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Environmental Impact Assessment Report Preparation for a Coastal Project in Kanyakumari

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ABSTRACT: The development of the tourist places depends on the infrastructures in that spot. Kanyakumari is one of the famous tourist place in India. This projects will enrich the beauty of this place. In this regard, Impact assessment report should be framed for the proposed projects. This report should satisfy the coastal regulation department, unless it cannot be permitted. Since Kanyakumari falls under the II category in Coastal regulation zone, Impact assessment report is more essential to assess.

This project encloses the entire details regarding the spot, the projects to be carried out, the assessment part due to each and every project, planning and scheduling of works etc. The preliminary investigations are conducted and the datas are prepared. From that, the requirements and unavailable facilities are concluded. The structures involved in this project are retaining wall and pavement. The activities involved are site survey, 2D and 3D view, retaining wall design, environmental present condition assessment, elaborating the activities involved in construction, preparation of environmental management report for the involved activities. The environmental impact due to every project was analysed and discussed. The required tests to assess the projects are conducted and finalized. In this project, the standard values and test results are compared. As a result, no impacts are obtained.

I. INTRODUCTION

Kanyakumari - special grade town panchayat is proposed to develop a beautification of beach at Kanyakumari, Kanyakumari District. This proposed beautification of beach also consists of Landscaping, Approach road, Drinking water tank and park with way side amenities etc. The proposed project will be constructed within 8 months from the date of approval and the indicative project cost is about Rs.9.37 Crores. In order to augment this scenario, has to assess the likely impacts arising out of proposed project activities and to prepare an Environmental Impact Assessment & Management Plan (EMP) report for this proposed program.

Kanyakumari the land end southern peninsula, is scared for the Hindus all around the world. It is ideally located in the confluence of three waters (triveni Sangam) viz the Bay of Bengal, Arabian sea and Indian ocean. To enhance the beauty of Kanyakumari, The project site is well connected with the National Highway no. 7 and 47. The study area covers 02 km radius aerially from the project site.

The landscaping work was already done for a small length along the beach side. Now it was proposed to extend the work towards the sun set point of same 25m width and extended length upto 250m. This will give the tourist persons a clear space to gather to view the sea & to sea the sun set also.

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II. LITERATURE REVIEW

2.1 Environmental Impact of construction site activities in Ghana, Ayarkwa,J, Acheampong,A, Hackman.J.Kand Agyekum,K. (2014)

This paper reports on a study to assess the negative impacts of construction site activities on the environment using structured questionnaire survey approach. fifty-five major construction sites involving a total of 330 contractors, site workers, consultants, and nearby residents were studied using the convenience purposive sampling method. The study has shown that primary environmental impacts of construction site activities in Ghana. blasting, site clearance, earthmoving, and demolishing are the construction site activities that were found to have the most severe environmental effects in Ghana. People living near construction sites, site workers, and people in schools and hospitals are most likely to be adversely affected by construction site activities, and this explains why residents are more worried and concerned about the effects of construction activities in their neighbourhoods. They suffer from sleeplessness and stress effect due to noise nuisance, and respiratory disorders, asthma, and allergies due to dust nuisance from construction sites. Monitoring regulations to ensure that contractor measure and impact levels during construction are recommended.

III. DATA COLLECTION

3.1 INTRODUCTION

Environmental status forms the basis for evaluation of the proposed development on the existing site conditions. This can be broadly grouped into physical, social, aesthetic and economic environment. Samples required for the tests are collected during the period. The details are outlined in the following table.

Table 3.1: Survey of environmental attributes

Sl. No	Attribute	Parameters
1	Ambient air quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x
2	Water quality	Physical, chemical, bacteriological
3	Noise levels	dB(A)
4	Soil	Agricultural, afforestation

3.2 SCOPE OF BASELINE STUDIES

For the present EIA study, the attributes of environment considered are:

- Air environment (Meteorology, ambient air quality, noise levels, traffic pattern and traffic density)
- Water environment
- Land environment (Geology, Geo hydrology, land use, solid waste disposal, etc.,)
- Biological environment (Flora, fauna, vegetation, ecosystem); and
- Socio economic environment (Demography, occupational structure, educational, medical facilities, literacy, etc.,)

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Table 3.2 Baseline data generation

Station Code	Name of the station	Landscaping
1	Project site	---
2	View tower	0.3 km
3	Sunset point	1.2 km

IV. TEST RESULTS

4.1 AMBIENT AIR QUALITY

Air pollution can cause significant effects on human beings, animals, vegetation and materials. Air environment monitoring covers the parameter for which national ambient air quality standards have been defined by the Ministry of Environment and Forests. Accordingly, parameters monitored were Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM), Oxides of Nitrogen (NO_x) and Sulphur dioxide (SO₂).

4.1 Results of ambient air quality

Parameters µg/m ³	Mean value of the sampling sites			Standard
	L 1	L 2	L 3	
SPM	18 8	16 9	17 4	200
RPM	97	79	83	100
SOX	10 .5	12	11	80
NOX	16 .7	18	20	80

4.2 TESTING OF NOISE

4.2.1 Equivalent sound pressure level (Leq)

The Leq is the equivalent continuous sound level, which is equivalent to the same sound energy as the actual fluctuating sound measured in the same period. This is necessary because sound from noise source often fluctuates widely during a given period of time.

