

STATE EXPERT APPRAISAL COMMITTEE (SEAC), BIHAR

Ref. No- 71

Patna- 23, Date- 11/03/19

To,


1. Shri Murarijee Mishra
Vijay Nagar, Near Temple,
Rukunpura, Patna - 800014.
2. Shri Vijay Kumar Sinha, IFS (Retd.),
Prasad Bhawan, R. K. Path,
Pirmohani, Kadamkuan, Patna - 800 003
3. Dr. Shardendu,
Professor,
Department of Botany,
Patna Science College, Patna.
4. Dr. Amar Nath Verma,
10192 ATS Advantage, Ahinsha Khand - 1,
Near Habitat Centre, Indirapuram,
Ghaziabad - 201014.
5. Dr. Birendra Prasad.
Professor,
Department of Botany,
Patna University,
Patna - 800 005
6. Dr. Dilip Kumar Paul,
Associate Professor and Course Coordinator, M.Sc.
Environment Science and Management, Post-Graduation Department of Zoology,
Patna University, Patna, Bihar - 800 005

Sub :- Proceedings of meeting of State level Expert Appraisal Committee held on
26.02.2019.

Sir,

Please find enclosed herewith proceedings of the State Expert Appraisal Committee (SEAC) meeting held on 26th February, 2019.

Yours sincerely,

 11/3/19

(Alok Kumar)
Member Secretary
SEAC, Bihar

Proceedings of the State Expert Appraisal Committee (SEAC) meeting dated 26th February, 2019 -

A meeting of SEAC was held in the meeting hall of SEIAA, Bihar, Patna on - 26th February, 2019 presided over by the Chairman, SEAC. The following members of the Committee were present in the meeting:

1. Shri Vijay Kumar Sinha,
2. Dr. Amar Nath Verma,
3. Dr. Shardendu,
4. Dr. Birendra Prasad,
5. Dr. Dilip Kumar Paul,
6. Shri Alok Kumar, Member Secretary

The records of project proposals included in the agenda were put up before the Committee by supporting staff / officials for necessary appraisal. The Project Proponents / Consultants of the respective project proposals made presentation before the Committee.

The Committee discussed project proposals and made the following observations/recommendations for various projects and/or sought compliance on the points raised in relation thereto-

- A.1. SAI City and Assorita Commercial Complex at Musatafapur, Phulwari, Patna (Bihar) by M/s Annuanand Constrution Pvt. Ltd., at Musatafapur, Phulwari, Patna (Bihar), Total Plot Area:- 35,468 m² Total Built-up Area:- 1,75,420.772 m². (Proposal No. - SIA/8(b)/604/19) Online Proposal No.:- SIA/BR/NCP/30736/2017).**

Proponent :- Bimal Kumar.

Consultant :- Mantras Green Resources Ltd.

An application along with filled up 'Form - I', Form-IA and Conceptual Plan in the prescribed format was submitted to MoEF&CC on 13th December, 2017 for obtaining Term of Reference (ToR). The MoEF&CC issued ToR Vide F. No. 21-1/2018-IA-III, dated 27.02.2018. Final EIA report submitted by Project Proponent in the prescribed format to SEIAA, Bihar dated - 16.01.2019 for obtaining Environmental Clearance (EC).

Earlier, in the meeting dated-25th January 2018 the Committee had directed the project proponent to submit revised plan and documents as mentioned in the proceeding of that meeting. The Project Proponent has complied. It was observed during appraisal that the Project layout plan was not on scale regarding, STP, Bio-composting, Solid waste management and greenbelt area etc. The Committee, directed the project proponent to submit the Project layout plan on scale, on which the Project Proponent requested to comply within two days. The Committee decided that having received the above mentioned plan, the proposal be recommended for grant of Environmental Clearance as Annexure - I.

B.2. "KUNDAGHAT RESERVOIR SCHEME", Village:-Sikandra, Block:- Sikandra, Block:-Sikandra, District:- Jamui, State:- Bihar, (Proposal No. - SIA/1(c)/428/17). Online Proposal No.:- SIA/BR/RIV/26099/2016).

Proponent :- Advance Planning Investigation and Project Planning.

Consultant :- Enviro Infra Solutions Pvt.Ltd

An application along with filled up 'Form - I' and pre-feasibility report in the prescribed format was submitted to SEIAA, Bihar on 30.12.2016 and scrutiny fee deposited on dated 20.01.2017 for obtaining approved Terms of Reference (ToR). The proposal was considered by the SEAC in its meeting held on 28th and 29th January 2017 to determine the ToR for preparation of EIA / EMP Report. The SEIAA issued ToR vide Ref. No. 534, dated 16.02.2017. Final EIA report was submitted on 24.05.2018.

Earlier, in the meeting dated 25th January 2019 the Committee had observed that the Project Proponent has already started construction work on site which is violation of EIA Notification, 2006 and required to be dealt with under the provision of Notification S.O. 1030 (E) dated- 08.03.2018. The Committee took exception to this violation and directed the Project Proponent to submit a revised proposal containing details of construction etc, along with explanation for violation (for issue of specific revised ToR with reference to violation). The Proponent and Consultant presented details before the committee. The Committee considered the submissions of project proponent and decided that ToR be granted as Annexure - II with special reference to violation (S.O. 1030 (E),

dated 08.03.2018). However, since Public Consultation has already been done on 30.09.2018, no fresh Public Consultation will be required.

C.3.

Expansion of Re-Rolling mill Production of MS Bar & TMT Bar from 60,590 TPA to 2,50,000 TPA, Village - Simli Malapur, Mahatama Gandhi Setu Road, Pahari, District - Patna, Bihar (Proposal No. - SIA/3(a)/540/18, Online Proposal No.:- SIA/BR/IND/25215/2018).

Proponent :- Magadh Industries Pvt. Ltd.

Consultant :- Grass Roots Research and Creations India Private Limited.

An application along with filled up 'Form - I', PFR and EMP in the prescribed format was submitted to SEIAA, Bihar on 14th September, 2018 for obtaining Term of Reference.

Earlier, in the meeting dated-7/8 December 2018 the Committee had directed the project proponent to submit action taken plan and documents as mentioned in the proceeding of that meeting. The Project Proponent has complied. The Committee considered the compliance submitted by project proponent and it is decided that Term of Reference as Annexure- III, be granted with special reference to violation [S.O. 1030 (E), dated 08.03.2018].

D.4. Proposed Officer Quarters in Officers Enclave on Plot No. C of Gardanibagh Housing Development at Patna, Total Plot Area:- 53,272 m². Total Built-up Area:- 1,39,634.68 m². (Proposal No. - SIA/8(a)/606/19) Online Proposal No.:- SIA/BR/NCP/87130/2018).

Proponent :- Building Construction Deptt. Govt. of Bihar.

Consultant :- Ind Tech House Consultant, New Delhi.

An application along with filled up 'Form - I', and Pre-feasibility report in the prescribed format was submitted to SEIAA, Bihar on 18th January, 2019 for obtaining Environmental Clearance (EC).

Earlier, in the meeting dated- 9th Febuary 2019 the Committee had directed the project proponent to submit revised plan and documents as mentioned in the proceeding

of that meeting. It was observed during appraisal that the Project Proponent has submitted online a total of three proposals (SIA/BR/NCP/92289/2019, SIA/BR/NCP/92139/2019, SIA/BR/NCP/92135/2019) in addition to the instant one in respect of Gardanibag Redevelopment Plan (GRP), which the Project Proponent was reluctant to accept as being part of the GRP. The Project Proponent has also failed to submit satisfactory and due compliance as required from them.

After due consideration of the matter the committee has decided that all the four proposals including the instant one should be integrated and revised proposal of GRP should be submitted by the Project Proponent.

E.5. Proposed Additional Storage Facilities 2x600 MT Mounded storage vessel at fatuha Industrial area, Mauza- Raipura, Fathua Patna, Bihar-803201. BPCL (Proposal No.:- SIA/6(b)/533/18) Online Proposal No.:- SIA/BR/IND2/25643/2018.

Proponent :- Bharat Petroleum Corporation Limited.

Consultant :- ABC Techno Labs India Pvt.Ltd

An application along with filled up 'Form - I', Pre-feasibility report, Environment Management Plan in the prescribed format was submitted to SEIAA, Bihar on 25th June, 2018 for obtaining approved Term of Reference (ToR). The proposal was considered by the SEAC in its meeting held on 31st August, 2018 to determine the ToR for preparation of EIA / EMP Report. The SEIAA issued ToR vide Ref. No. SIA/6(b)/533/18, dated 24.10.2018. Final EIA report was submitted on 07.02.2019.

The Proponent and consultant presented their proposal before the committee. After due consideration and discussion the committee decided to recommend the proposal for Environmental Clearance as Annexure -IV.

