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Performance Appraisal of Environmental Clearance in West Bengal, 2016

The EIA process as contemplated under the EIA Notification, 2006 requires detailed scrutiny of the EIA Report as well as the outcome of the public consultation process. The quality of decision making can be judged based on the proceedings of the SEIAA as well as SEIAA. An analysis of the proceedings of the State Environment Impact Assessment Authority and the State Level Expert Appraisal Committee was carried out for the year 2016. A total of 203 different projects were considered by SEIAA in 22 meetings spread over the year 2016. Out of the 203 projects, 75 projects were granted environmental clearance where as 4 projects were not granted environmental clearance by SEIAA.

The Building and Construction sector accounts for nearly 70 % of the projects appraised. Clearly, the given the huge natural resource needs of this sector, there is bound to be impacts on other sector. It is natural therefore that cement plant, which is also an input for the construction sector, stand next in line with 7% of the projects appraised. Synthetic organic chemicals projects account for 3% of the project, whereas sponge iron plants account for another 5% of the project appraised and granted environmental clearance. This sector has very high pollution potential, yet there is nothing in the proceedings of the SEIAA as well as SEAC which reflects that there was no seriousness on the part of the Authority to undertake a 'detailed scrutiny' with respect to the pollution potential.

The information provided in the SEIAA minutes was inadequate to the extent that none of the minutes mentioned the corresponding SEAC minutes in which the projects were discussed in detail. Given this scenario, minute of individual SEAC meeting were studied for the year 2016 which was not necessarily corresponding to the respective SEIAA meetings. During analyzing SEAC meeting minutes, it was observed that the SEAC minutes also lack detailed information about the project per se, the location, plot area, sources of water and power supply to the site during

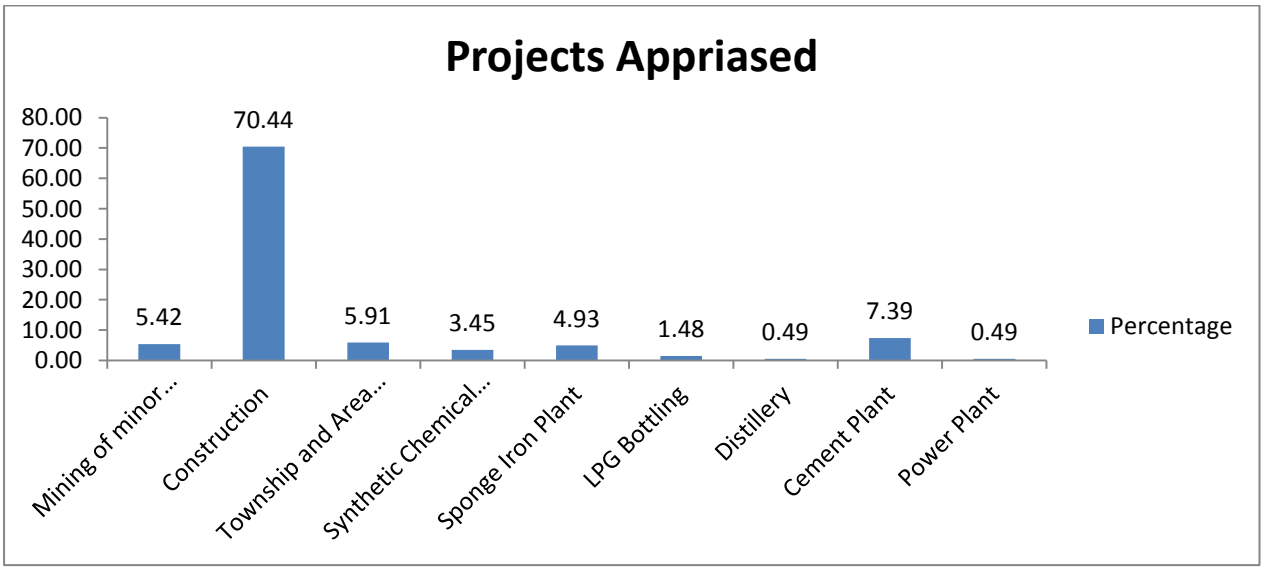
construction as well as operation phase, details about proposed environmental management plan and any other information.