This is calculated from the following equation:

$$L_{eq}(hrly) = L_{50} + (L_{10} - L_{90})^2 / 60$$

L_{day}: is defined as the equivalent noise level measured over a period of time during day (6am to 10pm).

L_{night}: is defined as the equivalent noise level measured over a period of time during night (10 pm to 6 am).

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4.2 Ambient noise standards

Category of area	Noise levels dB (A)	
	Day time	Night time
Industrial area	75	70
Commercial area	65	55
Residential area	55	45
Silence Zone	50	40

4.3 Result of noise pollution

Station code	Noise levels dB (A)	
	Day time	Night time
1	63	52
2	51	42
3	41	33

4.2.2 Instrument used for monitoring

Sound Pressure Level (SPL) measurements were automatically recorded with the help of an Integrated Sound Level Meter to give the equivalent noise level for every hour continuously for 24 hours in a day.

Industrialization has a direct bearing on the noise level of the environment pertaining to such activities. Noise beyond limits interferes with communication in the work spot form annoyance and health hazard. Impact of noise on the environment depends on various factors such as intensity, distance from source, time of exposure and nature, the type of activities etc. The most common and universally accepted scale is the A weighted Scale which is measured as dB (A). This is more suitable for audible range of 20 to 20,000 Hz. The scale has been designed to weigh various components of noise according to the response of a human ear. The impact of noise sources on surrounding community depends on characteristics of noise sources (instantaneous, intermittent or continuous in nature). It can be observed that steady noise is not as annoying as one, which is continuously varying in loudness

The time of day at which noise occurs, for example high noise levels at night in residential areas are not acceptable because it acts as a disturbance to sleep; and the location of the noise source, with respect to noise sensitive land use which determines the loudness and period of exposure. The Environmental Impact of noise can have several effects varying from Noise Induced Hearing Loss (NIHL) to annoyance depending on loudness of noise. The impact of noise from the proposed project can be undertaken by considering various factors like potential damage to hearing, physiological responses, annoyance and general community responses. The noise survey has been conducted at the same locations where data on air quality was collected. Noise monitoring has been undertaken for 24 hrs.

The main objective of noise monitoring in the study area is to establish the baseline noise levels and assess the impact of the total noise generated by the operation of the proposed project activities around it.

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4.3 WATER QUALITY

Water is a vital commodity for the survival of vegetation, animals and human beings and for the proper balance of the eco-system itself. As such, any adverse impact on water quality due to the industrial activity will have serious consequences on the environment.

Hence it is imperative to study the water quality of the regime likely to be influenced by the industrial and allied activities. Effects can be represented by quantity and quality changes, these changes can in turn, have aquatic faunal or floral species and aquatic species systems implication.

Predominantly all the locations were found complying to the standards thus indicating a conformance of rural and residential quality terrain

4.4 Analysis results for bore well water

Parameters	Units	S 1	S 2	S 3	stand ards
PH	-	7.35	7.67	7.67	7.76
TD S	mg/l	850	840	840	663
TSS	mg/l	12	Nil	Nil	Nil
Total hardness	mg/l	340	280	280	210
Alkalinity	mg/l	330	260	290	290

V. CONCLUSION

In this project, the standard impact values of Kanyakumari is taken from the various departments and the operational values are tested. The tests that gives the current status of the environmental effect are air, noise, water, land etc., This is compared with the permissible values obtained from various departments. From the comparison, the assessed value in the constructional phase and operational phase is lower than the limited value, then the conclusion is given as no impact is obtained.

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REFERENCES

1. Acheampong.A, Ayarkwa.J and Agyekum.K (2014), 'Environmental Impact of Construction Site Activites in Ghana', - Africa Development and Resources Research Institute Journal.
2. Adnan Enshassi and Bernd Kochendoerfer (2014), 'An evaluation of environmental impacts of construction projects', - Technical University of Berlin, Germany. Vol. 29.
3. Amit Bijon Dutta and Ipshita SEngupta (2014), 'Environmental Impact Assessment (EIA) and Construction, - International Research Journal of Environment Sciences, Vol. 3, pp.58-61.

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4. Ashraf.M, Chaudhry.M.A and Siddiqi.Z.A (2013), 'Effects of construction activities on the environment', - University of Engineering and Technology Lahore.
5. Akash Kumar, Vivek Kumar Tiwari (2016), 'A review on Environmental Impact Assessment of construction projects', - IOSR Journal of environmental Science, Toxicology and Food Technology Vol. 10, pp.21-25.
6. Aziruddin Ressang, Masoud Gheisari and Samanch Zolfagharian (2016), ' Environmental Impacts Assessment on Construction Sites', - Impact International Journal of Science and Technology, Vol.6.
7. Humood Naser.A (2010), 'The role of environmental impact aeesessment in protecting coastal and marine environments in rapidly developing islands: The case of Bahrain, Arabian Gulf', - Ocean and coastal management.
8. John.A.Burt and Mohamed.A.R (2017), ' Improving management of future coastal development in Qatar through ecosystem based management approaches', - Ocean and coastal management.
9. Jose.M Cardoso Teixeira (2003), ' Construction site environmental impact in civil engineering education', - European Journal of Engineering Education, Vol. 30.
10. Simon Ofori and Samuel Kwame Ansah (2014), ' Impacts of construction activities on the environment: The case of Ghana', - Journal of construction project management and Innovation, Vol.5