F.6. Proposed construction of Bihar State Institute of Mental Health & Allied Science, Koilwar, Bhojpur, District Bihar, Total Plot Area:- 3,09,382.17 m². Total Built-up Area:- 63,675.98 m². (Proposal No. - SIA/8(a)/617/19) Online Proposal No.:- SIA/BR/NCP/88288/2018).

Proponent :- Health Department, Govt. of Bihar.

Consultant :- Bhagavathi Ana Labs Pvt. Ltd., Hyderabad.

An application along with filled up 'Form - I', Form-IA and Conceptual Plan in the prescribed format was submitted to SEIAA, Bihar on 18th February, 2019 for obtaining Environmental Clearance (EC).

The Proponent and Consultant presented the proposal before the Committee, which after discussion and due consideration directed the project proponent to submit a revised report including the following:-

- (i) Submit revised Form-1, Form-1A, Conceptual Plan;
- (ii) Clarify the position regarding total area included in proposal;
- (iii) Fire safety plan, Disaster management plan and Evacuation plan as per NABH.

The Conceptual Plan contains numerous mechanical errors which is highly objectionable and shows utter negligence of the consultant and Project Proponent. The SEAC warns both for this.

Agenda item No.- G.7 to G.10

G.7. Sand Mining Project on river Kiul at Khairi Sand Ghat of Lakhisarai district, Area - 21 Ha (Proposal No. - SIA/1(a)/541/18). Online Proposal No.:- SIA/BR/MIN/30932/2019).

Proponent :- Westlink Trading Pvt. Ltd.,

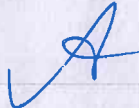
Consultant :- Cognizance Research India Private Limited.

An application along with filled up 'Form - I', and Prefeasibility Report in the prescribed format was submitted to SEIAA, Bihar on 11th February, 2019 for obtaining Term of Reference (ToR).

G.8. Sand Mining Project on river Kiul at Kishanpur Sand Ghat of Lakhisarai district, Area - 23 Ha (Proposal No. - SIA/1(a)/543/18). Online Proposal No.:- SIA/BR/MIN/30930/2019).

Proponent :- Westlink Trading Pvt. Ltd.,

Consultant :- Cognizance Research India Private Limited.



An application along with filled up 'Form - I', and Prefeasibility Report in the prescribed format was submitted to SEIAA, Bihar on 11th February, 2019 for obtaining Term of Reference (ToR).

G.9. Kalai & Durga Mandir Sand Ghat on Ulai River of District- Jamui, Area - 24 Ha (Proposal No. - SIA/1(a)/555/18). Online Proposal No.:- SIA/BR/MIN/30947/2019).

Proponent :- Westlink Trading Pvt. Ltd.,

Consultant :- Cognizance Research India Private Limited.

An application along with filled up 'Form - I', and Prefeasibility Report in the prescribed format was submitted to SEIAA, Bihar on 11th February, 2019 for obtaining Term of Reference (ToR).

G.10. Kalyanpur Sand Ghat on Kiul River of District- Jamui, Area - 21.5 Ha (Proposal No. - SIA/1(a)/557/18). Online Proposal No.:- SIA/BR/MIN/30958/2019).

Proponent :- Westlink Trading Pvt. Ltd.,

Consultant :- Cognizance Research India Private Limited.

An application along with filled up 'Form - I', and Prefeasibility Report in the prescribed format was submitted to SEIAA, Bihar on 12th February, 2019 for obtaining Term of Reference (ToR).

The Proponent and Consultant presented the above mentioned proposals (G7 to G10) before the committee. During presentation, the Project Proponent and consultant informed that they have already started monitoring (during December 2018 to February 2019) which may please be allowed. The SEAC felt that there is no objection in doing so, and as such the request is accepted. After due discussion and consideration, the committee decided that Term of Reference be granted to these proposals as Annexure- V.



Agenda item No.- G.11 to G.15

- G.11. Sand Mining Project on Son River at Jalpura Msaurha Ghat, of District- Patna, Area - 24.90 Ha (Proposal No. - SIA/1(a)/618/19). Online Proposal No.:- SIA/BR/MIN/30896/2019).**

Proponent :- Broad-Son Commodities Pvt. Ltd.,

Consultant :- Ascenso Enviro Pvt. Ltd.

An application along with filled up 'Form - I', and Prefeasibility Report in the prescribed format was submitted to SEIAA, Bihar on 18th February, 2019 for obtaining Term of Reference (ToR).

- G.12. Sand Mining Project on Son River at Dhana Nisarpur Ghat, of District- Patna, Area - 24.50 Ha (Proposal No. - SIA/1(a)/619/19). Online Proposal No.:- SIA/BR/MIN/30936/2019).**

Proponent :- Broad-Son Commodities Pvt. Ltd.,

Consultant :- Ascenso Enviro Pvt. Ltd


An application along with filled up 'Form - I', and Prefeasibility Report in the prescribed format was submitted to SEIAA, Bihar on 18th February, 2019 for obtaining Term of Reference (ToR).

- G.13. Sand Mining Project on Son River at Bherhariya English Ghat, of District- Patna, Area - 24.90 Ha (Proposal No. - SIA/1(a)/620/19). Online Proposal No.:- SIA/BR/MIN/30885/2019).**

Proponent :- Broad-Son Commodities Pvt. Ltd.,

Consultant :- Ascenso Enviro Pvt. Ltd.

An application along with filled up 'Form - I', and Prefeasibility Report in the prescribed format was submitted to SEIAA, Bihar on 18th February, 2019 for obtaining Term of Reference (ToR).



G.14. Sand Mining Project on Son River at Imadpur Ghat, of District- Bhojpur, Area - 18.50 Ha (Proposal No. - SIA/1(a)/621/19). Online Proposal No.:- SIA/BR/MIN/31029/2019).

Proponent :- Broad-Son Commodities Pvt. Ltd.,

Consultant :- Ascenso Enviro Pvt. Ltd.

An application along with filled up 'Form - I', and Prefeasibility Report in the prescribed format was submitted to SEIAA, Bihar on 18th February, 2019 for obtaining Term of Reference (ToR).

G.15. Sand Mining Project on Son River at Trikaul Ghat, of District- Bhojpur, Area - 18.00 Ha (Proposal No. - SIA/1(a)/622/19). Online Proposal No.:- SIA/BR/MIN/31033/2019).

Proponent :- Broad-Son Commodities Pvt. Ltd.,

Consultant :- Ascenso Enviro Pvt. Ltd.

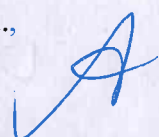
An application along with filled up 'Form - I', and Prefeasibility Report in the prescribed format was submitted to SEIAA, Bihar on 18th February, 2019 for obtaining Term of Reference (ToR).

The Proponent and Consultant presented the above mentioned (G11 to G15) proposals before the committee. During presentation, the Project Proponent and consultant informed that they have already started monitoring (during December 2018 to February 2019) which may please be allowed. The SEAC felt that there is no objection in doing so, and as such the request is accepted. After due discussion and consideration, the committee decided that Term of Reference be granted to these proposals as Annexure- V.

G.16. Stone Mining project at Village:- Madurna, Thana:- Bhabua, District:- Kaimur, State:- Bihar (Proposal No.-SIA/1(a)/535/18). Online Proposal No.:- SIA/BR/MIN/30809/2019).

Proponent :- Starnet Marketing Pvt. Ltd.,

Consultant :- Ascenso Enviro Pvt.Ltd



An application along with filled up 'Form - I', Prefeasibility Report and Environment Management Plan in the prescribed format was submitted to SEIAA, Bihar on 12th February 2019 for obtaining Term of Reference (ToR).

The Proponent and Consultant presented the proposal before the committee. During presentation, the Project Proponent and consultant informed that they have already started monitoring (during December 2018 to February 2019) which may please be allowed. The SEAC felt that there is no objection in doing so, and as such the request is accepted. After due discussion and consideration, the committee decided that Term of Reference be granted to these proposals as Annexure- V.




