीटर/दिन जल का प्रयोग किया जाना प्रस्तावित है।
13	जल प्रदूषण नियंत्रण व्यवस्था का विवरण एवं लागत	घरेलू प्रयोजन से निस्तारित 2.4 किलोलीटर/दिन उत्प्रवाह को नोएडा सीवर के माध्यम से निस्तारित किया जाना प्रस्तावित है। औद्योगिक प्रयोजन के उपरान्त लगभग 55.0 किलोलीटर/दिन औद्योगिक उत्प्रवाह जनित होगा, जिसके शुद्धिकरण हेतु उत्प्रवाह शुद्धिकरण संयंत्र की स्थापना प्रस्तावित है। शुद्धिकृत उत्प्रवाह को वाशिंग प्रक्रिया में रिसाइकिल किया जाना प्रस्तावित है। परियोजना से औद्योगिक उत्प्रवाह का निस्तारण परिसर के बाहर नहीं किया जायेगा।
14	वायु प्रदूषण का स्रोत एवं वायु प्रदूषण नियंत्रण की व्यवस्था का विवरण व लागत सहित व्यवस्था की उपयुक्तता	क्रशिंग प्रक्रिया, स्क्रीनिंग प्रक्रिया तथा अन्य प्रक्रियाओं से जनित डस्ट सप्रेशन हेतु वाटर स्पिंकलिंग सिस्टम/डस्ट कलेक्शन सिस्टम की स्थापना किया जाना प्रस्तावित है।
15	प्रस्तावित ईंधन एवं उसकी खपत	डी.जी.सेट हेतु एच0एस0डी0 आवश्यकता अनुसार।
16	परिसंकटमय अपशिष्ट नियम के अनुपालन हेतु प्रस्ताव	वेस्ट ऑयल का निस्तारण टी0एस0डी0एफ0 के माध्यम से किये जाने की शर्त लगायी जा रही है।
17	परियोजना की कुल लागत	आवेदन पत्र के साथ संलग्न प्रोजेक्ट रिपोर्ट के अनुसार परियोजना की कुल लागत रुपये 830.00 लाख है।
18	स्थापना पूर्व सहमति शुल्क का विवरण	उद्योग द्वारा स्थापना पूर्व सहमति शुल्क के मद में रू0 30,000.00 जमा किया गया है। जोकि वर्तमान विनियोजन के अनुसार पूर्ण है।
19	अन्य विवरण	<ol style="list-style-type: none">1. वाहनों के आवागमन से जनित डस्ट के प्रदूषण नियंत्रण हेतु पानी का छिड़काव नियमित रूप से किया जाये।2. कन्स्ट्रक्शन व डिमोलिशन वेस्ट का परिवहन ट्रकों को Tarpaulin से ढक कर किया जाये। परिवहन वाहनों की प्रदूषण नियंत्रण प्रमाण पत्र की नियमित जाँच की जाये।3. कन्स्ट्रक्शन व डिमोलिशन वेस्ट का परिवहन नोएडा अथारिटी विचार विमर्श कर उपयुक्त रास्तों से किया जाये।4. परिसर में वाहनों की पार्किंग हेतु स्थल चिह्नित किया जाये।5. परिसर के अंदर वाहनों के आवागमन हेतु पक्की सड़कों का निर्माण किया जाये।6. परिसर के अंदर बनी सड़कों पर तथा अन्य डस्ट उत्पन्न करने वाले स्थानों पर नियमित जल छिड़काव किया जाये।

		<p>7. परिसर के चारों ओर 200 मी० की परिधीय बेल्ट बफर जोन की स्थापना दिये प्रस्ताव के अनुसार किया जाये।</p> <p>8. परियोजना में प्लान्ट के चारों ओर 10 से 15 मी० चौड़ी हरित पट्टिका की स्थापना की जाये।</p> <p>9. परियोजना स्थल के चारों ओर उपयुक्त ऊँचाई की विंड ब्रेकिंग घाट की स्थापना की जाये।</p>
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उपरोक्त तथ्यों के आधार पर कंसल्टिंग एंड डिमोलिशन वेस्ट मैनेजमेंट फ़ैसिलिटी सी-48, सेक्टर-80, नोएडा, गौतमबुद्ध नगर को इस शर्त के साथ सशर्त अनापत्ति प्रमाण पत्र प्रदान किया जाना उचित होगा कि परियोजना की स्थापना कन्स्ट्रक्शन व डिमोलिशन वेस्ट रूल्स, 2017 में उल्लिखित आबादी आदि से प्रतिबंधित दूरियों का अनुपालन करते हुये किया जाये।

आख्या आपके अवलोकनार्थ, अनुमोदनार्थ एवं अग्रिम आवश्यक कार्यवाही हेतु प्रस्तुत है।

Pr Singh
3.10.2019
(पूर्णादित्य प्रताप सिंह)
अवर अभियन्ता

Pr Singh
03.10.19
(के०एम० श्रीवास्तव)
सहा०पर्या०अभि०

क्षेत्रीय अधिकारी

[Signature]
3/10/19