None of the minutes of meetings listed the various general and/or specific conditions while granting and/ or recommending the project for Environmental Clearance . The extent of discussion with respect to air pollution were generic and only extended to dust suppression, green belt, parking area and ambient air quality being below the prescribed CPCB standards. Even, it did not consider the type, location, size and capacity of the project concerned.

It was found that, the discussion on air pollution and its mitigation measures was limited to the water sprinkling during construction phase of any project, parking and traffic management details for building and construction sector without focusing on the potential impacts on air quality which might arise from the increased vehicular movements; consideration of only criteria pollutants (PM10, PM2.5, SO_2, NOx) for monitoring of baseline concentration as well as future impact modelling and ignorance toward the concentration of other process related pollutant emission.

The overall analysis of the proceedings before the SEAC and SEIAA clearly reveals a lack of seriousness on the part of the members of these bodies to undertake the detailed scrutiny which is required under the EIA Notification. The projects were considered in a mechanical manner and approval were granted without consideration of any key environmental issues. Issues concerning air pollution specially with respect to sponge iron plants as well as synthetic organic chemicals were not even discussed. Minutes lack any information on the appraisal proceedings followed for sponge iron plant. There is thus an urgent need to review the functioning of both SEIAA as well as SEAC in order to ensure that they comply with the aims and objective of the EIA Notification, 2006.

SECTOR SPECIFIC ANALYSIS



1. Building and Construction Projects

Building and construction projects are appraised as Category 8 (a) as well as category 8 (b) under EIA Notification, 2006[1]. The SEAC appraises category 8 (a) project. A total of 136 projects out of 203 projects which were appraised by SEAC, during the period of one year in 2016 were building and construction project. Out of the total of 136 projects, 40 projects were granted Environmental Clearance and 23 were deferred back. Out of these 48 projects, 13 projects were deferred to SEAC for conducting site visits on the basis of ADJM court order[2]. One project was rejected in the 39th meeting of SEIAA dated 14.01.2016. 57 projects were deferred back asking for additional documents required for proper appraisal. 7 proposals were for construction of IT & ITES, out of which 4 projects were granted EC. 12 proposals were up for construction of Township & Area development projects in the year 2016, out of which 7 projects granted EC.

A close look at the clearance granting procedure of building construction sector found that following discussions took place which has direct/indirect consequences on air environment.

- Use of good quality vehicles and use of low sulphur diesel based diesel generator sets to keep the emission within standard;
- Internalization of parking without putting burden on public space, so as to avoid traffic congestion; however the information in terms of present level of transport infrastructure and measures proposed for improvement was not detailed out in the minutes of SEAC.
- Adoption of dust control measures including spraying of water, peripheral barricading, covered shedding for cement and other raw material handling and loading area, covering of the excavated earth with tarpaulin sheet etc;

Analysis

It has been found that, the majority of the units are planning to dispose of the solid waste at the landfill site run by the local authority. According to the Solid Waste Management Rules 2016, all gated communities and institutions with more than 5,000 sqm area shall, within one year from the date of notification of these rules and in partnership with the local body, ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorizsd recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body[3].

All resident welfare and market associations shall, within one year from the date of notification of these rules and in partnership with the local body ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection

[1] Building and construction projects having built-up area of more than or equal to 20,000 sqm and less than 1,50,000 sqm is considered as 8(a) projects and townships and area development projects covering an area of greater or equal to 50 ha and or built up area of greater or equal to 1,50,000 sqmis considered as Category 8(b)

[2] No details of AIDM Court order was mentioned in the SEAC or SEIAA minutes

[3] Para 7 of Rule 4 (Duties of Waste Generators) of Solid Waste Management Rules 2016

of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body[4].

In absence of such provision in the minutes of the meeting will pave the way for the proponent to increase landfill burden, which is already a source of methane gas emission into the air.

The details of traffic management and energy management in the existing scenario and the cumulative impacts from the proposed projected scenario have not been studied in many of the times. For example, in a proposed stadium having capacity of 32000 persons, parking provision were kept for only 1600 cars. In absence of the information on the existing traffic scenario in that area, the probable cumulative impacts from the proposed vehicular movement of additional 1600 cars have not been predicted.