Sd/-
(Dr. Shardendu)
(Member, SEAC)

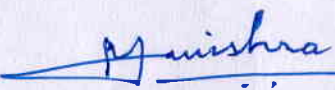
Sd/-
(Dr. Amar Nath Verma)
(Member, SEAC)

Sd/-
(Vijay Kumar Sinha)
(Member, SEAC)

Sd/-
(Dr. Birendra Prasad)
(Member, SEAC)

Sd/-
(Dr. Dilip Kumar Paul)
(Member, SEAC)

 11/8/19
(Alok Kumar)
Member Secretary, SEAC


(Murarijee Mishra)
Chairman, SEAC

Annexure - I

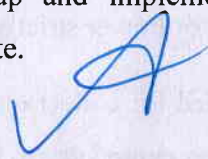
I. Statutory compliance:

1. The project proponent shall obtain all necessary clearance/ permission from all relevant agencies including Town Planning Authority before commencement of work. All the construction shall be done in accordance with the local building byelaws.
2. The approval of the Competent Authority shall be obtained for structural safety of buildings due to earthquakes, adequacy of fire fighting equipment etc as per National Building Code including protection measures from lightening etc.
3. All directions of the Airport Authority, Director of Explosives and Fire Department etc. shall be complied with.
4. The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
5. The project proponent shall obtain the necessary permission for drawl of ground water / surface water required for the project from the competent authority.
6. A certificate of adequacy of available power from the agency supplying power to the project along with the load allowed for the project should be obtained.
7. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department shall be obtained, as applicable, by project proponents from the respective competent authorities.
8. The provisions of the Solid Waste (Management) Rules, 2016, e-Waste (Management) Rules, 2016, and the Plastics Waste (Management) Rules, 2016 shall be followed.
9. The project proponent shall follow the ECBC / ECBC-R prescribed by Bureau of Energy Efficiency, Ministry of Power strictly.
10. The facilities provided for collection, segregation, handling, on site storage & processing of solid waste such as chute system for multi-storey buildings, wet & dry bins, collection centre & mechanical composter etc. shall be properly maintained. The collected solid

waste shall be segregated at site. The recyclable solid waste shall be sold out to the authorized vendors for which a written tie-up must be done with the authorized recyclers.

11. Bio-Medical waste to be generated in the hospital shall be handled and managed as per the provisions of Bio-Medical waste (Management & Handling) Rules, 2016. Radioactive waste management program shall be adopted and implemented at the site in order to mitigate the effects coming out due to use of atomic radiation in different equipment's.
12. Hazardous waste/E-waste should be disposed off as per Rules applicable and with the necessary approval of the Bihar State Pollution Control Board.
13. Solar power plant or other solar energy related equipment's shall be operated and maintained properly.
14. Provisions shall be made for the integration of solar water heating system.
15. EC conditions must be displayed at prominent place which can be easily visible to public mentioning the address and contact number of authority to whom violation of EC conditions can be reported.
16. Fencing of the project boundary by erecting 10 meter façade before start of construction activities.
17. Free Parking facility for patient and visitors shall be provided.

II. Air quality monitoring and preservation

1. Notification GSR 94(E) dated 25.01.2018 of MoEF&CC regarding Mandatory Implementation of Dust Mitigation Measures for Construction and Demolition Activities for projects requiring Environmental Clearance shall be complied with.
 2. A management plan shall be drawn up and implemented to contain the current exceedance in ambient air quality at the site.
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3. The project proponent shall install system to carryout Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM10 and PM2.5) covering upwind and downwind directions during the construction period.
4. Diesel power generating sets proposed as source of power backup should be of enclosed-type and conform to rules made under the Environment (Protection) Act, 1986. The height of stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets. Use of low sulphur diesel. The location of the DG sets may be decided with in consultation with State Pollution Control Board.
5. Construction site shall be adequately barricaded before the construction begins. Dust, smoke & other air pollution prevention measures shall be provided for the building as well as for the site. These measures shall include screens for the building under construction, continuous dust / wind breaking walls all around the site (at least 3 meter height). Plastic/tarpaulin sheet covers shall be provided for vehicles bringing in sand, cement, murram and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site.
6. Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution.
7. Wet jet shall be provided for grinding and stone cutting.
8. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust.
9. All construction and demolition debris shall be stored at the site (and not dumped on the roads or open spaces outside) before they are properly disposed. All demolition and construction waste shall be managed as per the provisions of the Construction and Demolition Waste Rules 2016.
10. The diesel generator sets to be used during construction phase shall be low sulphur diesel type and shall conform to air and noise emission standards of CPCB / MoEF&CC, GoI.
11. The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the

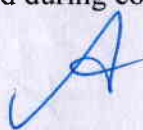
noise pollution. Low sulphur diesel shall be used. The location of the DG set and exhaust pipe height shall be as per the provisions of the Central Pollution Control Board (CPCB) norms.

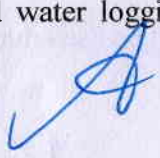
12. For indoor air quality the ventilation provisions as per National Building Code of India shall be followed.
13. Real time Ambient Air Quality shall be measured on continuous basis and the data shall be displayed in public domain as per National Ambient Air Quality parameters and on the portal of hospital. The measured data shall be linked to the server of the State Pollution Control Board.

III. Water quality monitoring and preservation:

1. The natural drain system should be maintained for ensuring unrestricted flow of water. No construction shall be allowed to obstruct the natural drainage through the site, on wetland and water bodies. Check dams, bio-swales, landscape, and other sustainable urban drainage systems (SUDS) are allowed for maintaining the drainage pattern and to harvest rain water.
2. Buildings shall be designed to follow the natural topography as much as possible and minimum cutting and filling should be done.
3. Total fresh water use shall not exceed the proposed requirement as provided in the project details.
4. The quantity of fresh water usage, water recycling and rainwater harvesting shall be measured and recorded to monitor the water balance as projected by the project proponent. The record shall be submitted to the, SEIAA/ Regional Office, MoEF&CC along with six monthly Monitoring reports.
5. A certificate shall be obtained from the local body supplying water, specifying the total annual water availability with the local authority, the quantity of water already committed, the quantity of water allotted to the project under consideration and the balance water available. This should be specified separately for ground water and surface water sources, ensuring that there is no impact on other users.

6. At least 20% of the open spaces as required by the local building bye-laws shall be pervious. Use of Grass pavers, paver blocks with at least 50% opening, landscape etc. would be considered as pervious surface.
7. Installation of dual pipe plumbing for supplying fresh water for drinking, cooking and bathing etc and other for supply of recycled water for flushing, landscape irrigation, car washing, thermal cooling, conditioning etc. shall be done.
8. Use of water saving devices/ fixtures (viz. low flow flushing systems; use of low flow faucets tap aerators etc) for water conservation shall be incorporated in the building plan.
9. Separation of grey and black water should be done by the use of dual plumbing system. In case of single stack system separate recirculation lines for flushing by giving dual plumbing system be done.
10. Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other best practices referred.
11. The local bye-law provisions on rain water harvesting should be followed. If local byelaw provision is not available, adequate provision for storage and recharge should be followed as per the Ministry of Urban Development Model Building Byelaws, 2016. Rain water harvesting recharge pits/storage tanks shall be provided for ground water recharging as per the CGWB norms.
12. A rain water harvesting plan needs to be designed where the recharge bores of minimum one recharge bore per 5,000 square meters of built up area and storage capacity of minimum one day of total fresh water requirement shall be provided. In areas where ground water recharge is not feasible, the rain water should be harvested and stored for reuse. The ground water shall not be withdrawn without approval from the Competent Authority.
13. All recharge should be limited to shallow aquifer
14. No ground water shall be used during construction phase of the project.




15. Any ground water dewatering should be properly managed and shall conform to the approvals and the guidelines of the CGWA in the matter. Formal approval shall be taken from the CGWA for any ground water abstraction or dewatering.
 16. The quantity of fresh water usage, water recycling and rainwater harvesting shall be measured and recorded to monitor the water balance as projected by the project proponent. The record shall be submitted to the Regional Office, MoEF&CC along with six monthly Monitoring reports.
 17. Sewage shall be treated in the STP with tertiary treatment. The treated effluent from STP shall be recycled/re-used for flushing, AC make up water and gardening. As proposed, no treated water shall be disposed in to municipal drain.
 18. No sewage or untreated effluent water would be discharged through storm water drains.
 19. Onsite sewage treatment of capacity of treating 100% waste water to be installed. The installation of the Sewage Treatment Plant (STP) shall be certified by an independent expert and a report in this regard shall be submitted to the Ministry before the project is commissioned for operation. Treated waste water shall be reused on site for landscape, flushing, cooling tower, and other end-uses. Excess treated water shall be discharged as per statutory norms notified by Ministry of Environment, Forest and Climate Change. Natural treatment systems shall be promoted.
 20. Periodical monitoring of water quality of treated sewage shall be conducted. Necessary measures should be made to mitigate the odour problem from STP.
 21. Sludge from the onsite sewage treatment, including septic tanks, shall be collected, conveyed and disposed as per the Ministry of Urban Development, Central Public Health and Environmental Engineering Organization (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.
 22. Separate drainage system shall be developed for storm water so that end point discharge to nearest nallah /river is ensured to avoid water logging without any increase in the pollution load in receiving system.
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IV. Noise monitoring and prevention:


1. Ambient noise levels shall conform to residential area / commercial area / industrial area / silence zone both during day and night as per Noise Pollution (Control and Regulation) Rules, 2000. Incremental pollution loads on the ambient air and noise quality shall be closely monitored during construction phase. Adequate measures shall be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB / SPCB.
2. Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
3. Acoustic enclosures for DG sets, noise barriers for ground-run bays, ear plugs for operating personnel shall be implemented as mitigation measures for noise impact due to ground sources.
4. Real time Ambient Noise level shall be measured on continuous basis and the data shall be displayed in public domain and on the portal of hospital. The measured data shall be linked to the server of the State Pollution Control Board

V. Energy Conservation measures:

1. Compliance with the Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency shall be ensured. Buildings in the States which have notified their own ECBC, shall comply with the State ECBC.
 2. Outdoor and common area lighting shall be LED.
 3. Concept of passive solar design that minimize energy consumption in buildings by using design elements, such as building orientation, landscaping, efficient building envelope, appropriate fenestration, increased day lighting design and thermal mass etc. shall be incorporated in the building design. Wall, window, and roof u-values shall be as per ECBC specifications.
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4. Energy conservation measures like installation of CFLs/ LED for the lighting the area outside the building should be integral part of the project design and should be in place before project commissioning.
5. Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to 1% of the demand load or as per the state level/ local building bye-laws requirement, whichever is higher.
6. Solar power shall be used for lighting in the apartment to reduce the power load on grid. Separate electric meter shall be installed for solar power. Solar water heating shall be provided to meet 20% of the hot water demand of the commercial and institutional building or as per the requirement of the local building bye-laws, whichever is higher. Residential buildings are also recommended to meet its hot water demand from solar water heaters, as far as possible.

VI. Waste Management:

1. A certificate from the competent authority handling municipal solid wastes, indicating the existing civic capacities of handling and their adequacy to cater to the M.S.W. generated from project shall be obtained.
 2. Proper composting / vermi-composting of municipal and biodegradable solid wastes shall be carried out. All municipal solid wastes shall be segregated, collected, transported, treated and disposed as per provisions of the Municipal Solid Wastes (Management and Handling) Rules, 2000 (As amended).
 3. All the top soil excavated during construction activities shall be stored for use in horticulture/landscape development within the project site.
 4. Disposal of muck during construction phase shall not create any adverse effect on the neighboring communities and shall be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.
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5. Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste. Solid waste shall be segregated into wet garbage and inert materials.
6. Organic waste compost/ Vermiculture pit/ Organic Waste Converter within the premises with a minimum capacity of 0.3 kg /person/day must be installed.
7. All non-biodegradable waste shall be handed over to authorized recyclers for which a written tie up must be done with the authorized recyclers.
8. Any hazardous waste generated during construction phase, shall be disposed off as per applicable rules and norms with necessary approvals of the State Pollution Control Board.
9. Use of environment friendly materials in bricks, blocks and other construction materials, shall be required for at least 20% of the construction material quantity. These include Fly Ash bricks, hollow bricks, AACs, Fly Ash Lime Gypsum blocks, Compressed earth blocks, and other environment friendly materials.
10. Fly ash should be used as building material in the construction as per the provision of Fly Ash Notification of September, 1999 and amended as on 27th August, 2003 and 25th January, 2016, Ready mixed concrete must be used in building construction.
11. Any wastes from construction and demolition activities related thereto shall be managed so as to strictly conform to the Construction and Demolition Rules, 2016.
12. Used CFLs and TFLs should be properly collected and disposed off/sent for recycling as per the prevailing guidelines/ rules of the regulatory authority to avoid mercury contamination.

VII. Green Cover:

1. No tree can be felled unless exigencies demand. Wherever absolutely necessary, tree felling shall be done with prior permission from the concerned regulatory authority. Plantations to be ensured in the ratio of species cut to species planted.

2. 44% of the total plot area shall be kept under Green Belt cover within the Project site.
3. Project Proponent to prepare a 10 years Green Belt Management Plan and submit to SEIAA before commencing the project work.
4. Where the trees need to be cut with prior permission from the concerned local Authority, compensatory plantation in the ratio of 1:10 (i.e. planting of 10 trees for every 1 tree that is cut) shall be done and maintained. Plantations to be ensured in the ratio of species cut to species planted. Area for green belt development shall be provided as per the details provided in the project document.
5. Topsoil should be stripped to a depth of 20 cm from the areas proposed for buildings, roads, paved areas, and external services. It should be stockpiled appropriately in designated areas and reapplied during plantation of the proposed vegetation on site.

VIII. Transport:

1. A comprehensive mobility plan, as per MoUD best practices guidelines (URDPFI), shall be prepared to include motorized, non-motorized, public, and private networks. Road should be designed with due consideration for environment, and safety of users. The road system can be designed with these basic criteria.
 - a. Hierarchy of roads with proper segregation of vehicular and pedestrian traffic.
 - b. Traffic calming measures.
 - c. Proper design of entry and exit points.
 - d. Parking norms as per local regulation.
2. Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to applicable air and noise emission standards shall be operated only during non peak hours.
3. A detailed traffic management and traffic decongestion plan shall be drawn up to ensure that the current level of service of the roads within a 05 kms radius of the project is maintained and improved upon after the implementation of the project. This plan should be based on cumulative impact of all development and increased habitation being carried

out or proposed to be carried out by the project or other agencies in this 05 Kms radius of the site in different scenarios of space and time and the traffic management plan shall be duly validated and certified by the State Urban Development department and the P.W.D. / competent authority for road augmentation and shall also have their consent to the implementation of components of the plan which involve the participation of these departments.

IX. Human health issues:

1. All workers working at the construction site and involved in loading, unloading, carriage of construction material and construction debris or working in any area with dust pollution shall be provided with dust mask.
2. For indoor air quality the ventilation provisions as per National Building Code of India shall be followed.
3. Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
4. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
5. Occupational health surveillance of the workers shall be done on a regular basis.
6. A First Aid Room shall be provided at project site both during construction phase as well as operational phase of the project.


X. Corporate Environment Responsibility:

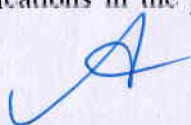
1. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.

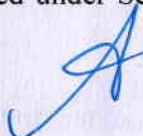


2. The company / management shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions. The company / management shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the SEIAA, Bihar as a part of six-monthly report.
3. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly report to the head of the organization.
4. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the SEIAA/ Ministry, Regional Office along with the Six Monthly Compliance Report.

XI. Miscellaneous:

1. The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded Environment Clearance and the details of MoEF&CC / SEIAA website where it is displayed.
 2. 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.
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3. All utility lines (electricity, telephone, cable, water supply, sewage, drainage, etc. shall be laid below ground level. Ducts shall be provided along and across the roads to lay the utility lines. Major trunk (water/sewerage) lines are to be laid along the utility corridor.
 4. Rest room facilities shall be provided for service population.
 5. Food waste management facility Bio-composting unit preferably in the campus.
 6. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
 7. The project proponent shall abide by all the commitments and recommendations made in the EIA / EMP report, commitment made during their presentation to the State Expert Appraisal Committee.
 8. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
 9. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
 10. The project proponent shall inform the SEIAA, Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
 11. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
 12. No further expansion or modifications in the project shall be carried out without prior approval of the SEIAA.
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13. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
 14. The SEIAA may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
 15. The SEIAA reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
 16. The Regional Office of this Ministry/ SEIAA shall monitor compliance of the stipulated conditions. The project authorities shall extend full cooperation to the officer (s) of the Regional Office / SEIAA, Bihar by furnishing the requisite data / information / monitoring reports etc.
 17. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
 18. Environmental clearance shall remain valid for a maximum period of 7 years or completion of project whichever is earlier.
 19. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
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Annexure - II

1. Scope of EIA Study:

The EIA Report should identify the relevant environmental concerns and focus on potential impacts that may change due to the construction of proposed project. Based on the baseline data collected for three (3) seasons (Pre-monsoon, Monsoon and Winter seasons), the status of the existing environment in the area and capacity to bear the impact on this should be analyzed. Based on this analysis, the mitigation measures for minimizing the impact shall be suggested in the EIA/EMP study.

2. Details of the Project and Site:

- General introduction about the proposed project.
- Details of Project and site giving L-Sections of all U/S and D/S Projects with all relevant maps and figures. Connect such information as to establish the total length of interference of Natural River and the committed unrestricted release from the site of Dam / Barrage into the main river.
- A map of boundary of the project site giving details of protected areas in the vicinity of 25 km of project location.
- Location details on a map of the project area with contours indicating main project features. The project layout shall be superimposed on a contour map of ground elevation showing main project features (viz. location of dam, Head works, main canal, branch canals, quarrying etc.) shall be depicted in a scaled map.
- Layout details and map of the project along with contours with project components clearly marked with proper scale maps of at least 1:50,000 scale and printed at least on A3 scale for clarity.
- Existence of National Park, Sanctuary, Biosphere Reserve etc. in the study area, if any, should be detailed and presented on a map with distinct distances from the project components.
- Drainage pattern and map of the river catchment up to the proposed project site.