In absence of this information, change in the air quality can hardly be determined; the minutes of meeting have also not detailed out the background air quality level as well as the incremental increase based on the dispersion model taking into consideration the increased traffic level and the impact of DG set operation on the air quality around the project site. This is a gross violation of Appendix II to be read with Para 6 of the EIA Notification[5].

Besides legal non compliance, health impact from the traffic congestion can also not be ignored. According to a study, titled "Air Pollution and Health Risks Due to Vehicular Traffic", "congestion-related" impacts include multiple interactions that occur with congestion. First, congestion lowers the average speed, which increases travel time and exposure on a per vehicle basis. Second, congestion diminishes dispersion of vehicle-related pollutants since vehicle-induced turbulence depends on vehicle speed (Benson, 1989). Thus, lower vehicle speeds can increase pollutant concentrations from roadway sources. Third, congestion can change driving patterns, resulting in an increased number of speedups, slowdowns, stops and starts, which increase emissions compared to "cruise" conditions, especially with high power acceleration. Sjodin et al. (1998) showed up to 4-, 3- and 2-fold increases in CO, HC and NOx emissions, respectively, with congestion (average speed of 13 miles per hour, mph; 1 mph=1.61 km per hour) compared to uncongested conditions (average speed, 38–44 mph).
Since, none of the minutes of meetings of SEIAA noted the corresponding SEAC minutes date, SEAC meetings of 2016 were checked separately and it was found that, no information has been furnished on the potential cumulative impacts that may arise from the projects of concern, which is a mandatory pre-requisite of conducting EIA study[6].

[4] Para 6 of Rule 4 (Duties of Waste Generators) of Solid Waste Management Rules 2016
[5] Air Environment of Form 1 A
[6] Para 9 of Form 1 of Appendix I of EIA Notification

2. Synthetic Organic Chemical Project

Synthetic organic chemicals industries are appraised as Category 5 (f) under EIA Notification, 2006. A total of 7 projects, out of 203 projects were Synthetic Organic Chemicals Project. Out of this, 4 were approved, 2 deferred and 1 sent for reconsideration. A close look at the minutes of meeting of both SEAC and SEIAA found that during the appraisal procedure the proponent was asked to ensure vehicular pollution and fugitive dust emission under control, so as to remain within the National Ambient Air Quality

Standards. The proponent was also asked to monitor PM2.5, PM10, SO_2, NOx, CO, Pb, Ozone (ambient air as well as stack emissions) and displayed at a convenient location near the main gate of the company in the public domain.

Analysis

It was found that, none of the project had carried out any cumulative impact assessment study to consider the impacts from the likely sources including vehicular and process emissions. It is important to note that, synthetic organic chemical manufacturing process is a major contributor to VOC emissions into the atmosphere. The monitoring conditions which were set to monitor ambient air quality failed to talk about the need for regular monitoring of VOC emission. VOCs refer to a group of chemicals. Each chemical has its own toxicity and potential for causing different health effects. Common symptoms of exposure to HIGH levels of VOCs include eye, nose and skin irritation, its various toxic and neurological effects; carcinogenicity, teratogenicity and mutagenicity[7]. It has the potential to cause photochemical ozone at ground level and damage to stratospheric ozone as well[8]. VOCs do have direct and indirect adverse effects on plants which include epinasty, chlorosis, curling, leaf abscission and growth retardation[9], with general implications for the well being of natural ecosystems. VOCs which are persistent in nature have the potential to remain in the ecosystem for long and can pass through numerous possible environmental mediums, for example through contamination of the natural water cycle.Further, according to the United State Environment Protection Agency (US EPA)[10] the equipment leaks in chemical processing unit is also a major contributor of emission of pollutant in the air. No discussion took place about this, neither the units were asked to install Leak Detection And Repair (LDAR) system.

3. Mining of Minor Minerals:

A total of 11 projects under the "Mining of Minor Mineral" sector have been considered and discussed in the minutes of the meeting of SEIAA for the year 2016

[7] http://www.health.state.mn.us/divs/eh/indoorair/voc/
[8] http://www.ultralast.com.au/the-harm-of-VOCs-in-our-environment.pdf
[9] http://www.eng.utoledo.edu/~akumar/Health%20Effects.htm
[10] Chapter 4 of the document

(January, 2016 to December, 2016). The minor minerals that were appraised during this period include stone/granite stone / china clay/fire clay and black stone. Out of the total of 11 projects- 3 projects were for mining of stone, 3 projects were for granite mining, 3 projects were for china clay mining and one each were for mining of fire clay and black stone. Out of the total of the said 11 projects, 8 projects were granted Environmental Clearance, where as 1 was deferred, 1 delisted and 1 sent for reconsideration.