- Delineation of critically degraded areas in the directly draining catchment on the basis of Silt Yield Index as per the methodology of Soil and Land use Survey of India.
- Soil characteristics and map of the project area.
- Geological and Seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal sites.
- Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color Composite (FCC) generated from satellite data of project area.
- Land details including forests, private and other land.
- Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability.

3. Description of Environment and Baseline Data:

To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socioeconomic status etc. should be collected within 10 km radius of the main components of the project / site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline studies should be collected for 1 season (Preferably Monsoon season). Flora-Fauna in the catchment and command area should be documented. The study area should comprise of the following:

- Catchment area up to the dam/barrage site.
- Submergence Area.
- Project area or the direct impact area should comprise of area within 10 km radius of the main project components like dam, canals etc.

- Downstream upto 10 km from the tip of the reservoir.

4. Details of the Methodology:

The methodology followed for collection of base line data along with details of number of samples and their locations in the map should be included. Study area should be demarcated properly on the appropriate scale map. Sampling sites should be depicted on map for each parameter with proper legends. For Forest Classification, Champion and Seth (1968) methodology should be followed.

5. Methodology for Collection of Biodiversity Data:

- The number of sampling locations should be adequate to get a reasonable idea of the diversity and other attributes of flora and fauna. The guiding principles should be the size of the study area (larger area should have larger number of sampling locations) and inherent diversity at the location, as known from secondary sources (e.g. eastern Himalayan and low altitude sites should have a larger number of sampling locations owing to higher diversity).
- The entire area should be divided in grids of 5kmX5km preferably on a GIS domain. There after 25% of the grids should be randomly selected for sampling of which half should be in the directly affected area (grids including project components such as reservoir, dam, powerhouse, tunnel, canal etc.) and the remaining in the rest of the area (areas of influence in 10 km radius from project components). At such chosen location, the size and number of sampling units (e.g. quadrates in case of flora/transects in case of fauna) must be decided by species area curves and the details of the same (graphs and cumulative number of species in a tabulated form) should be provided in the EIA report. Some of the grids on the edges may not be completely overlapping with the study area boundaries. However these should be counted and considered for selecting 25% of the grids. The number of grids to be surveyed may come out as a decimal number (i.e. it has an integral and a fractional part) which should be rounded to the next whole number.

- The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behavior. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature from the entire state can be referred to. Once a listing of possible r.e.t. species from the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.
- The R.E.T. species referred to in this point should include species listed in Schedule I and II of Wildlife (Protection) Act, 1972 and those listed in the red data books (BSI, ZSI and IUCN).

6. Components of the EIA Study:

Various aspects to be studied and provided in the EIA/EMP report are as follows:

A. Physical and Chemical Environment

Geological & Geophysical Aspects and Seismo- Tectonics:

- Physical geography, Topography, Regional Geological aspects and structure of the Catchment.
- Tectonics, seismicity and history of past earthquakes in the area. A site specific study of the earthquake parameters will be done. The results of the site specific earthquake design

shall be sent for approval of the NCSDP (National Committee of Seismic Design Parameters, Central water Commission, New Delhi for large dams.

- Landslide zone or area prone to landslide existing in the study area should be examined.
- Presence of important economic mineral deposit, if any.
- Justification for location & execution of the project in relation to structural components (dam /barrage height).
- Impact of project on geological environment.

Meteorology, Air and Noise:

- Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD station.
- Ambient Air Quality with parameters viz. Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM) i.e. suspended particulate materials < 10 microns, Sulphur dioxide (SO₂) and Oxides of Nitrogen (NOX) in the study area at 5-6 Locations.
- Existing Noise Levels and traffic density in the study area at 5-6 Locations.

Soil Characteristic:

- Soil classification, physical parameters (viz., texture, Porosity, Bulk Density and water holding capacity) and chemical parameters (viz. pH, electrical conductivity, magnesium, calcium, total alkalinity, chlorides, sodium, potassium, organic carbon, available potassium, available phosphorus, SAR, nitrogen and salinity, etc.) at @ one sample/ha of command area.

Remote Sensing and GIS Studies:

- Generation of thematic maps viz, slope map, drainage map, soil map, land use and land cover map, etc. Based on these, thematic maps, an erosion intensity map should be prepared.

- New configuration map to be given in the EIA Report.

Water Quality:

- History of the ground water table fluctuation in the study area.
- Water Quality for both surface water and ground water for [i] Physical parameters (pH, Temperature, Electrical Conductivity, TSS); [ii] Chemical parameters (Alkalinity, Hardness, BOD, COD, NO₃, PO₄, Cl, SO₄, Na, K, Ca, Mg, Silica, Oil & grease, phenolic compounds, residual sodium carbonate); [iii] Bacteriological parameter (MPN, Total coliform); and [iv] Heavy Metals (Pb, As, Hg, Cd, Cr-6, Total Cr, Cu, Zn, Fe) at minimum 10 Locations, however, the sampling numbers should be increased depending on the command area.
- Delineation of sub and micro watersheds, their locations and extent based on the Soil and Land Use Survey of India (SLUSOI), Department of Agriculture, Government of India. Erosion levels in each micro-watershed and prioritization of micro-watershed through Silt Yield Index (SYI) method of SLUSOI.

B. Water Environment & Hydrology

- Hydro-Meteorology of the project viz. precipitation (snowfall, rainfall), temperature, relative humidity, etc. Hydro-meteorological studies in the catchment area should be established along-with real time telemetry and data acquisition system for inflows monitoring.
- Run off, discharge, water availability for the project, sedimentation rate, etc.
- Basin Characteristics.
- Catastrophic events like cloud bursts and flash floods, if any, should be documented.
- For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The study should be conducted for minimum one year. Actual silt flow rate to be expressed in ha-m km⁻² year⁻¹.

- Set-up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation.
- Flow series, 10 daily with 90%, 75% and 50% dependable years discharges.
- Environmental flow release should be 20% of the average of the 4 lean months of 90% dependable year during the lean season and 30% of Monsoon flow during monsoon season. For remaining months, the flow shall be decided by the Committee based on the hydrology and available discharge.
- A site specific study on minimum environment flow should be carried out.

C. Biological Environment

Flora

- Characterization of forest types (as per Champion and Seth method) in the study area and extent of each forest type as per the Forest Working Plan.
- General vegetation profile and floral diversity covering all groups of flora including Bryophytes, Pteridophytes, Lichens and Orchids. A species wise list may be provided.
- Assessment of plant species with respect to dominance, density, frequency, abundance, diversity index, similarity index, importance value index [IVI], Shannon Weiner Index etc. of the species to be provided. Methodology used for calculating various diversity indices along with details of locations of quadrates, size of quadrates etc. to be reported within the study area in different ecosystems.
- Existence of National Park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed.
- Economically important species like medicinal plants, timber, fuel wood etc.
- Details of endemic species found in the project area.
- Flora under RET categories should be documented using International Union for the Conservation of Nature and Natural Resources (IUCN) criteria and Botanical Survey of

India's Red Data list along with economic significance. Species diversity curve for RET species should be given.

Fauna

- Fauna study and inventorisation should be carried out for all groups of animals including reptiles and nocturnal animals in the study area. Their present status along with Schedule of the species.
- Information (authenticated) on Avi-fauna and wild life in the study area.
- Status of avifauna their resident/migratory/ passage migrants etc.
- Documentation of butterflies, if any, found in the area.
- Details of endemic species found in the project area.
- RET species- voucher specimens should be collected along with GPS readings to facilitate rehabilitation. RET faunal species to be classified as per IUCN Red Data list and as per different schedule of Indian Wildlife (Protection) Act, 1972.
- Existence of barriers and corridors, if any, for wild animals.
- Compensatory afforestation to compensate the green belt area that will be removed, if any, as part of the proposed project development and loss of biodiversity.
- For categorization of sub-catchments into various erosion classes and for the consequent CAT plan, the entire catchment (Indian Portion) is to be considered and not only the directly the draining catchment.

D. Aquatic Ecology

- Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplanktons, benthos etc.
- Fish and fisheries, their migration and breeding grounds.

- Fish diversity, composition and maximum length & weight of the measured populations to be studied for estimation of environmental flow.
- Conservation status of aquatic fauna.

E. Irrigation and Cropping Pattern

- Cropping pattern and Horticultural practices in the study area.
- Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities component.
- Component of pressurized/drip irrigation and micro irrigation.
- Details of Conjunctive use of water for irrigation.