Minor minerals are appraised as Category B-2 Project under the EIA Notification, 2006. The discussion on air pollution was limited to the water sprinkling in loading, unloading and transfer points, and covering of vehicle top carrying mined out materials. The proponent was asked to monitor RSPM and NOx periodically.

Analysis

The entire mining process involves various activities in phased manner, which includes drilling, blasting, loading and unloading, haul road, transportation of raw materials and products, crushing of ore, waste/top soil handling and last but not the least DG set operations and therefore are responsible for fugitive dust emission into the atmosphere. Merely setting up of conditions of water sprinkling and that to only along the haul roads does not help in controlling air pollution. Also, the minutes lack any detailing about the proposed mining project that had come for appraisal.

Cumulative Impact Assessment study must be needed to carry out to estimate the potential impacts of all the activities listed and their contribution to fugitive air pollution, which was missing from SEAC meetings. This is a gross violation of EIA Notification 2006, which mandates submission of detailed information on cumulative impacts from a proposed as well as existing project[11]. Mining involves fugitive dust emission and resultant air pollution. High dust is observed near crusher sites. A study titled "Impact of Crushing and Quarrying on Vegetation" revealed dust and other Respirable Particulate Matter (RPM) cover the leaf surface and clog the stomata. This completely covers not only the photosynthetic surface but also interferes with the exchange of gases and reduces the transpiration rate. Plants sensitive to a particular pollutant show visible symptoms like chlorosis, necrosis and growth retardation (Jacobson and Hill, 1970; Pandey and Shrivastava, 1980). The study also confirms lowering of crop yield in the agricultural lands present adjacent to crushing sites owing to the deposition of dust. Given this, water sprinkling only in approach road and loading – unloading point may not be sufficient. Areas close to agricultural field and human settlement must not be given permission for carrying out any such mining activities. The movement of goods and materials to and from mines intensifies it further. The quality of fuel to be used in the vehicles, hence also needs to be specified while granting clearance. Ideally, BS IV grade fuel must be made mandatory for all vehicles plying to and from the mining area to cut down on emissions.

4. Sponge Iron Plants

[11] Para 9 of Form 1 of Appendix I of EIA Notification

In this category, 10 projects were appraised including proposal for expansion of existing plants by way of installation of induction furnace. 5 out of the total 10 projects had been granted environment clearance. 3 projects were appraised for amendment in EC conditions out of which 2 proposals had been referred back to SEAC for further clarification. In case of one proposal SEIAA in its 49th meeting dated 30.06.2016 observed that proposed change in configuration of induction furnace would lead to significant increase in production capacity and hence asked the proponent to apply for fresh EC. One project was delisted on request of the proponent.

Sponge iron plant or Direct Reduced Iron (DRI) is a polluting industry for air, water, solid waste. Air pollution is one of the biggest hazards of these plants. Air pollutants include dust and gaseous pollutants (SO_2 and NO_X). The nature of air pollution is however linked to the various activities per se, combustion of coal in the preheating zone, kiln; Oxidation of iron ore in the process zone, kiln; Flue gas from the kiln through the upper end; dust of char, unburnt lime, sulphur, alumina and others through the discharge end; flue gas through the cap of the After Burn Chamber (ABC); Particulate matter from ESP and fugitive dust emission from raw material handling and feeding area and work area of plant[12].

However, in the absence of documented minutes, it is difficult to make any statement whether the stipulated measures recommended as part of the EC granting procedure are well enough to mitigate the pollution. Neither it is clear, whether the proponent has conducted any cumulative impact assessment study to document the impact on air pollution from all the likely sources of pollutant emission discussed above.