F. Socio-Economic

- Collection of Baseline data on human settlements, health status of the community and existing infrastructure facilities for social welfare including sources of livelihood, job opportunities and safety and security of workers and surrounding population.
- Collection of information with respect to social awareness about the developmental activity in the area and social welfare measures existing and proposed by project proponent.
- Collection of information on sensitive habitat of historical, cultural and religious and ecological importance.
- The Socio-economic survey/profile within 10 Km of the study area for Demographic profile; Economic Structure; Development Profile; Agricultural Practices; Infrastructure, education facilities; health and sanitation facilities; available communication network etc.
- Documentation of Demographic, Ethnographic, Economic structure and development profile of the area.
- Information on Agricultural practices, Cultural and aesthetic sites, Infrastructure facilities etc.

- Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
- List of all the Project Affected Families with their names, education, land holdings, other properties, occupation, source of income, land and other properties to be acquired, etc.
- In addition to Socio-economic aspects of the study area, a separate chapter on socio-cultural aspects based upon study on Ethnography of the area should be provided.

7. Impact Prediction and Mitigation Measures

The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described.

Air Environment

- Changes in ambient and ground level concentrations due to total emissions from point, line and area sources.
- Effect on soils, material, vegetation and human health.
- Impact of emissions from DG sets used for power during the construction, if any, on air environment.
- Pollution due to fuel combustions in equipments & vehicles.
- Fugitive emissions from various sources.
- Impact on micro climate.

Water Environment

- Changes in surface & ground water quality.
- Steps to develop pisci-culture and recreational facilities.
- Changes in hydraulic regime and down stream flow.
- Water pollution due to disposal of sewage.

- Water pollution from labour colony/camps and washing equipment.

Land Environment

- Adverse impact on land stability, catchment of soil erosion, reservoir sedimentation and spring flow (if any) [a] due to considerable road construction/widening activity [b] interference of reservoir with the inflowing streams [c] blasting for excavation of canals and some other structures.
- Changes in land use/land cover and drainage pattern.
- Immigration of labour population.
- Quarrying operation and muck disposal.
- Changes in land quality including effects of waste disposal.
- River bank and their stability.
- Impact due to submergence.

Biological Environment

- Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc.
- Pressure on existing natural resources.
- Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors.
- Compensatory afforestation-Identification of suitable native tree species for compensatory afforestation & green belt.
- Impact on fish migration and habitat degradation due to decreased flow of water.
- Impact on breeding and nesting grounds of animals and fish.



Socio-economic Aspects

- Impact on local community including demographic profile.
- Impact on socio-economic status.
- Impact on economic status.
- Impact on human health due to water / vector borne disease.
- Impact on increases traffic.
- Impact on Holy Places and Tourism.
- Impacts of blasting activity during project construction which generally destabilize the land mass and lead to landslides, damage to properties and drying up of natural springs and cause noise pollution, will be studied. Proper record shall be maintained of the base line information in the post project period.
- Positive as well as negative impacts likely to be accrued due to the project are to be listed.

8. Environment Impact Analysis

Environmental Impact Analysis due to the project on the above mentioned components should be carried out for construction and operation phases using qualitative or quantitative methods.

9. Environment Management Plan (EMP)

Environmental Management Plan aimed at minimizing the negative impacts of the project should be given in detail. The mitigation measures are to be presented for all the likely adverse impacts on the environment. The following suggestive mitigating plans should be included:

- Catchment Area Treatment (CAT) Plan should be prepared micro-watershed wise. Identification of area for treatment based upon Remote Sensing & GIS methodology and Silt Yield Index (SYI) method of SLUSOI coupled with ground survey. Areas/watersheds falling under 'very severe' and 'severe' erosion categories are required to be treated. Both biological and engineering measures should be proposed in consultation with State Forest

Department. Year-wise schedule of work and monetary allocation should be provided. CAT plan is to be completed prior to reservoir impoundment. Mitigation measures to check shifting cultivation in the catchment area with provision for alternative and better agricultural practices should be included.

- Command Area Development (CAD) Plan giving details of implementation schedule with a sample CAD plan.
- Compensatory Afforestation in lieu of the forest land required for the project needs to be proposed. Choice of plants should be made in consultation with State Forest Department including native and RET species, if any.
- Biodiversity and Wild Life Conservation & Management Plan for conservation and preservation of endemic, rare and endangered species of flora and fauna to be prepared in consultation with State Forest Department.
- Resettlement and Rehabilitation (R&R) Plan need to be prepared with due consultation with Project Affected Families (PAFs). The provision of the R&R plan should be according to the National Resettlement and Rehabilitation Policy (NRRP-2007) as well as State Resettlement and Rehabilitation Policy. Detailed budgetary estimates are to be provided. Resettlement sites should be identified.
- Plan for Green Belt Development along the periphery of reservoir, colonies, approach road, canals etc. to be prepared in consultation with the State Forest Department. Local plant species suitable for greenbelt development should be selected.
- Reservoir Rim Treatment Plan for stabilization of land slide/land slip zones if any, around the reservoir periphery to be prepared. Suitable engineering and biological measures for treatment of the identified slip zones to be provided with physical and financial schedule.
- Plan for Land Restoration and Landscaping of project sites.
- Fisheries Conservation & Management Plan-Fish fauna inhabiting the affected stretch of river, a specific fisheries management plan should be prepared for river and reservoir.

- Muck Disposal Plan- suitable sites for dumping of excavated material should be identified in consultation with the State Pollution Control Board and Forest Department. All Muck disposal sites should be minimum 30 m away from the HFL of river. Plan for rehabilitation of muck disposal sites should also be given. The L- section/ cross section of muck disposal sites and approach roads to be given. Financial out lay for this may be given separately.
- Plan for Restoration of quarry sites and landscaping of colony areas, working areas, roads, etc.
- Study of Design Earthquake Parameters: A site specific study of earthquake parameters should be done. The results of the site specific earth quake design parameters should be approval by National Committee of Seismic Design Parameters, Central Water Commission (NCSDP), New Delhi.
- Dam Break Analysis and Disaster Management Plan: The outputs of Dam Break Model should be illustrated with appropriate graphs and maps clearly bringing out the impact of Dam break scenario. Provision for early warning systems should be provided.
- Water and Air Quality & Noise Management Plans to be implemented during construction and post-construction periods.
- Mitigating measures for impacts due to Blasting on the structures in the vicinity.
- Ground Water Management Plan.
- Public Health Delivery Plan including the provisions for drinking water facility for the local community.
- Labour Management Plan for their Health and Safety.
- Sanitation and Solid Waste Management Plan for domestic waste from colonies and labour camps etc.
- Local Area Development Plan to be formulated in consultation with the Revenue Officials and Village Panchayats. Local skill development schemes should be given. Details of various activities to be undertaken along with its financial out lay should be provided.

- Environmental safeguards during construction activities including Road Construction.
- Energy Conservation Measures.
- Environmental Monitoring Programme with physical & financial details covering all the aspects of EMP. A summary of cost estimate for all the plans, cost for implementing all Environmental Management Plans including the cost for implementing environmental monitoring programme should be given. Provision for an Environmental Management Cell should be made.

In the EMP, also include a sample CAD plan for a distributary outlet command. Such a plan is to show the alignment of irrigation and drainage channels. The components of the OFD works to be undertaken may be clearly mentioned along with a time schedule for their completion vis-à-vis the progress of irrigation development.

Include chapter specific to violation namely-

- i. Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR) institution working in the field of environment.
- ii. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to the violation.
- iii. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter in the EIA report by the accredited consultants.
 - a) The EIA would study the impact of dewatering and draw up an action plan for disposal of the excess water.
 - b) The EIA would study the impact of Demolition and conformance to the Construction and Demolition Rules under the E(P) Act, 1986.
 - c) If applicable, then submit Certified Compliance Report issued by the MoEF&CC, Regional Office or concerned Regional Office of Central

Pollution Control Board or the Member Secretary of the respective State Pollution Control Board for the conditions stipulated in the earlier environmental clearance issued for the project along with an action taken report on issues which have been stated to be partially complied or not / not compiled.

- d) The Air Quality Index shall be calculated for base level air quality.
- e) A detailed report on compliance with ECBC-2017 norms.
- f) A certificate from the local body supplying water, specifying the total annual water availability with the local authority, the quantity of water allotted to the project under consideration and the balance water available. This should be specified separately for groundwater and surface water sources, ensuring that there is no impact on other users.
- g) An assessment of the cumulative impact of all development and increased inhabitation being carried out or proposed to be carried out by the project or other agencies in the core area shall be made for traffic densities and parking capabilities in a 2 km radius from the site. Detailed traffic management and a traffic decongestion plan drawn up through an organization of repute and specializing in Transport Planning shall be submitted with the EIA and the plan to be implemented to the satisfaction of all the concerned state departments and implementing agencies.
- h) The permission of the CGWA for abstraction of groundwater if any and for basement / excavation dewatering if applicable.
- i) A certificate of the adequacy of available power from the agency supplying power to the project along with the load allowed for the project.
- j) A certificate from the competent authority for discharging treated effluent/ untreated effluents into the Public sewer/ disposal / drainage systems along with the final disposal point.
- k) A certificate from the competent authority handling municipal solid wastes, indicating the existing civic capacities of handling and their adequacy to cater to the M.S.W. generated from the project.
- l) The Air Quality Index shall be calculated for base level air quality.