5. LPG Bottling Plant

During 2026, 2 projects for LPG Bottling Plants and one project of new storage tank set up were considered and discussed in the meeting of SEIAA. With respect to the air pollution perspective, the proponent was asked to monitor and submit details on quantity of hydro carbon emitted from the industry while granting EC. In case TOR approval, the proponent was asked to conduct AAQ data (except monsoons) at 8 locations for PM10, PM2.5, SO_2, NO_X, CO and other parameters relevant to the project.

Analysis

While appraising these two projects, the proponent did not consider the probable impacts that might generate from the increased vehicular movement due to expansion project. In time of appraising the proposal, the SEAC failed to impose any

[12] http://www.cseindia.org/userfiles/sponge_iron_layout.pdf

conditions to control the released hydrocarbon, as and when it will emit into the atmosphere. Mere monitoring of the parameter, without suggesting any control measures completely nullify the purpose of monitoring. It is worth to mention here that Polycyclic Aromatic Hydrocarbons (PAHs) and their related molecules, nitropolycyclic aromatic hydrocarbons (NPAHs) are known to be highly carcinogenic and mutagenic, meaning they can trigger genetic mutations in living organisms. Furthermore, the research published in 2003, revealed role of diesel fuel PAHs in disrupting the testosterone and estrogen effects in men and women, respectively, a condition which can lead to prostate cancer and genetic reproductive disorders.LPG bottling plant is very sensitive to any kind of leakage of propane gas and therefore, EC condition must make it mandatory for the proponent to have adequate Leak Detection and Repair Technique (LDAR). The conditions or the project description in the minutes lack any such information.

6. Distillery

Only one project for enhancement of production of 2 grain based distillery from capacity from 50 KLPD to 59 KLPD in South 24 Pargana district was appraised. No further discussions were found from the minutes of the meeting.

Analysis

Distillery industry is one of the industries in the list of 17 most polluting industries, mainly responsible for causing water pollution. Distilleries are also a major source of carbon dioxide during the process of ethanol production[13]. The monitoring of CO_2 therefore needs to be undertaken by the project proponent; however in the absence of detailed minutes of appraisal procedure, it is hard to comment on whether the appraisal proceeding had been talked about this component. Further, according to the Office Circular by CPCB, vide no. B-410/DIST ONLINE/PCI-III/2K15-16 dated 23rd December, 2016, the CPCB has stipulated that all distilleries are required to install continuous online stack monitoring systems for boiler stack and incinerator boiler (if any).

7. Cement Plants

Cement plants are appraised under activity 3 (b) of the EIA Notification, 2006. The threshold limit for SEIAA to appraise any cement plant project as category 'B' project is below 1.0 million tonnes/annum production capacity and includes all stand alone grinding units.

A total of 15 proposals for cement plant projects appraised , out of which 4 proposals have been granted EC and 2 EC amendment applications have been granted amendment. 7 proposals have been deferred back to SEAC, one proposal have been held by SEIAA for reconsideration after submission of additional documents by the proponent and one project have been withdrawn by the proponent.

The discussion from air pollution perspective was limited to plantation of trees, installation of stack height, fly ash handling system, use of solar power and adequate power back up to ensure uninterrupted power supply.

[13] Project Proponent will take proper mitigation measures to control the green house effects, radiation effects, ozone depletion effects and acid rain effects during the building construction phase and operation phase of the project.

Analysis

Cement grinding unit is a major source of fugitive dust emission during transportation of raw materials and finished products; however the appraisal procedure did not ask for any cumulative impact assessment study considering the various sources of air pollution of existing as well as new plants.

Secondly, the stack emission specification remains same for fresh as well as expansion project and irrespective of the locations where in the unit is going to come up. Further, the pollutant specification from the stack emission is missing in the EC conditions, which is again a vague statement when looked from the environmental clearance granting procedure. Stand alone clinker grinding unit of cement plant is responsible for SO_2 and NO_X emission and therefore it is important to put restriction on the emission of these two pollutants. The generalised statement for setting up of stack emission standard fails to clarify as to which pollutant, the specification is all about.

Selection of plant species also play a major role in air pollution mitigation and therefore it has to be done keeping in mind the air pollutant tolerant capacity and also considering the bio-climatic condition of the area. In the event of non specification of plant species, there will be likely chances of inappropriate selection and dominance of ornamentals species, which again will be an invasive species and can cause loss in soil nutrients.

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