Annexure - III

1. Executive Summary.

2. Introduction.

- i. Details of the EIA Consultant including NABET accreditation.
- ii. Information about the project proponent.
- iii. Importance and benefits of the project.

3. Project Description.

- i. Cost of project and time of completion.
- ii. Products with capacities for the proposed project.
- iii. Details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
- iv. List of raw materials required and their source along with mode of transportation.
- v. Other chemicals and materials required with quantities and storage capacities.
- vi. Details of Emission, effluents, solid waste, hazardous waste generation and their management.
- vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contractual).
- viii. Process description along with major equipments and machineries, process flow sheet (quantative) from raw material to products to be provided.
- ix. Production of a report / certificate from concerned authority enforcing Factory Act regarding suitability of existing unit / plant for proposed expansion mentioning (specially adding one more furnace with all its accessories) whether existing plant is a satisfactory compliant of Factory Act.
- x. The proposal of the expansion of capacity to include thorough renovation / upgradation of all existing infrastructure of the unit consisting development/construction of First aid center/dispensary room for workers, development of facilities (toilets/urinals/washing rooms, canteen etc.)
- xi. Hazard identification and details of proposed safety systems.
- xii. Expansion/modernization proposals:

- a) Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MoEF&CC/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing existing operation of the project from SPCB shall be attached with the EIA-EMP report.
- b) In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification, 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

4. Site Details.

- i. Location of the project site with description of surround covering village, Taluka / Tehsil, District and State, Justification for selecting the site, whether alternative sites were considered.
- ii. A toposheet of the study area of radius of 10 km and site location on 1:50,000 / 1:25,000 scale on an A₃/A₂ sheet. (including all eco-sensitive areas and environmentally sensitive places).
- iii. Details w.r.t. option analysis for selection of site.
- iv. Co-ordinates (lat-long) of all four corners of the site.
- v. Google map-Earth downloaded of the project site.
- vi. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.



- vii. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.
- viii. Landuse break-up of total land of the project site (identified and acquired), government/private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area).
- ix. A list of major industries with name and type within study area (10 km radius) shall be incorporated. Land use details of the study area.
- x. Geological features and Geo-hydrological status of the study area shall be included.
- xi. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects).
- xii. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.
- xiii. R&R details in respect of land in line with state Government policy.

5. Environmental Status

- i. Determination of atmospheric inversion level at the project site and site-specific micrometeorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.
- ii. AAQ data (except monsoon) at 8 locations for PM₁₀, PM_{2.5}, SO₂, NO_x, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based as per CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.
- iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with - min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.

- iv. Surface water quality of nearby River (100 meter upstream and downstream of discharge point) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.
- v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC, if yes give details.
- vi. Ground water monitoring at minimum at 8 locations shall be included.
- vii. Noise levels monitoring at 8 locations within the study area.
- viii. Soil Characteristic as per CPCB guidelines.
- ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.
- x. Detailed description of flora and fauna (terrestrial, avifauna and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.
- xi. Socio-economic status of the study area.

6. Impact and Environment Management Plan.

- i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.
- ii. Water Quality modelling - in case of discharge in water body.
- iii. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.

- iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.
- v. Details of stack emission and action plan for control of emissions to meet standards.
- vi. Measures for fugitive emission control.
- vii. Details of hazardous waste generation and their storage, utilization and management. Copies of MoU regarding utilization of solid and hazardous waste in cement plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.
- viii. Proper utilization of fly ash, shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.
- ix. Arrangement of land/alternative sites for green-belt development inside unit or in the proximity of unit.
- x. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.
- xi. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.
- xii. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.
- xiii. Action plan for post-project environmental monitoring shall be submitted.
- xiv. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.

7. Occupational health

- i. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.
- ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre placement and periodical examinations give the details of the same. Details regarding last month analyzed data of above mentioned parameters as per age, sex, duration of exposure and department wise.
- iii. Details of existing Occupational & Safety Hazards. What are the exposure levels of hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,
- iv. Annual report of health status of workers with special reference to Occupational Health and Safety.
- v. Making provisions for all personal safety/security related gears (shoes /hats/ helmets/ jacket/ gloves, specks, ear plugs etc.) for all workers and enforcing use of the same.

8. Corporate Environment Policy

- i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
- ii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
- iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.
- iv. Does the company have system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or

shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report.

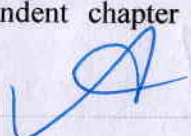
9. Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.

10. Enterprise Social Commitment (ESC)

- i. Adequate funds (at least 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon.

11. Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.

12. Include chapter specific to violation namely-

- i. Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR) institution working in the field of environment.
 - ii. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to the violation.
 - iii. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter in the EIA report by the accredited consultants.
- 


- a) The EIA would study the impact of dewatering and draw up an action plan for disposal of the excess water.
- b) The EIA would study the impact of Demolition and conformance to the Construction and Demolition Rules under the E(P) Act, 1986.
- c) If applicable, then submit Certified Compliance Report issued by the MoEF&CC, Regional Office or concerned Regional Office of Central Pollution Control Board or the Member Secretary of the respective State Pollution Control Board for the conditions stipulated in the earlier environmental clearance issued for the project along with an action taken report on issues which have been stated to be partially complied or not / not compiled.
- d) The Air Quality Index shall be calculated for base level air quality.
- e) A detailed report on compliance with ECBC-2017 norms.
- f) A certificate from the local body supplying water, specifying the total annual water availability with the local authority, the quantity of water allotted to the project under consideration and the balance water available. This should be specified separately for groundwater and surface water sources, ensuring that there is no impact on other users.
- g) An assessment of the cumulative impact of all development and increased inhabitation being carried out or proposed to be carried out by the project or other agencies in the core area shall be made for traffic densities and parking capabilities in a 2 km radius from the site. Detailed traffic management and a traffic decongestion plan drawn up through an organization of repute and specializing in Transport Planning shall be submitted with the EIA and the plan to be implemented to the satisfaction of all the concerned state departments and implementing agencies.
- h) The permission of the CGWA for abstraction of groundwater if any and for basement / excavation dewatering if applicable.
- i) A certificate of the adequacy of available power from the agency supplying power to the project along with the load allowed for the project.

- j) A certificate from the competent authority for discharging treated effluent/ untreated effluents into the Public sewer/ disposal / drainage systems along with the final disposal point.
- k) A certificate from the competent authority handling municipal solid wastes, indicating the existing civic capacities of handling and their adequacy to cater to the M.S.W. generated from the project.
- l) The Air Quality Index shall be calculated for base level air quality.

13. A tabular chart with index for point wise compliance of above ToR.

SPECIFIC TERMS OF REFERENCE FOR EIA STUDIES FOR METALLURGICAL INDUSTRIES (FERROUS & NON FERROUS)

1. Complete process flow diagram describing each unit, its processes and operations, along with material and energy inputs & outputs (material and energy balance).
2. Details on blast furnace/ open hearth furnace/ basic oxygen furnace/ladle refining, casting and rolling plants etc.
3. Details on installation/activation of opacity meters with recording with proper calibration system.
4. Details on toxic metals including mercury, arsenic and fluoride emissions.
5. Details on stack height requirement for integrated steel.
6. Details on ash disposal and management -Non-ferrous metal.
7. Complete process flow diagram describing production of lead/zinc/copper/ aluminium, etc.
8. Raw materials substitution or elimination.
9. Details on smelting, thermal refining, melting, slag fuming, and Waelz kiln operation.
10. Details on Holding and de-gassing of molten metal from primary and secondary aluminum, materials pre-treatment, and from melting and smelting of secondary aluminium.
11. Details on solvent recycling.
12. Details on precious metals recovery.

13. Details on composition, generation and utilization of waste/fuel gases from coke oven plant and their utilization.
 14. Details on toxic metal content in the waste material and its composition and end use (particularly of slag).
 15. Trace metals Mercury, arsenic and fluoride emissions in the raw material.
 16. Trace metals in waste material especially slag.
 17. Plan for trace metal recovery.
 18. Trace metals in water.
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Annexure - IV

I. Statutory compliance:

- i. The project proponent shall obtain Consent to Establish /Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/Committee.
- ii. Necessary authorization required under the Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016 shall be obtained and the provisions contained in the Rules shall be strictly adhered to.
- iii. During construction phase, air pollution and solid waste management aspects need to be properly addressed ensuring compliance of the Construction and Demolition Waste Management Rules, 2016.
- iv. The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.
- v. The company should obtain all requisite clearances for fire safety and explosives and should comply with the stipulation made by the respective authorities.
- vi. Necessary approvals from Chief Controller of Explosives must be obtained before commission of project, if applicable.
- vii. The project proponent shall obtain and adhere to statutory clearance under the Coastal Regulation Zone Notification, 2011, as applicable

II. Air quality monitoring and preservation

- i. The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be complied with.
- ii. The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one stations each in installed in the upwind and downwind direction as well as where maximum level concentrations are anticipated.
- iii. Regularly monitoring of VOC and HC in the work zone area in the plant premises should be carried out data be submitted to Ministry's Regional Office, CPCB and State Pollution Control Board. Quarterly monitoring for fugitive emissions should be carried out as per the guidelines of CPCB and reports submitted to Ministry's Regional Office.

- iv. During storage and handling, the fugitive emission of methane, if any, shall be monitored using Infra-red camera/appropriate technology.
- v. The project proponent also to ensure trapping/ storing of the CO₂ generated, if any, during the process and handling.
- vi. The DG sets shall be equipped with suitable pollution control devices and the adequate stack height so that the emissions are in conformity with the extant regulations and the guidelines in this regard.
- vii. Water sprinkling has to be undertaken on regular basis to control the polluting particles.
- viii. Approach road shall be made Pucca to minimize generation of suspended dust.
- ix. Mist spraying system for dust suppression in the campus.
- x. Real time Ambient Air Quality shall be measured on continuous basis and and the data shall be displayed in public domain as per National Ambient Air Quality parameters. The measured data shall be linked to the server of the State Pollution Control Board.

III. Water quality monitoring and preservation

- i. As already committed by the project proponent, Zero Liquid Discharge shall be ensured (applicable in case of the projects achieving the ZLD).
- ii. The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and utilize the same for different industrial operations within the plant.

IV. Noise monitoring and prevention

- i. Acoustic enclosure shall be provided to DG set for controlling the nose pollution.
- ii. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation.
- iii. The ambient noise levels shall conform to the standards prescribed under Environment (protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).

V. Energy Conservation measures

- i. The energy sources for lighting purposes shall preferably be LED based.

VI. Waste management

- i. Oil spillage prevention and mitigation scheme shall be prepared. In case of oil spillage/contamination, The recyclable waste (oily sludge) and spent oil shall be disposed of to the authorized recyclers.

VII. Green Belt

- i. The green belt of 5-10 m width shall be developed in more than 33% of the total project area, mainly along the plant periphery, in downward wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.

VIII. Safety, Public hearing and Human health issues

- i. Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and guidelines prepared by OISD, DGMS and Govt. of India. Mock drill should be conducted once in a month. Onsite and off-site Disaster Management plan shall be implemented.
- ii. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.
- iii. Additional safety measures should be taken by using remote operated shut off valve, double block & bleed valve (DBB), impervious dyke wall and un-bonded flexible roof drain pipe, if applicable.
- iv. High and low-level alarms shall be fitted to plant storage tanks which can detect overfilling. However, proper supervision shall be done every time.
- v. Unit should carry out safety audit and report submitted to the Regional Office.
- vi. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water. Medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- vii. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

IX. Corporate Environment Responsibility

- i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.
- ii. The company shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/ deviation/violation of the environmental / forest/ wildlife norms/ conditions. The company shall have defined system of reporting infringements/ deviation/ violation of the environmental/ forest/ wildlife norms/ conditions and / or shareholders/ stake holders. The copy of the board resolution in this regard shall be submitted to the SEIAA, Bihar / Regional office of MoEF&CC, Ranchi as part of six-monthly report.
- iii. A separate Environmental Cell equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
- iv. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the SEIAA, Bihar / Regional Office of MoEF&CC, Ranchi along with the Six Monthly Compliance Report.
- v. Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.

X. Miscellaneous

- i. The project proponent shall make public the environmental 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, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.



- ii. 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.
- iii. The project proponent shall upload the status of compliance of the stipulated Environment Clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall submit Six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- v. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vi. The project proponent shall inform the Regional Office of MoEF&CC, Ranchi as well as the SEIAA, Bihar, the date of commencing the land development work and completion of the project.
- vii. Restoration of the project site shall be carried out satisfactorily and report shall be sent to the Ministry's Regional office / SEIAA, Bihar.
- viii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- ix. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during public Hearing and also that during their presentation to the Expert Appraisal Committee.
- x. No further expansion or modifications in the plant shall be carried out without prior approval of the SEIAA, Bihar / MoEF&CC, New Delhi.
- xi. Concealing factual data or submission of false/ fabricated data may result in revocation of this environment clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xii. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- xiii. The SEIAA, Bihar reserves the right to stipulate additional conditions if found necessary. The company in time bound manner shall implement these conditions.
- xiv. The Regional Office of the Ministry / SEIAA, Bihar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s)

of the Regional office / SEIAA, Bihar by furnishing the requisite data/ information/ monitoring reports.

- xv. The above conditions shall be enforced, inter-alia under the provisions of the Water (prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 and the public Liability Insurance Act, 1991 along with their amendments and Rules.
- xvi. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

XI. Miscellaneous (applicable only for LPG storage)

- i. No packing/ loading/unloading of LPG cylinders shall be made on road/outside factory premises. Vehicles loaded/ unloaded with LPG cylinders shall be parked inside the plant premises only and not on road sides.
- ii. The proponent shall strictly follow Oil Industry Safety Directorate (OISD) norms/guidelines for installation and design of equipments and operation of the LPG Bottling Plants.
- iii. Cylinders should be filled with the LPG and should never be over-filled. Cylinders should be checked before and after filling to ensure that are fit to fill, have been correctly filled, are gas tight and will be trouble-free in service.
- iv. Cylinder filling operations should be carried out in accordance with a reputable technical standard or code such as ISO 10691.
- v. Road tankers should be equipped to the standard specified in national regulations reputable code. Vehicles should be mobilized during transfer operations and equipped to prevent untimely movement. Loading/ unloading bays should be protected against impact. Fire-resistant coatings shall be provided to tanks/vessels.
- vi. Sections of pipeline and storage systems that can be isolated with valves or blinds should be equipped with safety valves to protect against possible damage as liquid LPG expands with increases in temperature.
- vii. The norms/ guidelines of Oil Industry Safety Directorate (OISD) for installation and design of equipments and operation of the LPG Bottling Plants shall be strictly followed. Safety audit to be carried out and report submitted to the Regional Office.
- viii. The project proponent shall conduct a traffic density survey on the approach road to be used for transportation of LPG tankers and LPG cylinders.

- ix. Static electricity discharge shall be checked. Steel structures and pipeline should be securely earthed. Road tankers should be bonded to earth before LP Gas transfers commence and remain so until the operation is complete and the hose is disconnected.
- x. The proponent shall strictly comply with Government of India's Gas Cylinder Rules and its amendments.



Annexure - V

1. A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
2. All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
3. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
4. Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
5. Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
6. It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

7. Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
8. The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
9. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
10. Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
11. A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
12. Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
13. Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
14. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.



15. A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
16. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger / Elephant Reserves / (existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
17. A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
18. Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
19. Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects



falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

20. R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
21. One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM₁₀, particularly for free silica, should be given.
22. Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.



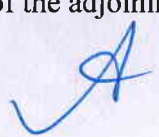
23. The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
24. Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
25. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
26. Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
27. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
28. Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
29. Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
30. A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The

plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

31. Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
32. Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
33. Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
34. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
35. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
36. Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
37. Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and

grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

38. Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
41. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
42. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
43. Besides the above, the below mentioned general points are also to be followed:-
 - a) Executive Summary of the EIA/EMP Report.
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC / NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

- g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with then revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.
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The first objective of the study was to determine the effect of the treatment on the growth of the fish. The second objective was to determine the effect of the treatment on the survival of the fish. The third objective was to determine the effect of the treatment on the feed conversion ratio of the fish.

The results of the study showed that the treatment had a significant effect on the growth of the fish. The growth of the fish in the treatment group was significantly higher than the growth of the fish in the control group. The results also showed that the treatment had a significant effect on the survival of the fish. The survival of the fish in the treatment group was significantly higher than the survival of the fish in the control group. Finally, the results showed that the treatment had a significant effect on the feed conversion ratio of the fish. The feed conversion ratio of the fish in the treatment group was significantly lower than the feed conversion ratio of the fish in the control group.

In conclusion, the study showed that the treatment had a significant effect on the growth, survival, and feed conversion ratio of the fish. The treatment was found to be effective in improving the growth, survival, and feed conversion ratio of the fish. Therefore, the treatment can be recommended for use in fish farming.

The study was conducted in a controlled environment. The fish were kept in tanks and fed a standard diet. The treatment was applied to the fish in the treatment group. The growth, survival, and feed conversion ratio of the fish were monitored throughout the study.

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